



Oil exploitation and food insecurity in Nigeria's Niger Delta*

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ABSTRACT

The destructive impacts of oil exploitation on the natural environment, which the inhabitants of the Niger Delta depend on for their livelihood, pose major threats to food security. Environmental damage alienates the local people from their ancestral lands and erodes their sources of livelihood. This study examines the effect of oil exploitation on the local people's access to sufficient, safe and culturally acceptable food. The study is based on data collected through interviews with key informants and Focus Group Discussions in the oil communities in Bayelsa, Delta and Rivers States. Environmental and livelihood sustainability are intricately interconnected. They have significant implications for food security of people in the oil-rich region. Nutritional adequacy is a necessary but not a sufficient condition for food security because cultural acceptability is also required. This study addresses the interplay between these factors and their implications for household food security in the Niger Delta.

Keywords—Oil extraction, environment, livelihood, food security, sustainability, marginal and extractive communities, Nigeria's Niger Delta.

INTRODUCTION

The Niger Delta is home to massive oil and gas deposits, which have been extracted for decades by multinational oil companies. It is also richly endowed with agricultural land, fresh water, forests and fauna. The region has the world's third largest wetlands and the largest mangrove swamps in Africa, where cash crops such as rubber, cocoa, oil palm and coconut, and food crops such as cassava, yam and plantain are produced (UNDP 2006).

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However, the Niger Delta has one of the most delicate and sensitive ecological zones in the world and any adverse impact can quickly change the entire ecosystem (UNDP 2006: 74).

This article examines the effect of oil exploitation on household food security in the Niger Delta. The nature and scope of the oil-induced negative externalities have been well documented in the extant literature. An emerging literature on Niger Delta security dynamics is increasingly shifting attention to the human security challenges affecting the region (Osaghae *et al.* 2011; Obi 2014; Elum *et al.* 2016). Some studies have offered diverse perspectives on the political economy of oil engendered by the interaction between global oil companies and the Nigerian state (Obi 2004, 2019; Watts 2007, 2017). While these studies concluded that oil exploitation by multinational oil companies has adversely affected the human security of the people in the Niger Delta, essential gaps still exist in the literature.

The literature on the human security challenges in the Niger Delta shares a focus on oil politics, economics of conflict and non-violent and violent agitations for environmental justice. Existing studies have considered how the oil resources in the region have been a curse and not a blessing as the Niger Delta people experience a micro-level paradox of penury and deprivation amidst oil wealth (Iwayemi 2006). International environmental experts have identified the Niger Delta as one of the world's most severely petroleum-impacted ecosystems (Environmental Rights Action and The Climate Justice Programme 2005; UNEP 2011; Obida *et al.* 2021). Turner (2001) characterised the massive oil spills and gas-flaring as the 'environmentally racist practice of oil exploitation'.

More recent studies have highlighted the adverse effect of oil-related pollution on people's livelihoods in the region. Osumah (2013) demonstrated that environmental damage has ultimately alienated the local people from their ancestral lands, which used to provide for their means of livelihood from one generation to another. It has led to the inefficient use of remaining resources and poor land-use practices (World Bank 1995, 2006). Ibaba (2010) noted that the destructive impacts of oil pollution on farmlands is so devastating that the production yield levels of major food crops in the region have been declining. Obi (2004) illustrated how the oil resources derived from the Niger Delta region contribute to satisfying the global thirst for oil, yet the inhabitants' traditional livelihood has been severely affected without their being adequately compensated for the use of their ancestral land.

Moreover, existing studies that analysed the food security challenges in the region mostly focus on how the environmental problems intersect with livelihood and food insecurity, which may not capture the perception of the people about their food culture, based on the cultural values attached to food that they produce and consume. Tantua *et al.* (2018) drew attention to the adverse impact of oil exploitation on the traditional livelihood of the people and the lack of viable alternatives, thereby undermining food security in the region. Okafor-Yarwood (2018) observed that many coastal communities in

the Niger Delta have been experiencing an increasing scarcity of fish. Pegg & Zabbey (2013) have also pointed to potentially serious food safety problems in the Niger Delta that are related to oil pollution. Related literature documents the profound impacts of incessant oil spills and gas flaring in the Bodo community on the traditional fishing practices, livelihoods, cultural festivals and indigenous belief systems (Fentiman & Zabbey 2015).

Other studies have demonstrated that the challenges of food security in the Niger Delta are worse in the rural areas, exacerbated by inadequate government and corporate responses to environmental degradation, defective corporate social responsibility (CSR) initiatives of oil companies, and poor incentives to farmers and fishermen (Ordinioha and Brisibe 2013; Ukpe *et al.* 2016; Francis and Pegg 2020). Obi *et al.* (2019) suggest that there is a higher incidence of food insecurity among rural farming communities in Nigeria. Given that 70% of the people in the Niger Delta live in rural areas (Idemudia 2014), local people in the oil communities are more vulnerable to food insecurity.

The critical question that research has to deal with is understanding the connection between the environment, livelihood, food security and the cultural values associated with food production. To what extent are people's food culture, cultural values and food production factored into the analysis of household food security in the Niger Delta? To address this question will entail an analysis of food security in terms of how oil-induced environmental degradation intersects with livelihood, food production patterns, food culture and consumption patterns in the oil communities in the Niger Delta. This article builds on existing studies to analyse how environmental changes, livelihood and food security are interwoven, taking into consideration the subjective assessments of the people about the cultural values attached to food. How this issue is viewed by local people in the Niger Delta may be applicable to other oil-rich African countries facing similar challenges. The extent to which the local people in the Niger Delta region are able to acquire sufficient and culturally acceptable food is constrained by interlocking environmental, social, economic and political factors that necessitate a critical and rigorous analysis.

This article illustrates the political-economic and cultural implications of transnational oil capitalism in the region. It shows the specific implications of oil pollution linked to the oil-related activities of transnational corporations for local food supply and the indigenous culture in Africa. It illuminates not only the underdevelopment that exemplifies petro-capitalism in the Niger Delta, but it also foregrounds the environmental violence, human rights violation, livelihood and food insecurity and cultural erosion in the communities that produce the mainstay of the Nigerian economy.

Nixon (2011) uses the term 'slow violence' to describe the longer-lasting temporal and spatial violence linked to the detrimental environmental impacts of development. These undermine the functioning of modern life, in which poor communities and individuals have to contend with the ongoing legacies of this violence. This illustrates that the invisible, destructive impacts of

neoliberalism extends across vast spatial and temporal scales. Profits are internalised and appropriated by the government and corporations, while risks are exacerbated and unburdened on poor communities. The works of Ferguson (2005) and Iheka (2018) illuminate the connection between extractive practices and environmental violence, by depicting how the territorial enclaves of mineral extraction, protected by private armies and security forces in countries such as the Democratic Republic of the Congo, Republic of Sudan, Nigeria and elsewhere, instigate environmental violence and social calamities.

More specifically, the detrimental consequences of oil exploration and production impoverished the poor communities in the Niger Delta, resulting in what Nixon (2011) describes as ‘the environmentalism of the poor’. In the Niger Delta, petro-capitalism also symbolises what Iheka (2021) calls ‘oil’s materiality or the pervasiveness of oil culture’ that results in violence of oil degradation, disrupts the natural and cultural environment that sustains the inhabitants’ livelihoods and food security. The violence of oil capitalism erodes the right to food as one of the basic human needs and the food culture that is central to their cultural identity, wellbeing and existence. In fact, the Niger Delta has become synonymous with human rights violations, insecurity and cultural erosion, or to use Iheka’s (2021) description, ‘oil and underdevelopment, and repressive violence’, are the rewards of Nigeria’s petromodernity.

This article proceeds with a theoretical elaboration on the interaction between environmental sustainability, sensitivity, resilience and sustainability of livelihood systems and food security. Then a section on data and methods follows. This is followed by an account of how oil-related activities of global, national and local actors pollute the environment in oil communities. An analysis of how the adverse effect of oil pollution affects fishery resources and fish imports is provided. The next section elaborates on how oil pollution affects local access to food and food cultures. In the analysis that follows, the extent of government supports to mitigate the food security challenges is examined. Finally, there is a concluding section.

THE CONCEPT OF FOOD SECURITY

The theory of food security has shifted from the Malthusian analytical framework, that linked food availability decline to theories of poverty with emphasis on entitlement failures, and later to livelihood frameworks which adopted entitlement as the core explanatory force (Yaro 2004). The proponent of the entitlement failure theory, Sen (1981) explains that the approach intersects with starvation and famines in relation to people’s ability to obtain food through legal means in the society. The lack of ability or failure to utilise trade opportunities, production capacities and opportunities to obtain food via state entitlements can result in famine (Sen 1981: 45).

Food security has been conceptualised as physical, social, economic and secure access at all times to sufficiently nutritious, safe food that meets the dietary needs and food preferences of all family members (FAO 2009). The

food security concept has expanded to include other important dimensions, such as food self-sufficiency and food sovereignty which prioritise local food production, distribution and consumption (Wegenast & Beck 2020).

The concept of food security has expanded beyond the conventional thesis of food supply adequacy at the world and regional levels to individual and household levels to encompass issues of accessibility (Sen 1981), sustainability (Scoones 1998) and vulnerability (Watts & Bohle 1993; Yaro 2004). Some analysts have also advocated for a rights-based approach to food security which is premised on the notion that the availability of sufficient resources in the world to satisfy basic human needs may not necessarily translate to accessibility, due to inequalities in access and weak policies that can lead to the denial of the rights of each individual to food security (Johnson and Forsyth 2002; Yaro 2004). The African Commission on Human and Peoples' Rights (2002) in its ruling in the case of the Ogoni people maintained that the Nigerian government has destroyed Ogoni food sources through the reckless oil development that polluted much of the soil and water used for farming and fishing, thereby causing malnutrition and starvation among certain Ogoni communities. The Nigerian government violates the Niger Delta people's right to food as part of the basic needs implicit in the African Charter, and inseparably linked to the dignity of human beings, and essential for the enjoyment and fulfilment of other rights such as health, education, work and political participation.

Studies have identified three major dimensions of food access as anxiety about not being able to procure sufficient food, the inability to secure adequate quality food and inadequate quantity of food intake (Abadi *et al.* 2018; Samuel *et al.* 2020). Individual access to food is determined by a range of socioeconomic factors on the demand side of the food security equation, including household income and economic assets, food prices, plus demographics in terms of the number, gender and age composition of household, and socio-cultural factors such as health and sanitation, education level, cultural norms and food consumption habits (Okyere *et al.* 1997; Yaro 2004). Sen (1995: 56) noted that an individual can experience starvation at the point where entitlement does not include a commodity bundle with enough food, or when some change such as alienation of land, loss of labour power or ill health affect the endowment. Also, changes in the exchange entitlement such as a fall in wages, rise in food prices, loss of employment, a drop in price of foods produced by an individual can lead to starvation (Sen 1995: 56).

While entitlement theory has been criticised for the multiplicity of associations attached to the term entitlement and the lack of priority given to food availability as a cause for famines and starvation (Osmani 1993), advocates of the theory argue that it is not conceived as an alternative framework to food availability theory. Rather, it embodies a framework that calls for a plurality of causality, and advances the need for people to preserve their assets against future vulnerability (Yaro 2004). As Sen (1995) postulated, a household's food entitlement should entail food from its own production, exchange and

claims which are derived from several combinations of livelihood systems and processes.

The livelihood framework extends beyond satisfying food needs to general sustainable livelihoods, emphasising the desire of rural people to maintain secure livelihoods through the preservation of the environment (Yaro 2004). The sustainable livelihood framework focuses on the capacity of the livelihood strategies to cope with and recover from stresses and shocks, and improve its capability and assets in ways that would not undermine the natural resources base (Chambers & Conway 1992; Yaro 2004). It entails sustained efforts at poverty reduction, along with environmental, social and institutional sustainability (Yaro 2004).

Livelihood sustainability is intertwined with vulnerability, which has to do with the insecurity of individuals or communities in the face of changing ecological, economic and political environments. These manifest in the forms of shocks, long-term trends or seasonal cycles such as demographic trends or changes in the natural resource base; recurring seasonal changes in prices, production or employment opportunities; and short-term shocks, such as illness or disease, natural disaster or conflict (Farrington *et al.* 2002). Vulnerability to food insecurity is linked to several forces such as lack of entitlement, powerlessness and exploitative practices (Yaro 2004).

The sensitivity, the resilience and sustainability of livelihood systems are crucial to food security (De Waal 1989). The analysis of the interaction between sensitivity and resilience of households is helpful in assessing the extent of their vulnerability to food insecurity. Blaikie & Brookfield (1987: 10–11) conceptualised sensitivity as the extent of changes that occurs to a given land system due to natural forces, while resilience is a property that allows a system to absorb and utilise change. The authors noted that the degree of sensitivity of households will determine the level of their food insecurity in the face of shocks and trends. Household capacity to limit their sensitivity is determined by their level of resistance to negative externalities made possible by the buffering effect of the various forms of assets or capital they possess (Maxwell 2001).

The various theories of food insecurity give us a general idea of how people become hungry through loss of entitlement resulting from a range of events threatening livelihood systems. The interpretation of these theories has to align with the contextual and structural vulnerability characteristics of specific environments, including the assessment of the various voluntarist actions in the form of diversification, adaptation and coping strategies to confront threats to livelihoods posed by structural forces (Yaro 2004).

In the Niger Delta context, oil-induced loss of livelihoods creates anxiety and uncertainty and increases the vulnerability of the people to food insecurity. The environmental damage that has resulted in people not being able to produce enough to eat contributes to food insecurity. The erosion of traditional livelihoods due to environmental damage can lead to a decline in the household income of farmers and fisher-folks, which is a key determinant of their ability

to acquire food. It is plausible that food may become available even with declining food production in the region since successive governments have been augmenting food supplies in the country through importation, but at increased food prices. However, addressing people's food production deficit through commercial food imports may be insufficient to address food and hunger problems. Rising food prices are problematic for many, especially poor local people, who will have to spend a disproportionate amount of their income on foodstuffs. This depicts an important dimension of the vulnerability of the local people to food insecurity.

Wegenast & Beck's (2020) study suggests that the impact of mineral extraction on food security is gender- and ownership-specific, such that women's access to food decreases in a substantial way, while there is no significant impact on men's access to food. Their finding points to gender disparity in food insecurity. In Africa, women play a significant role in agriculture, contributing 70% of food production (Moseley 2020). Yet, women face exclusion in term of access to productive resources, markets and financial services compared with men (FAO 2016). In the Niger Delta, where oil pollution has adversely affected farming activities, women's limited land rights affect their access to compensation for the adverse impact of oil-related activities on their farming.

Some analysts have identified a connection between violent conflict and food security. The recent report of the Food and Agricultural Organization (2020) showed that rising violence and intercommunal conflict in Burkina Faso, Mali, Nigeria and Niger has led to higher levels of food insecurity and malnutrition. Similarly, the statement of the Nobel Peace Prize for 2020 indicated that Nigeria, Yemen, the Democratic Republic of Congo, South Sudan and Burkina Faso are experiencing a dramatic rise in the number of people living on the brink of hunger and starvation due to violent conflict and the pandemic. It emphasised that the link between hunger and armed conflict is a vicious cycle in which war and conflict can cause food insecurity and hunger, in much the same way that hunger and food insecurity can spawn latent conflicts and trigger violence. Grievances over the destructive impacts of oil exploitation on traditional livelihoods have fuelled a vicious cycle of conflict and insecurity in the Niger Delta (Babatunde 2019; Obi 2019). The struggles for alternative livelihoods have spawned a search for survival through illicit activities of oil theft and artisanal oil refining which is considered lucrative for impoverished youth (Tantua *et al.* 2018; Naanen 2019). According to the African Youth Charter, 'youth' refers to people in the age bracket of 15–35 years, who constitute roughly 70% of the Nigeria's population. At the same time, in Nigeria, people in their 40s are also categorised as youth. The illicit activities of oil theft and artisanal oil refinery by the youth in the Niger Delta worsens the environmental degradation and people's vulnerability to food insecurity. It can turn into a vicious cycle.

Studies have shown the cultural importance of food as a vehicle for self-realisation, communication and the maintenance of social relations (Oshaug 1985: 5). Francis & Pegg (2020) maintain that efforts to direct changes in

food patterns for optimal nutritional conditions should always take indigenous food culture and food production as a starting point. The aim should be to involve people and their traditions rather than debase them through forcing them to eat food that is culturally unacceptable.

An evolving concept relating to cultural acceptability is food sovereignty, which refers to the right of peoples to healthy and culturally appropriate food produced through ecologically sound and sustainable methods, and their right to define their own food and agriculture systems (Rocha & Liberato 2013: 589). Kent (2002) noted that self-sufficiency in food production will aid food sovereignty and reduce vulnerability to food insecurity. The implication of these arguments is that nutritional adequacy is a necessary but not sufficient condition for food security because cultural acceptability is also required (Oshaug 1985: 5). It is important to take into consideration local perceptions of how cultural values intersect with food security in order to remove the fear that there will not be enough to eat (Gillespie & Mason 1991: 31). Fentiman & Zabbey (2015) studied the Bodo community in Ogoniland and observed that environmental degradation has led to the erosion of the cultural practices that have been utilised in farming and fishing activities as part of the indigenous belief system of the people.

Food security also entails food quality and adequate dietary intake which may be difficult to achieve in a degraded environment such as the Niger Delta, where the local people are exposed to polluted water and soil, and the consumption of contaminated crops. The lack of access to modern agricultural methods further poses a challenge to food production in the region. The Food, Agriculture and National Resources Policy Analysis Network (FANRPAN 2017) report on food security among farming communities in Benin and Mozambique identified lack of infrastructure, poor harvesting methods, inadequate processing equipment and precarious storage technologies as major factors that undermined food security. These interlocking issues can only be understood within a combination of historical, economic, social, political and cultural perspectives.

DATA AND METHODS

This study draws on qualitative primary data and relevant secondary sources. Primary data were derived from extensive field investigation in the Niger Delta region. This ethnographic data collection method is considered to be particularly relevant for investigating bottom-up processes and local experiences (Mac Ginty & Richmond 2016; Lorentzen 2021). The qualitative research method utilised in this study is relevant in explaining the previously unseen layers of the complex connection between environmental changes, livelihood and food security through subjective assessments about the cultural values attached to food. It also captures the historical, cultural, environmental, socio-economic and political contexts. The fieldwork took place at intervals between 2016 and 2019 in the key oil-producing states of Bayelsa, Delta and Rivers, where there have been incessant agitation, violent conflict and militancy

over environmental issues. I selected two communities per state, making a total of six communities. The communities selected were those in which major oil multinational companies including Shell and Chevron have oil platforms, flow stations and several pipelines crisscrossing the communities. The selected communities have experienced massive oil pollution linked to the oil-related activities of multinational oil companies. The selected communities were also rich in environmental and marine resources, before the commencement of oil exploitation in the communities. In Bayelsa State, I selected Ikarama, Yenagoa LGA and Otuasega, Ogba LGA. Also, Beneku community, Ndokwa LGA and Owodokpokpo-Igbide, Isoko South LGA were visited in Delta State. In Rivers State, I visited Goi and Bodo communities in Gokana Local Government Areas (LGA), Ogoniland. The total sample size was 360 for the interviews and Focus Group Discussion (FGD) sessions in the six selected communities. The respondents were selected through purposive sampling so that they could give meaningful insights into the issues of focus in the study.

I carried out two FGD sessions in each community with women and youth, making a total of 12 FGDs in the six communities. The number of participants per FGD session ranged from 5–10 persons. Respondents for the interviews were fisher-folks, farmers, traders, traditional, community, youth and women leaders in the local communities. Also, interviews were conducted with officials of the Ministry of Agriculture and Rural Development and the Ministry of Environment, Niger Delta Development Commissions, as well as Environmental Rights Action, one of the NGOs operating in the region. Direct observation of the day-to-day realities in the six communities was also utilised. The interviews and FGDs with diverse respondents made it possible to cross-check, verify and ascertain the reliability of their claims. Also, direct observation of everyday realities of the people in the communities confirmed the veracity of the respondents' claims.

The qualitative methods adopted for the study afforded a nuanced understanding of the complex connections between oil, environmental degradation, livelihood and food security in the region. The data, derived from the majority of the respondents, specifically the local people, NGOs and some government officials, showed that the oil-related activities of transnational corporations have devastating effects on the environmental resources, livelihood and food security. The field data were subsequently transcribed and coded to identify themes that emerged, including oil pollution and environmental damage, decline in fishery, inadequate access to food, food culture and so on.

OIL POLLUTION AND ENVIRONMENTAL DISLOCATION

In the Niger Delta, the damage from oil pollution is chronic because oil companies often fail to respond speedily when notified of oil spills in communities. Oil companies are supposed to clean up oil spills within 24 hours, but it usually takes weeks before they respond. Sometimes, community demand for relief materials such as rice, water, and so on, prior to allowing clean-up crews

access, can delay the clean-up process. In the case of the Bodo community, the respondents stressed how Shell refused to promptly clean up a major oil spillage that occurred in 2008 and 2009, allowing the spill to flow for 72 days and 76 days, respectively before the oil company eventually clamped the pipelines (Community members 2016 Int.). Research has documented the two major oil spills that occurred in 2008 and 2009 in Bodo, and the disruptive consequences on the traditional livelihoods and drinking water supply in the community (Amnesty International/CEHRD 2011; Pegg & Zabbey 2013). The devastating consequences of the oil spills were elucidated by the respondents in the Focus Group Discussion sessions, who revealed that the oil rapidly spread into fishing ponds, lakes and rivers killing the fish and other aquatic life. In the dry season, the oil sank into the ground, destroying all the undergrowth while some of the spills settled in fishponds. The respondents' assertion aligns with the view of some analysts that the oil companies' delay in clean-up of oil spills is a demonstration of their lack of regard for the fragile environment and marine resources in the riverine oil communities (Elum *et al.* 2016; Okafor-Yarwood 2018).

In June 2016, the Nigerian Government launched a clean-up exercise geared towards implementing the recommendations of the United Nations Environmental Programme (UNEP) report on the Environmental Impact Assessment of Ogoniland. The UNEP report noted that the soil in many places in Ogoniland has been heavily polluted with hydrocarbons to a depth of five metres. One of the chiefs in Bodo lamented that the expectation of the people that the Nigerian government would clean up the Bodo spill while implementing the UNEP report remained forlorn (Local Chief 2017 Int.). Shell eventually initiated the clean-up about a decade later (Local Youth 2019 Int.). Nevertheless, recent studies observed that agitations for payment of compensation for decades of oil pollution, weak community engagement, persisting pipelines vandalism, oil theft, illegal and artisanal oil refining resulted in additional oil spills and pose major setbacks to the clean-up and restoration exercise in Bodo (Giadom & Wills 2021; Kabari *et al.* 2022).

The agency tasked with detecting and monitoring oil spills, the National Oil Spill Detection and Response Agency (NOSDRA), has been described as toothless and accused of submission to the oil companies by the local people and environmentalists. Recent studies and a UNEP report alluded to the poor work ethic and limited capacity of NOSDRA to detect and monitor oil spills in the Niger Delta (UNEP 2011; Okafor-Yarwood 2018). The laxity in enforcing environmental laws was attributed by officials of the Federal Ministry of Environment to the fact that the Ministry at the state and federal levels, including NOSDRA officials, usually depends on the oil companies for logistical support due to inadequate funding from the government (Officials of the Federal Ministry of Environment 2016 Int.).

Oil companies usually attribute oil spills to sabotage of pipelines and barely compensate people for the damage to their farmlands because their policy does not allow for the payment of compensation for oil spills linked to sabotage

(Ordinioha & Brisibe 2013; Amnesty International 2013). In the case of gas flaring, no compensation is given to the local communities and oil companies only pay fines to the federal government (Frynas 2001). Studies have found that the nitrogen and sulphur oxides in gas flaring mix with atmospheric moisture to generate acid rain, devastating agriculture yields (Middleton & Rhodes 1984; Salau 1993) and aquatic life. In a related study, Ibaba (2001) observed that a distance of about 200 m away from a gas flare site could result in about 100% loss in crop yield. Gas flaring-induced acid rain also has a devastating effect on local homes because it leads to rapid corrosion of widely used zinc roofs of houses. This imposes additional financial and quality of life burdens upon the affected households, schools and other businesses in the local host communities. In Beneku community, the respondents explained in Pidgin English, ‘pipo wey get farms near oil compini flow station, faya outbreak dey burn their farm plenti times’. The ERA officer in Bayelsa State (2019 Int) added that gas flaring has led to fire incidents that completely burned down large expanses of farmlands including palm trees, while animals have died or been driven away by heat, smoke and noise from the flared gas. Similarly, a local youth declared in Pidgin, ‘when we fetch rain wata for bucket, we dey see plenti black sometin for de bottom of de bucket bicos of acid rain’ (Local Youth 2017 Int.). The accounts of respondents indicate that gas flaring has disruptive consequences on environmental and material resources and traditional livelihoods.

The statements of respondents for the Focus Group Discussion sessions in Otuasega, showed that oil spills are a recurring problem in oil communities. The respondents cited the case of a major oil spill that occurred in 2014 at the Otuasega manifold, in which the magnitude of the spill compelled federal government officials to visit the site immediately, even before the arrival of Shell contractors who were to clean up the oil spill. The respondents explained: Oil spills had spread extensively into surrounding farmland and rivers before the arrival of the oil company’s contractor (Local Youth 2016 Int.). Studies have shown that the incessant oil spills in oil communities are linked to the oil companies’ failure to replace their obsolete and dilapidated pipelines and equipment with modern ones and the sabotage of pipelines by local youth (Tantua *et al.* 2018).

Equally significant is the admission of the local people that in recent times most of the oil spills are caused by activities of vandals rather than equipment failure. The local youths, contractors, security personnel and oil companies’ officials are accused of complicity in this act because of the opportunity for clean-up contracts. A youth leader in Ikarama community asserted that a major oil spill that occurred in the community was caused by youth in reaction to Shell’s refusal to pay them for guarding oil pipelines (Youth leader 2016 Int.). As Obi (2014) suggests, oil companies do provide youth with contracts to provide ‘security’ for oil installations. This pervades many local communities. For instance, a local chief in Bodo community (2016 Int.) accused Shell officials of instigating the local youth to vandalise oil pipelines and steal oil, so that they can award clean-up contracts to the company’s officials.

The claim of the local chief in Bodo was corroborated by the ERA officials (2016 Int.) who further explained that oil companies have specific sections in charge of oil spills and the facilities to clean up spills. However, their officials prefer to sub-contract oil spill clean-up to local contractors at minimal cost so that they can take the lion's share of the money allocated for the clean-up. From the small amount of money given to the local contractor, he will also take his share and use the leftover to pay the youth who will mop up the spill. Most often, youth set the oil on fire or leave it to spread further during the rainy season. Forest resources such as raffia palms, palm trees and planted crop are also destroyed by the fire.

The ineptitude of the oil companies was further disclosed by the ERA officer in Rivers State, who noted that oil companies generally do not have the equipment to treat oil taken from the spill sites. He alleged that oil companies' contractors usually buy land in another community and dump the spilled oil on that land, further spreading the pollution to other communities. This statement supports Demirel-Pegg & Pegg (2015) who state that oil company clean-ups do not lead to environmental restoration because they hardly comply with the environmental laws or the companies' own internal procedures.

In Goi community, direct observation showed that oil spills have destroyed the mangrove forest and polluted the rivers to the extent that oil sheen could be seen on the water surface. Even with a signpost indicating that the site of the oil spills is a contaminated area, the surrounding river is still used for domestic purposes because the local population has no alternative source of clean water. Also, farmlands in the vicinity of the contaminated sites have been cultivated for cassava. Despite the adverse impact of environmental degradation on the environmental resources that generate traditional livelihoods, local people hardly receive any compensation for the loss. The council of chiefs claimed that Shell has refused to pay compensation for the damage caused by oil spills on their farmland (Council of Chiefs 2016 Int.). This supports Osaghae *et al.* (2011) and Tantua *et al.* (2018) in their assertions that sharp practices in the awarding of compensation and contracts prevented the people from getting their full entitlement.

The recent upsurge in the activities of militants who have been blowing up oil pipelines in the region further aggravates the environmental pollution of farmland and rivers in the affected local communities. As noted by ERA officials, before 2004 most of the pipelines put in place since the 1960s and 70s were not changed. Since the early 2000s, environmental pollution in the region was aggravated by the criminal activities of militants, who engaged in blowing up or vandalising oil pipelines and illegal crude oil refining. Some analysts have identified the mounting criminal activities of artisanal oil refining as one of the adverse social consequences of an oil-induced loss of livelihoods that leads youth to seek illegal forms of survival strategies (Demirel-Pegg & Pegg 2015; Tantua *et al.* 2018), which ultimately leads to a vicious cycle of ecological crises and livelihood insecurity in the region.

THE DECLINE IN FISHERY

Oil pollution has been identified as a major cause of depletion of fish stocks. Oil spreads over water surfaces preventing air from getting in. In a moving body of water, like in a river or lake, fish may be able to move away from the immediate vicinity of oil pollution, but fish eggs and larvae cannot escape and frequently die (Amnesty International 2013). The devastating consequence of oil pollution on fishing grounds has given rise to the lamentation of local people that their rivers are like gas chambers where no life can survive (Community members 2019 Int.).

Before the advent of oil exploitation, these coastal communities harvested varieties of fresh and saltwater fishes including tilapia, catfish, African water flapper, ginacchua, long fish, mud fish, moon fish, snippers, sardines, eel and dracula. There were also crayfish, land crab and sea crab. Some of the mammalian fauna found in the mangrove and freshwater swamp zones include the royal antelope, cane rat, porcupine, warthog and species of primates as well as birds such as herons, ducks, egrets, kingfishers, whooping crane and species of beavers.

These fish and animals used to be plentiful in the surrounding rivers, lakes and land, but today many of them are either dying or are almost in a state of total extinction. Varieties of bush meat derived from the region have almost all disappeared. For instance, an ERA project officer in Bayelsa (2016 Int.) explained that in many coastal communities, manatee is a sea animal that is no longer found in the area. The damage to marine resources has affected local women who gathered shellfish, crabs, oysters and periwinkles from the streams and mangroves for consumption and sales. Oil spills have killed shellfish which had been common in mangroves making this form of food-gathering unviable (Local Women 2019 Int.). Okafor-Yarwood (2018) indicates that many coastal communities have been experiencing increasing scarcity of fish.

The destructive impact of oil pollution on fishing waters is such that fishermen have to go in search of fish both in the morning and evening and travel far out to sea to catch fish. After spending long hours for meagre results, they also discover that some of the fish smell of crude oil and are not safe for consumption (Fishermen 2016 Int.). The loss has been more severe for artisanal fishermen due to lack of compensation from the oil companies for their pollution of fishing grounds. This was confirmed from the responses of participants in the FGD sessions who explained how oil pollution has affected artisanal fishermen more than farmers because oil companies typically do not pay compensation for pollution of rivers and fishing nets. The high cost of fishing material aggravates the problem facing the artisanal fishermen. The respondents described how the prices of fishing materials have tripled over the years. For instance, a bundle of fishing net which used to cost N22,000 (\$61) in 2012, has increased to N42,000 (\$117) in 2016. While a fishing net is expected to last for 4–5 years if properly maintained, oil spillage damages

fishing nets, thereby adding further costs. Also, some of the fishermen cannot afford to buy a canoe for fishing, which costs N60,000 (\$167), and so rent on a daily basis at the rate of N500 (\$1.4). This adds to their long-term costs since they end up paying in any one year the cumulative cost of 2–3 canoes, when one would last them many years.

The adverse impact of oil pollution on fishing resources was further disclosed by Mr Paul, a 72-year-old prominent artisanal fisherman (2019 Int.), who explained that dong nets and a fish cage with hooks called *Ikide* in the Isoko language used to catch up to about 20 big fish in the 1970s. Nowadays, it can only catch between 3–5 big fish on a good day and one or nothing at all on a bad day. The good day is usually during the rainy season, when high water brings fish into the surrounding lakes and creeks.

The local people describe how different species of fish derived from fishponds are now becoming very scarce. In many coastal communities, the local people create a natural fishpond by digging a large hole in their backyard during the rainy season. Floodwaters that enter the hole bring in different species of fishes such as moon fish, tilapia, catfish, water flapper, mudfish and scale fish. In recent times, some species of fish that used to be plentiful in the fishponds are no longer available as a result of oil spills and acid rain. One of the fish that has become scarce in the Owodokpokpo-Igbide coastal community is moon fish, a sweet and tasty fish called *abora* in the Isoko language. A fisherman explained that the fish harvest has gradually declined from 100% in the 1970s to 30% nowadays. Another interviewee in Otuasega community, Mr Johnson, is a youth who inherited three natural fishponds from his father (2018 Int.). He narrated how oil pollution has led to the extinction of scale fish that used to be plentiful in his fishponds and the depletion of tilapia and catfish.

The depletion of the fish population in the rivers and creeks has led those few people who are able to generate the capital to venture into fish farming (aquaculture). However, the local people claim that the fish harvested naturally from the rivers, lakes and creeks are tastier than those derived from fish farming. Freshly caught fish are also costlier than fish produced in the fishponds. For example, in 2016, 2 kg of natural fish cost N2,000 (\$5.5), while those harvested in the fish farm are N1,000 (\$3). Also, 3 kg of water flapper (natural) cost N3,400 (\$9) while the same fish from a fish farm is N2,000 (\$5.5). The scarcity of fish and the high cost of harvested fish mean that people are deprived of the fish that they consider important to their dietary intake. Fish is a major source of animal protein, and an essential nutrient that is vital to the food security of the households in the coastal oil communities (Okafor-Yarwood 2018). Moreover, the fish farmers also have to deal with the devastating impacts of gas flaring-induced acid rain on their fish farms. One of the fish farmers in Owodokpokpo-Igbide community, Mr Felix (2019 Int.) explained in Pidgin, ‘for raini seezin, I dey treet de wata for my fish tank bicos acid rain dey enta from gas flaring and e dey kill de fish’.

Many local people lack the financial resources to venture into fish farming. The situation is more dire for local women. In the case of Beneku, for instance,

only eight people own fishponds, of which two have big fish ponds. Among the eight, only one woman has a fish farm and only one of the men benefited from the Ministry of Agriculture incentives such as a fibre fishpond, fingerlings and feed to set up his fish farm. The limited empowerment for women underscores the disadvantaged position of women and the gender dimension of the challenges to food security in the region. Gender equality through improving women's access to agricultural incentives has been identified as vital in promoting agricultural growth and enhanced nutritional benefits (Hitchon 2020).

EFFECT ON FISH IMPORTS

The statements of the interviewees suggest that oil pollution has affected age-long cultural practices utilised by the local people in generating their livelihoods from their environmental and marine resources. One of such cultural practices involves traditional festivals to celebrate a bountiful harvest in the communities. Insights from the local communities showed that they used to celebrate fish festivals during the rainy season when there was a bountiful harvest. However, many communities can no longer sustain these cultural activities. For instance, in Beneku, the annual fish festival by the Onyinoyin River has been disrupted by oil pollution.

Many coastal communities now depend on imported frozen fish bought from fish factories in the city. This fish is cheaper than fresh fish and is supplied by ocean trawling. Declining income has restricted the capacity of Niger Delta people to buy even the cheaper iced fish. This situation was depicted in the account of the women traders, who sell fresh and smoked fish in their communities. They complained that they are experiencing a decline in sales because their customers are no longer able to afford to buy fish. Mrs Juliet, a 34-year-old fish seller in Otusega (2016 Int.), reports that since 2015 it can take up to five days before she is able to sell the same quantity of fresh fish she used to sell in a day. By the year 2016, her profit per batch of fish has significantly declined from N5,000 (\$14) to N2,500 (\$7). It is difficult for her husband who is working as a security officer with Shell to provide enough for the family. Their monthly household budget for food has been reduced from N25,000 (\$69) to N15,000 (\$42), making it impossible for the eight members of her household to receive two meals per day. They have had to forego most of the food that used to be part of their daily meal. She declared in Pidgin, 'even *garri wey* (cassava flakes) we like to eat no dey as before'.

The situation is further complicated by restrictions on the importation of fish, which has led to a rise in the prices of imported fish. This was confirmed by another trader, Mrs Shalom, a 32-year-old secondary school certificate holder, who sells smoked frozen fish in Ikarama, Yenagoa, LGA, Bayelsa (2019 Int.). She disclosed that her situation has deteriorated because of the restriction on importation of frozen fish and an increase in prices. The high cost of imported fish also lowers profits. Also, the majority of her customers cannot afford to pay promptly for the fish, which significantly affects her sales.

The land has been rendered unproductive as a result of environmental degradation (Pegg & Zabbey 2013), leading to a decline in food production in a region that was once a food basket for all varieties of cash and food crops. In the local communities, the majority of farmers engage in subsistence farming. About 75% of people depend on subsistence agriculture (Amnesty International 2009), particularly crop farming, fishing and collection of non-timber forest products (NTFPs) for their livelihood. Field data show that one-quarter of farmers are involved in both subsistence and commercial farming.

This situation is further complicated by the fact that many households are large, with 7–12 members per household. In some households, there is only one breadwinner to cater for the whole large family. Mrs Onwuri, a petty trader in Beneku (2018 Int.), has a husband who has lost his job as a casual worker with an oil company. Now he has been cultivating a small farm to grow cassava mainly for household consumption. Most of the responsibility for income rests on her.

The large family size of an average household in these rural communities coupled with the prevailing conditions of declining food production, loss of livelihood, low income and an increasing poverty rate puts constraints on food access for rural households. The food available that might feed a small family of four has to be rationed among a household of 7–12 members. The population for the region, estimated at 20.5 million people in the 1991 census, rose to 28.9 million in 2005, and to 39.2 million in 2015 and was projected to rise to 45.7 million by 2020 (UNDP 2006). This rate of population growth is especially high in local communities where there is limited awareness and use of family planning. One report estimated that in 2016 about 32.4% of the total population in Nigeria was undernourished (Obi *et al.* 2019).

In the last few years, the price of food has increased astronomically, making it increasingly difficult for a majority of local inhabitants to buy affordable food. Of the people I spoke with, the majority could not afford to eat three meals a day and those who could afford it before now eat twice or even once daily. For instance, one of the key informants alleged that the cost of staple food has skyrocketed so much that a bag of rice which used to cost N11,000 (\$30.5) had increased to N23,000 (\$64), yam from N200 (\$0.5) to N500 (\$1.4) per tuber, and a basin of *garri* (cassava flakes) from N1,200 (\$3) to N2,500 (\$7) within 2016. The report of the National Bureau of Statistics estimated that the price of food in Nigeria increased by 15.3% between mid-2015 and mid-2016 (National Bureau of Statistics 2016). The World Bank 2021 report on development in Nigeria showed that food insecurity is more rampant in Nigeria than it was before the Covid-19 pandemic because of rising food prices and low purchasing power. The report estimated that in 2020 food prices accounted for 63% of the total increase in inflation. It also projected that, between July and December 2020, about 58.3% of households responded to the price shocks by consuming less food, and in November

2020 about 56% of households reported that adults had skipped meals in the previous 30 days and 48.0% of households ran out of food entirely. The report indicated that food-price inflation is a major threat to household purchasing power and welfare, given that most of the food that households consume, even poor agricultural households in rural areas, is purchased rather than self-produced.

The rising price of food can be attributed to a high dependency on food importation to augment declining indigenous food production. The collapse in the value of Nigerian currency in recent years also has had a significant adverse impact on food prices. Another factor is the recurrent slump in world oil prices which has led to diminished oil revenues and a rapid decline in government fiscal viability. The recent economic recession in Nigeria and the fallout of the Covid-19 pandemic aggravated the situation. Many of the respondents claimed that, whenever they complained about the rising price of foodstuff in the market, they were told it was due to the fall in oil prices. While oil prices have recently stabilised, rising inflation in Nigeria has continued to drive up prices of food.

The decline in food production in the local communities worsens people's vulnerability to food insecurity. A farmer in Owodokpokpo-Igbide, Mr Richard (2016 Int.), stated that cassava cultivation is not profitable because the cost of production is high and the yield is low. He explained that whenever there is an oil spill it affects his farm, because, when the oil sinks into the soil, cassava leaves die and, if they grow at all, they do not grow fast and the tubers are tiny. Also, the cost of cassava stem, fertilisers and herbicides is high. After processing the cassava into *garri*, the margin between the cost of production and sales is too low. Ibaba (2010) has rightly observed that agricultural land degradation has reduced crop yield and shortened the fallow period which translates into low income.

THE DECLINE IN ACCESS TO CULTURALLY ACCEPTABLE FOOD

As food production decreases, local people find it difficult to access staple food that is indigenous to the region and commonly consumed in their communities. Most of the indigenous food consumed in the oil communities is prepared with cassava. In the case of Owodokpokpo-Igbide, the indigenous food is *garri* and starch (made from fermented cassava), eaten with *banga* or fish pepper soup. In Otusega the indigenous food is *fufu*, made from fermented cassava (*Akpukuru*) with Ogbono and fish. The decline in cassava yield affects the availability of these local foods.

The Ogbono seed is harvested from the Ogbono tree, a tree which grows naturally in the communities and is a source of income for the local women. The statements of respondents attest to how oil spills and fires have destroyed most of the Ogbono trees. Apart from the poor harvest, oil pollution also contaminates the farm crops. The adverse impact of oil spills on farm crops was disclosed by the members of the Council of Chiefs in Goi community, Ogoniland

(2016 Int.), who described how the government officials that visited the community in 2014 saw crude oil seeping from the fermented cassava that local women were processing. Since the main local food, *garri* is prepared from fermented cassava, the local people have been consuming contaminated cassava.

The food crisis is worse during the dry season because the food produced cannot be preserved due to lack of storage facilities. This was confirmed by the respondents, who stressed that there is acute food shortage during the dry season. The lack of storage facilities implies that farmers are unable to store much of their farm products until the dry season. Some of the farmers who choose to preserve their crops on the farm and harvest later face risk of pest or flood destruction. When this happens, cassava becomes so scarce that people have to buy from outside at exorbitant prices unaffordable to the majority of the people. This was inferred from the statement of Mrs Precious, a woman leader and farmer in Owodokpokpo-Igbide (2019 Int.), who stated that in the dry season, cassava flake (*garri*) is sold for as high as N3,000 (\$8.3).

Other staple foods crops that are indigenous food consumed in the region such as yam, plantain and cocoyam are often not available because of poor harvests. This was confirmed by farmers in Beneku who stated that the cost of yam seedlings and the threat of pests have prevented most farmers from cultivating yam even though it is the local food indigenous to the community: *utala-iji* (pounded yam) with *ofe-nsala* (pepper soup).

Some food crops are also disappearing because of the adverse effect of gas flaring on soil nutrients and the resultant devastation to yields. In Otuasega, an interviewee, Mr Simeon, a 38-year-old farmer and welder (2016 Int.), spoke of the disappearance of *mama coco* (known as *amasi* in the local dialect), a species of cocoyam that used to be cultivated in the community and had been a local delicacy eaten with palm oil and smoked catfish. Mr. Simeon lamented that, since the completion of the Nigerian Liquefied Natural Gas (NLNG) plant project, *mama coco* crops have all withered after being planted. The farmers in Otuasega were unanimous in their claim that they have been having poor harvests since the gas project started three years ago. This loss supports the assertions of Gillespie & Mason (1991) and Fentiman & Zabbey (2015) that access to culturally acceptable food is critical to food security of the people.

INADEQUATE GOVERNMENT SUPPORT

The vulnerability of the people to food insecurity is exacerbated by lack of or limited access to government agricultural incentives. Insights from many communities point to poor access to government support to boost farming. This was confirmed by most farmers who complained that cassavas on their farms were destroyed by pests because they could not afford to purchase herbicides. To minimise their loss, farmers have resorted to mass harvesting of cassava. The mass harvest can create a situation in which the supply of food exceeds

demand, so that farmers have no choice but to sell cheaply because of lack of storage and food processing facilities.

This loss could be preventable if the government were to provide storage facilities, food processing and basic infrastructure such as electricity and paved roads in the local communities. Most of the facilities provided by both the federal and state government are either not completed or not functioning well. For instance, in Otuasega, it was observed that the cassava processing factory that was built by the state government has been abandoned because the machinery was substandard and now weeds have already taken over the factory site.

Only a few of the farmers and fishermen interviewed claimed to have benefited from government agricultural incentives such as fertilisers, herbicides, seed, feed, fishing nets and other incentives either free or at subsidised prices. Field data showed that only about 20% of the respondents claimed that they have received any agricultural incentives from the government. Some farmers in Owodokpokpo-Igbide, during the FGD sessions disclosed that through their cooperatives, they received seed, fertilisers and chicks from the Federal Ministries of Agriculture. The registered farmers who received fertilisers from the Federal Ministry of Agriculture, at the rate of 2 bags per farmer, claimed it is not sufficient for their farmland, but consider themselves far better off than those farmers who did not register at all. This seems to validate the assertion of Ukpe *et al.* (2016) that there is a higher vulnerability among farmers that are non-beneficiaries of microcredit incentives and lower vulnerability among those that are beneficiaries.

The inadequacy of government support led some farmers in the Ikarama community to resort to begging for seedlings to plant on their farms. Some farmers also lamented their inability to afford to hire labourers to weed their farms before the planting season. This situation depicts the enormity of the food security challenges in the oil-rich Niger Delta region.

CONCLUSION

Food insecurity in the Niger Delta is aggravated by environmental, socio-economic and physical threats. The Niger Delta provides a case study of the interplay between the environment, livelihood and food security in an oil-rich region. By exploring the impacts of the extractive economy on food security in the Nigeria's oil-rich Niger Delta, this article shows how the reckless oil exploration by transnational oil corporations has negatively impacted local communities through the devastating effects of pollution on environmental resources, agricultural yields and aquatic life that sustain livelihood and food security. It illuminates the complex connections between transnational oil capitalism, the local agro-economy and the shifting patterns of livelihoods, food security and culture in the Niger Delta. This article situates the Niger Delta case within the broader economic decline in postcolonial Africa, which captures not only the symptom of state failure, but often signifies the outcome of multi-layered transnational, national and local forces. It also spotlights the

connections between transnational capitalism, postcolonial misgovernance, the new socio-economic challenges facing local communities in Africa, and the everyday struggle for survival by ordinary people.

In Nigeria's Niger Delta, the adverse impact of oil exploitation on the environmental and marine resources of the people is worsened by oil companies' delay in oil spill clean-up, shoddy clean-up practices, and youth criminal activities such as pipeline vandalism. The loss of livelihood is aggravated by poor compensation practices by oil companies and lack of access to alternative livelihoods. The youth criminal activities of pipeline vandalism and artisanal oil refining are major consequences of the loss of livelihoods and food insecurity in the oil communities. This has led to a vicious cycle of environmental degradation that further undermines livelihood and food security in the oil communities.

With declining food production, loss of income and rising food prices, it has become increasingly difficult for local people to access and afford food for their household consumption and, in particular, the indigenous staple food tied to their culture. Food security, and specifically the preservation of the environmental resources, livelihood and food culture, is essential to the protection of the social and economic wellbeing of the local people. The oil-induced environmental damage to land and water resources that sustain livelihoods pose major threats to food security. Any serious adverse effect on the environment, livelihood and food security has far reaching implications for human security.

Food security is not just about availability and accessibility, but the subjective assessments of people taken into consideration their indigenous food culture, cultural values, food production and consumption patterns. Environmental degradation has led to a decline in food production and an erosion of livelihoods. This erosion results in a decline in income that makes it difficult for people to afford to buy food to augment declining food production. Also, declining food production implies that indigenous food has become scarcer. Since indigenous food is key to people's food culture and essential to their dietary intake, their food security is tied to the availability, accessibility, affordability and sufficiency of this indigenous food. Thus, it is important to factor people's food culture into any agricultural programmes by the Nigerian government and donor agencies.

The inadequacy of the efforts of the government at the local, state and federal level to tackle the infrastructural deficit by providing access to adequate and well-functioning social amenities such as good roads, electricity, food processing and storage facilities, modern agricultural implements, and incentives in the form of loans and agricultural support services, aggravates the plight of local farmers and fishermen, and is a key challenge to food production in the region. It has also led to an increase in food prices and a lessened capacity to afford food. The ongoing environmental remediation project in the Niger Delta requires concerted commitment of the government and oil companies, and should be complemented by efforts to provide alternative and sustainable livelihoods for the people, and empowerment programmes for the reckless

youth as a measure to tackle the alarming rate of pipeline vandalism and artisanal oil refining.

Women have been largely marginalised in terms of access to the limited incentives from the government, despite their significant contribution to food production in the region. Thus, government agricultural incentives have to be community-based, through engagement with the affected farmers, fisher-folks and traders, and gender sensitive and inclusive. Future research on the challenges of food security in extractive communities should consider an exploration of the gender aspect of the livelihood and food security and the political economy of government food security programmes.

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