Conflict and climate change

Editors

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Babeș-Bolyai University & University of Port Harcourt
International Conference on Conflict Studies: Conflict and Climate Change
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Foreword

The Conflict Studies Center (CSC) has been founded at the Babeș-Bolyai University in 2005. Its mission was twofold: first, to initiate research projects in the field of conflict studies, comprising conflict theory, conflict management and methods of conflict resolution, with a focus on negotiation and mediation, and second, to develop specialized training programs for professionals in various organizations in Romania and abroad. The main aim of the Center's actions has been, from the beginning, to foster academic and professional debate at national and international levels concerning topics of global interest such as the implementation of mediation within national justice systems, the importance of indigenous/traditional conflict management mechanisms, the impact of climate change on conflicts and, on a more general level, the development conflict, a large umbrella covering the complex connections between poverty, bad governance, corruption, state fragility and foreign intervention (military or humanitarian) and conflicts in the Global South.

On the educational track, one of the biggest achievements was the founding of the international master's program Conflict Analysis and Management, in the Fall of 2005. This is an international program, in English, which benefits from numerous collaborations with first-class teachers and practitioners from the United States, Europe and Australia. To further increase its inclusiveness and diversity, the Center has expanded its collaborations in Africa and Asia, through joint research programs, teacher mobility programs and more. One of these examples is the joint conference organized together with the University of Port Harcourt (Nigeria) in December 2020 on the topic of conflict and climate change. The University of Port Harcourt is a well-respected educational institution in Nigeria, mostly since its members are well recognized at the international level, each in their area of interest. Their research covers topics from terrorism and peacebuilding to conflict and climate change and interethnic conflicts. With the help of our colleague, Charles Wratto, director of the Center for Peace and Violence Prevention and a close collaborator of the University of Port Harcourt, our two institutions identified this joint interest in the field

of conflict studies and made it possible to fulfil our academic mission. We would like to thank Mr. Wratto for his hard work and dedication in organizing this conference, his knowledge and professionalism were decisive for the event to take place.

The topic of climate change is on the agenda of all international bodies around the world and has a lot of mass-media coverage. What is less known the role climate change is playing regarding the emergence or escalation of conflicts across the world, with a preponderance in the Global South. Many researchers seem to agree that climate change is not necessarily the main cause of these conflicts, but rather and "accelerator" or "threat multiplier", meaning that, although the usual suspects for conflict occurrence—poverty, resource scarcity, bad governance, corruption, the presence of failed or fragile states, etc.—remain the same, climate change brings a far faster escalation and deeper radicalization. These being said, both institutions come up with the idea of an international conference on the topic of *Conflict and climate change, with the overall goal* of bringing together academics and practitioners in the field of conflict, environmental, political, economic and social sciences studies from all over the world, to create a platform on which they can exchange ideas, disseminate their research and develop networking opportunities for future research and, why not, joint research projects.

The event was a huge success and gathered more than 30 academia and experts who shared their research results in front of the participants on topics regarding the way climate change influence the day-by-day interactions between people, the negative impact on the economy and how this situation is used by different non-state actors in their advantage, to name but a few. The present book includes a selection of the papers presented in all three panels of the conference (*Migration, Conflict and Climate Change*, *Food Insecurity and Food Control*, and *Public Policy, Terrorism and Other Topics*). We have decided to publish these materials because we wanted to draw attention to these topics and because we wanted to to disseminate the materials discussed during the conference for a larger public, generating the so much needed scientific debate to find efficient solutions to the problems created by what now it is generally accepted as "the challenge of the 21st century".

COVID-19 Pandemic and Food Insecurity in Nigeria: Problems and Prospects

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Abstract. The indispensability of food is not subject to debate in any part of the world, however, food security has remained a global challenge, as some states, like Nigeria are far from achieving food sufficiency. Nigeria's ranking by the Global Food Security Index (GFSI) has not been quite positive, yet the Nigerian State like most other States of the world was exposed to the outbreak of the Corona Virus (COVID-19) pandemic, which had quite significant implications on the economy, particularly food security, as food was scarcely available and very expensive. Data for this paper was generated from secondary sources, essentially from journal articles and newspaper publications. The paper sets out to investigate the implication of COVID-19 pandemic on food security in Nigeria. It highlights details on the government responses and the extent of its effectiveness on food security. The paper concluded that the COVID-19 pandemic had significant impact on the availability and cost of food in Nigeria and on the need for government to ensure more palliatives are provided to farmers in form of improved seedlings, basic farm implements at highly subsidized prices or free and more affordable farm extension services.

Keywords: COVID-19 pandemic, food security, Nigeria.

Introduction

The first essential component of social and economic justice is adequate food production. Nigeria, known to be a country richly blessed with abundant natural and human resources that if properly harnessed, can feed its people and export the surpluses to other countries, is yet experiencing persistent food crisis both in terms of quantity and quality. Cases of malnutrition and under nutrition are growing by the day. The food intake requirements of majority of Nigerians have fallen far below the international standard.

Following the outbreak of the COVID-19 pandemic, a lot of countries had shut down their borders and restricted movement to control the spread. The pandemic which is ravishing local, national and global economies is directly taking its toll and having a widespread effect on health, employment, poverty, food security, nutrition, education and the overall functioning of food system (Barrett, 2010). COVID-19 pandemic has destabilized supply chains at all levels and creating instability in food supply and food prices (FAO, 2020).

The World Bank's recent forecasts show that, globally, the pandemic is likely to push 49 million people into extreme poverty in 2020 (World Bank, 2020). More than 45 percent (23 million people) of these people are in Sub-Saharan Africa, implying that the region will be hit hardest in terms of increased extreme poverty. The United Nations World Food Programme (WFP) estimated that the number of people globally facing acute food insecurity would double by the end of 2020 (about 135 million people before the crisis), due to income and remittance losses, and disruption of food systems associated with the pandemic (WFP, 2020).

The paper sets out to investigate the implication of COVID-19 pandemic on food security in Nigeria. It highlights details on the government responses and the extent of its effectiveness on food security. Accordingly, the rest of the paper is divided into four sections. In section two, some conceptual issues and the evolution of Food Security are considered. Section three provides an overview of the COVID-19 pandemic in Nigerian and the effect of COVID-19 pandemic on Food security. Section four x-rays government response to COVID-19 pandemic in Nigeria. Finally, the section five concludes the paper with some pertinent recommendation and concluding remarks.

Literature review/Theoretical framework

Food security

At the World Food Summit in 1996, food security was defined as a situation "when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life" (FAO, 1996). Food security refers to the availability of food and one's access to it. A

household is considered food secure when its occupants do not live in hunger or fear of starvation (FAO, 2001). Food security for a household means access by all members at all times to enough food for an active, healthy life. Food security includes a minimum of;

1. The ready availability of nutritional adequate and safe foods; and
2. An assured ability to acquire acceptable foods in socially acceptable ways, that is without resorting to emergency food supplies, scavenging, stealing or other cropping strategies (USDA, 2019).

In the World Bank Policy Study (2006) food security is defined as access by all people at all times to enough food for an active healthy life. To the United Nations Economic Commission for Africa (2018), food security involves not only food availability through storage, and trade but also more importantly food access through domestic or home production. The strength of these definitions is in its comprehensiveness and imperative for "concerted actions at all levels" (be it individual, household, national, regional and global level) and "coordinated efforts and shared responsibilities" across institutions, societies and economies to tackle food insecurity effectively (FAO, 1996).

The consequences of "food insecurity" have far reaching effect on the people and the general development of the nation. When people have restricted access to good quality food, the children are the first casualty in this circumstance (Oliveira *et al*., 2010). According to him, malnutrition becomes the order of the day which eventually leads to child mortality as result of incidence of all forms of diseases (Oliveira *et al*., 2010).

It is the contentions of the Food and Agricultural Organisation of the United Nations that for a country to have sustainable food security, food supplies must keep pace with increase population and urbanization (FAO, 2010). As such, according to FAO, addressing agriculture and population growth is vital to achieving food security. Other organizations and people (Singer, 2008) have come to this same conclusion in agriculture and population control.

COVID-19 pandemic

Coronavirus (CoV) are a large family of viruses transmitting between animals and people that causes illness ranging from the common cold to more severe diseases such as Middle East respiratory syndrome (MERS-CoV) and severe acute respiratory syndrome (SARS-CoV) (WHO, 2020).The COVID-19 pandemic, also known as the corona virus pandemic, is an ongoing pandemic of corona virus disease 2019 (COVID-19) caused by severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), first identified in December 2019 in Wuhan, China (WHO, 2020). The World Health Organization declared the outbreak a Public Health Emergency of International Concern in January 2020 and a pandemic in March 2020 (WHO, 2020). It was so declared because of the impact of the pandemic on human life and the environment.

Hence, this work is guided by the sustainable livelihood approach which was first introduced by the Brundtland Commission on environment and Development, and later the 1992 United Nation's Conference on Environment and Development expanded the concept, advocating for the achievement of sustainable livelihood as a broad goal for poverty eradication. According to them, the sustainable livelihood approach is a holistic approach of thinking about the objectives, scope and priorities for development activities. It is based on evolving thinking about the way the poor and vulnerable lives their lives and the importance of policies and institution. The vulnerability context of sustainable livelihood is characterized as insecurity in the well-being of individuals, households and communities in the face of changes in their external environment.

The vulnerability context includes diseases and food price hike amongst others, which has further brought Nigeria into recession as rightly stated by the National Bureau of Statistics (NBS, 2020) report that the performance of the economy in the third quarter (Q3) of 2020 reflected residual effects of restrictions to movement and economic activity implemented across the country in early second quarter (Q2) of 2020 in response to the COVID-19 pandemic.

Evolution of food security

The term "food security" is an important phenomenon with a global recognition. It was first discovered as a concept of food supply in which at that time, food crisis led to concerns that global food supply shortages might bring about political instability. It was recognized at that time that food availability remained a fundamental component of comprehending what food security meant, and it was realized that food availability was not a sufficient condition for access to food at household level (Jones *et al*., 2013). Sen (1981) opined that the poor usually lack "entitlement" to food due to spike in food prices and reduced demand for wage labor.

The 1974 World Food Summit definition of food security (Jones *et al*., 2013) emphasized availability of food at all times but this was revised in 1983 to include physical and economic access to basic food (FAO, 1983). Food security further evolved as a concept that did not include only national levels but also involved household and individual distributions (Webb *et al*., 2006; Ayinde *et al*., 2020; De Cock, 2012; Ike *et al*., 2015). This food access at household levels continued to gain relevance with the understanding that household is a key social unit through which people access their food (Ayinde *et al*., 2017; Ike *et al*., 2015).

Also, food utilization was recognized as a third component of food security, which reflects differences in the allocation of food within the households, the national quality of food and variation in absorption and metabolism of food nutrients by individuals within the household. Moreover, at the 1996 World Food Summit, the food security definition was

further revised and it clearly spelt out the importance of diet quality at the individual level, not only at the household level (FAO, 1996). The FAO (1996) food security definition later became the widely accepted definition which incorporated not only the three domains of food security (availability, access and utilization) but included the phrase "at all times" which reiterated the fourth, less commonly accepted domain of food security, i.e., the stability of food security over time (Barrett, 2010; Jones *et al*., 2013).

Overview of the COVID-19 pandemic in Nigeria

COVID-19 is a new genre of Corona viruses that causes illnesses such as common cold, Severe Acute Respiratory Syndrome (SARS) and Middle East Respiratory Syndrome (MERS) (WHO, 2020). It is an infectious disease that spreads mainly through driblet of spittle or release from the nose when an infected person coughs or sneezes (Nigeria Centre for Disease Control and Prevention [NCDC], 2020a; WHO, 2020). The novel corona virus is said to originate from Wuhan City in China (WHO, 2020; Wuhan Municipal Health Commission [WMHC], 2019). Empirical investigations (Shrikrushna *et al*., 2020; WHO, 2020) reveal that coronavirus diseases such as SARS-CoV and MERS-CoV was contracted from animal in China, 2002 and Saudi Arabia, 2012 respectively. However, COVID-19 is a novel virus because it has not been previously identified in human system. Common symptoms of COVID-19 include fever, cough, Dyspnea and tiredness (NCDC, 2020b; Shrikrushna *et al*., 2020; WHO, 2020). The suffix '19' as used after COVID correlates to the year of discovery of the virus in 2019 (Ohia *et al*., 2020; WHO, 2020).

A pandemic is a widespread epidemic that affects people in many countries and continents. It is a term used to substantiate the rapid rate of contagious disease raging from endemic and epidemic (Qiu *et al*., 2017). An endemic disease is an infectious disease that is common in a particular region or community, while epidemic is an outbreak of infectious disease in a community at a particular time (Chakraborty, 2017; Qiu *et al*., 2017).

A pandemic occurs when an epidemic becomes widespread and affects people in many countries. The contagious effect and rate of spread of COVID-19 globally justify the pandemic nature of the virus (see table 1 for the number of countries, confirmed cases and death rate of COVID-19 as at 25th Nov. 2020). The WHO confirms COVID-19 as a pandemic on 11 March, 2020 (NCDC, 2020b; WHO, 2020).

Table 1: Number of Countries with Confirmed Cases and Death of COVID-19, as at 25th November, 2020

No. of Countries	No. of Confirmed Cases	No. of Death	No. of Recovery
220	60,276,974	1,418,329	41,695,775

Source: WHO, 2020

Historical accounts of similar cases of COVID-19 pandemic includes Spanish Flu, 1918–1919; Asian Flu, 1957–1958; Swine Flu, 2009–2010; SARS, 2002–2003; Ebola, 2014–2016; MERS, 2015–present (Awofeso & Irabor, 2020; WHO, 2020). Hence across countries, governments have continued to introduce a number of precautionary measures such as self-isolation and lockdown to curb the spread of COVID-19. Further still, personal hygiene practices such as frequent washing of hands with soap and water or use of alcohol-based hand sanitizer, wearing of face mask, maintaining social and physical distancing at least 1 meter away in public gathering, etc., has been suggested as means to minimize the spread of COVID-19 (WHO, 2020; NCDC, 2020b).

While global effort to develop vaccine to contain the spread of the novel corona virus is ongoing, the movement restriction, lockdowns and social distancing occasioned by the pandemic has continued to cause structural changes in economy and social system globally. Based on the high rate of contagious effect of COVID-19, the WHO (2020) observes that developing countries may face inadequate testing capacity due to weak and ineffective health system.

The index case of COVID-19 in Nigeria was recorded on 27 February 2020 when an Italian citizen tested positive for the virus in Lagos (NCDC, 2020a). However, the number of confirmed cases and death of COVID-19 in Nigeria has continued to increase even after relaxing the lockdown. Analysis in table 2 shows that 66,757 confirmed cases, 61,337 recovery and 1,163 deaths of COVID-19 were recorded across states in Nigeria as at 25th November, 2020. The effect of COVID-19 pandemic on socioeconomic livelihood in Nigeria implies negative consequences for larger part of its citizens who are engaged in the informal sector of the economy and lives below international poverty line of US $1.25 a day (FEWS NET, 2020).

The outbreak of COVID-19 pandemic in Nigeria is hinge on conspiracy theories. One of such belief is that COVID-19 is nonexistence but a means for the government to divert public fund to private pocket. This position pervades public domain since public's trust in government is low (Odima, 2020). Another belief is that COVID-19 is a disease for the elites and wealthy individuals. This position seems catchy resulting from news from government officials, business leaders, celebrity, social and media personality who tested positive for the virus or died from Corona virus related illness (Campbell, 2020). Thus, despite public awareness on preventive measures of COVID-19, the lower class in the society perceived government regulations as a sham, thus increasing the rate of community transmission of the virus in Nigeria (Campbell & McCaslin, 2020).

Table 2: Number of Confirmed Cases, Deaths and Recovery rate of Covid-19 across States in Nigeria as at 25th November, 2020

State Affected	No. of Confirmed Cases	No. of Recovery	No. of Death
Abia	926	21,119	220
Adamawa	261	238	19
Akwa Ibom	339	21	9
Anambra	285	265	19
Bauchi	762	720	14
Bayelsa	445	382	21
Benue	496	460	11
Borno	745	705	36
Cross River	90	78	9
Delta	1,823	1,737	49
Ebonyi	1,055	1,019	30
Edo	2,696	2,559	112
Ekiti	354	327	6
Enugu	1,332	1,290	21
FCT	6,629	5,934	82
Gombe	938	857	25
Imo	662	613	12
Jigawa	331	308	11
Kaduna	2,945	2,661	45
Kano	1,781	1,690	54
Katsina	1,012	929	24
Kebbi	93	84	8
Kogi	5	3	2
Kwara	1,096	1,028	27
Lagos	23,018	21,119	220
Nasarawa	488	325	13
Niger	296	264	12
Ogun	2,196	1,994	31
Ondo	1,727	1,585	39
Osun	945	906	20
Oyo	3,715	3,242	45
Plateau	3,813	3,639	33
Rivers	2,963	2,758	59
Sokoto	165	148	17
Taraba	157	129	6
Yobe	94	71	8
Zamfara	79	73	5
	66,757	**61,337**	**1,163**

Source: NCDC, 2020a

Effect of COVID-19 pandemic on food security

Food insecurity has been a major longstanding challenge in Nigeria, as reflected by Nigeria's high Global Hunger Index (GHI), low Food Consumption Score (FCS) and high calorie deficiency (GHI, 2019). Nigeria has experienced significant seasonal and geographical food price fluctuations due to weather shocks to agricultural production, limited access to markets and infrastructure and global food price volatility on imported staple food.

Nigeria's lockdown and mobility restrictions as a result of the COVID-19 pandemic were introduced by federal and state governments. On March 29, 2020, the federal government announced lockdown measures and strict mobility restrictions for Abuja FCT, Lagos and Ogun State, which lasted for five weeks from March 30 until May 4th. In addition to the lockdown measures, federal government and state governments implemented different

measures including:

1. Travel bans which restricted entry into the country for travelers from high risk countries; closure of two main international airport; suspension of all railway passengers services in the country; closure of all air and land borders;
2. Closure of schools and religious institutions;
3. Bans on public and social gatherings across all states in Nigeria; and
4. Curfew hours which restricts movement of people.

The federal government also introduced similar lockdown measures for Kano State, which started in mid-April and lasted for seven weeks. Lockdowns restrictions in other States were introduced by state governments independently of the federal government, including in Akwa Ibom, Borno, Osun and Rivers states (Awofeso & Irabor, 2020). In most cases the lockdowns remained in force for about 5–8 weeks. These measures restricted movement of residents and led to the closure of business operations and closure of regional borders linking lockdown areas with the rest of the country.

The lockdown and social distancing Measures has adversely affected the income of the poor particularly those from the informal sector who heavily rely on daily wages, thereby reducing economic and livelihood activities including local businesses which directly affects food security (Barett, 2020). Nigeria is highly susceptible to income shocks and food insecurity associated with the spread of the pandemic. Food prices are already going high in the country, food supply chain (domestic and international) are being disrupted, unemployment rates have increased tremendously such that those who had something doing in the informal sector had been thrown out of job and poor household are facing food shortages. In Nigeria, recent projections show that the economy will contract by between 3.5 to 5 per cent in 2020 during the period the government-imposed lockdown and mobility measures (World Bank, 2020). The lockdowns and restrictions also disrupted food supply chains and community service, including education linked program like the school feeding and social protection program of the federal government, which ultimately affects food prices (WFP, 2020). For countries like Nigeria that heavily relies on imports of major staple foods such as rice and wheat, which registered marked rapid climbs in spot prices, this is creating an added financial burden that directly affects food security of households (World Bank, 2020). Again, the activities of banditries have increase and also the recent looting of food stuffs at warehouses across some states in Nigeria could as well be attributed to the effects of the lockdowns and restrictions which had shot mostly the poor away from their means of livelihood. Also, national and state restrictions and lockdowns equally affected food transportation within the country, with clear implications on food supply and consequently, on food prices.

All these generated significant repercussions on food insecurity, particularly in poorer and vulnerable urban households (Fink, 2020).

X-ray of Nigerian Government responses to COVID-19 pandemic on food security

In a bid to slow the rate of spread of the virus, the federal government of Nigeria on several occasions imposed targeted lockdown measures in areas with rapid increase of COVID-19 cases. The states in which the federal government imposed the targeted lockdown included Lagos, Ogun and the Federal Capital Territory in Abuja. Some state in the country imposed partial lockdown and closure of interstate boarders. Curfews had also been introduced in all the state nationwide.

(a) Distribution of Palliative: The response by the government to cushion the effect of COVID-19 pandemic in Nigeria was the distribution of palliatives such as food items and 'conditional cash transfer' to the poor and vulnerable citizens. The beneficiaries of the 'conditional cash transfer' were estimated to cover 3.6 million citizens who depend on daily wage and persons with disabilities, whose means of livelihood has been negatively affected by COVID-19 lockdown and movement restrictions (Njoku *et al*., 2020). Private individual and Civil Society Organizations also supported the government through cash donations and distributions of parcels of food items to the needy (FEWS NET, 2020). Similarly, the government also continued the Home Grown School Feeding Programme aimed at addressing malnutrition and ensuring provision of food ration to schoolchildren amid COVID-19 pandemic (Onwuzoo, 2020).

(b) Three months interest holiday for those holding Tradermoni, Marketmoni and Farmermoni loans issued by the Bank of Industry, Bank of Agriculture and the Nigeria Export and Import Bank. These are interest and collateral free loan programmes of the federal government as component of the Government Enterprise and Empowerment Programme (GEEP) put in place for artisans, petty traders, farmers, youths and market women as a social intervention programme (Ayinde *et al*., 2020).

(c) Skeletal Opening of Food Markets: As measures by the federal and state governments to curtail the spread of the COVID-19 pandemic, food markets were allowed to operate. For instance, food markets in Lagos, Ogun and FCT were operating two days (Monday and Saturday) in a week and later relaxed to three days (Monday, Wednesday and Saturday). This was a measure by the government not to shot people out of food because of the importance of having a food secures society.

(d) Fiscal Stimulus Measure: Fiscal stimulus such as interest rate reductions, tax cuts and tax holidays were implemented to mitigate the effect of COVID-19 pandemic on Small and Medium Scale enterprises. For instance, the government implemented tax holidays for small businesses against company income tax, while tax rate for medium businesses were revised downwards from 30% to 20% (Nnanna, 2020). The CBN also approved uniform exchange rate system for Inter-Bank market to ease pressure

on Foreign Exchange rates (Onyekwena & Ekeruche, 2020). Other stimulus measures include the establishment of #50 billion Intervention Fund to improve health facilities in the country (Nnanna, 2020; Onyekwena & Ekeruche, 2020).

Conclusion

The outbreak of COVID-19 pandemic portends negative consequences for food availability, accessibility, utilization and stability in Nigeria. The impact is already being felt in the form of rising food prices which has culminated into food inflation from 13.71 percent in September 2020 to 14.23 percent in October 2020 (NBS, 2020). A government response to mitigate the effect of COVID-19 pandemic on the poor and sustaining a food secured society has proven to be largely defective and inadequate.

To ensure that the agricultural sector is not further impacted by the distortions caused by COVID-19, and a way to guard against post COVID-19 pandemic recession, there is need for the government to ensure more palliatives are provided to farmers in the form of improved seedlings, basic farm implements at highly subsidized prices and free or more affordable farm extension services.

Also, of importance is the need to ensure that the sector is accorded more budgetary allocations in line with the Maputo declaration, increase the operational capacity of the strategic grain reserves, and reintroduction of farm clusters to be financed through Public Private Partnership (PPP) arrangement. In addition, state governments should reassess their area of core competence in the agriculture value chain and promote investment in that area.

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Climate Change and the Politics of Resource Control in Multi-Ethnic States: Nigeria's Ruga Policy in Perspective

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Abstract. The study averred that dwindling resources occasioned by climate change have become major causal factors of crisis around the world as different groups compete to control the available resources. The study pointed out that the politics of resource control is bound to be more crisis ridden in multi-ethnic states and it beamed the light of research on Nigeria as an example of a multi-ethnic state. It showed that pastoral herders, who are mainly Fulani, periodically move from their homes in Northern Nigeria to find pastures for their livestock in Southern Nigeria. The need for these pastoral herders to find pastures to graze their flocks has become more critical with the gradual encroachment of desertification into Northern Nigeria. However, the incursions of these herders constitute a menace to farmers in other parts of the country as the cattle are often grazed on farmlands leading to economic disasters for these farmers. The face-offs between these pastoral herders and farmers have constituted security challenges to the Nigerian state. To resolve the conflicts, the President Buhari led administration in Nigeria came up with the RUGA policy which was aimed at establishing grazing settlements in all the 36 states of the country. With the conflict and conspiracy theories providing the main theoretical foundations, the study employed the descriptive method to give a historical insight into events culminating into the RUGA policy and

the reasons for its rejection by Nigerians. It concluded that the RUGA policy's rejection was inevitable as a result of the lingering animosity and suspicions of domination amongst the ethnic groupings making up the Nigerian state. *Inter alia,* the study recommended good governance predicated on the democratic principles of inclusiveness, responsiveness and accountability as the panacea to the crisis of resource control in Nigeria.

Keywords: climate change, conflicts, ethnicity, politics, resource control.

Introduction

Climate change is described as the observable and noticeable alterations in the compositions of climatic conditions, especially global atmosphere, over comparable time periods as a result of direct or indirect activities of man (Ebele & Emodi, 2016; Idowu *et al*., 2011). For Ladan (2014), it is an extreme reaction of weather phenomena with negative impacts on natural and human resources. Climate change is perceived in negative lights as it is often accompanied by environmental crises including:

> increases and decreases in rainfall events resulting in floods, landslides and droughts, melting of polar ice-caps, thermal expansion, surges and acidification of oceans with resultant oceanfront flooding. The resultant natural disasters such as hurricanes, bush fires, ocean surges and landslides cause economic losses, population displacements, communal crises, forced migrations (promoting ecological refugees), desertification and widespread soil erosion /depletion effects (Idowu *et al*., 2011, p. 146).

Due to climate change, natural resources become depleted with attendant negative effects on societies (Ladan, 2014). Ebele and Emodi (2016) also posit that climate change is a major causal factor of conflicts in the world and that it exacerbates violence in fragile and conflict prone states.

State fragility and violent conflicts are the hallmarks of multi-ethnic states where the diversities in populations have not been adequately addressed (Abiodun & Adenuga, 2018; Oyeneye & Adenuga, 2014; Oyeneye & Adenuga, 2015). Nigeria is a typical example of a multi-ethnic state with a myriad of crises arising out of the inability to manage the diversities present among her teeming citizens (Abiodun & Adenuga, 2018; Oyeneye & Adenuga, 2014, 2015). The depletion of resources, especially land, as a result of climate change has become a major cause of violent crises as groups struggle to control available land resources for cultivation and pasturing purposes (Haider, 2019; Ladan, 2014; Muhammed *et al*., 2015; Olokooba *et al*., 2020; Sayne, 2011).

Muhammed *et al*. (2015) aver that resultants droughts and desertification in Northern Nigeria as a result of climate change force Fulani herdsmen to migrate to the Middle Belt and Southern part of the country in search of pasture for their flocks. These cows often end up pasturing on farmlands in these areas leading to violent confrontations between the herdsmen and farmers. The violent face-offs between these pastoral Fulani herdsmen and farmers in the Middle Belt and Southern Nigeria have resulted into colossal loss of lives and wanton destruction of property (Apikins, 2020; Olokooba *et al*., 2020; Ubelejit, 2016). To resolve the crisis, the President Buhari led administration in Nigeria came up with the Rural Grazing Area (RUGA) policy in May 2019 with the objective of establishing cattle settlements all over the country (Agbakwuru & Awujo, 2020; Apikins, 2020; Toromade, 2019). The policy was however rejected by Nigerians as it was seen as a ploy to foster Fulani hegemony on the other ethnic groups in Nigeria (Agbakwuru & Awujo, 2020; Apikins, 2020; Olokooba *et al*., 2020; Toromade, 2019; Udegbunam, 2019).

Theoretical Framework

Conflict theory

A major premise of the conflict theory is that groups compete for resources (Oyeneye & Adenuga, 2014, 2015). Where the demands for these resources greatly outweigh the available resources, there are bound to be conflicts, most especially in multi-ethnic states where nation building and national unity have not been achieved (Oyeneye & Adenuga, 2014, 2015).

This theory provides anchorage for this study as it shows that the depletion of land for grazing in Northern Nigeria as a result of drought and desertification in the region force Fulani herdsmen to periodically move their cattle to the Middle Belt and Southern part of the country in search of pasture. The encroachment of these herders into farmlands in the aforementioned regions have led to armed conflicts between them and the farmers in these regions leading to colossal loss of lives and property. The RUGA policy which was formulated to resolve the crisis was also rejected, most especially by the peoples of these regions as they felt that the policy was designed to favor the Fulani herdsmen.

Conspiracy theory

A conspiracy is seen as a secret plot by a group of people with the objectives of gaining undue advantages over the other groups in the society (Douglas *et al*., 2019). A conspiracy theory, according to van Prooijen and van Vugt (2018), is "the conviction that a group of actors meets in secret agreement with the purpose of attaining some malevolent goal" (p.1). In the same vein, Douglas, Sutton and Cichocka (2017) view it as the general

perceptions and convictions that important events are the consequences of the secret plots of powerful and malevolent people. While conspiracy theories are mainly pathological, they are however universal in appeal (van Prooijen & van Vugt, 2018).

van Prooijen and van Vugt (2018) argue that for a view to qualify as a conspiracy theory, it must possess at least five (5) ingredients which include:

i. An assumption of causal connections between people, objects or events;
ii. The involvement of two or more powerful individuals cooperating together;
iii. The convictions that events are deliberately planned by the conspirators to gain undue advantages;
iv. The goals of the conspirators are deceptive and harmful to the interests of other groups; and
v. It contains an element of secrecy.

In spite of the difficulties in verifying conspiracy theories, Douglas *et al*. (2017) and Douglas *et al*. (2019) aver that they have universal appeal because they perform the epistemic functions of defending beliefs from disconfirmation; they serve as existential motives for safety and security demands; and they also provide the social motives of exonerating groups from failure to achieve desired goals and shifting the blames to others.

The conspiracy theory is also adopted for this study because it shows that there was a general assumption that the RUGA policy was a secret plot by the Fulani and their sympathizers to foster Fulani hegemony in Nigeria. The policy thus heightened the call by the other ethnic groups to the government to ensure the security of their lives and property. The RUGA policy debacle also reinvigorated the debate that Fulani/Hausa hegemony stifles national development in Nigeria.

Global Best Practices and Lessons from other Climes

Grazing, with its associated problems, is not peculiar to the Nigerian state. In fact, it is a global phenomenon. As Asner, Elmore, Olander, Martin, and Harris (2004) remark, grazing activities cover the land surface of the earth more than any other activity. To buttress this assertion, the Food and Agricultural Organization (FAO) of the United Nations states that about 45% of the global land surface is covered by grazing activities (Reid *et al*., 2008).

For centuries, pastoralists, with their livestock, have wandered from place to place to graze their animals. However, with global warming and the greenhouse effect leading to environmental degradation, available space on the earth surface has shrunk and with the depletion of available resources, especially with rapid deforestation and desertification, pressure has to be put on pastoralists to check uncontrolled grazing in the interest of all

land users. Population explosion and the need to expand crop farming activities to cater for the growing population of peoples, which has resulted into about 50% of former grazing lands being taken over for crop farming, has also compounded the problem (Reid *et al*., 2008). So, in the face of continuous resource depletion and the pressure for more land for other purposes, how has governments dealt with the problem of uncontrolled grazing? The Australian, American, Chinese, Mongolian, Botswana, Chadian and Nigerien experience will provide great insights.

Despite the fact that 77% of Australia is ideal for grazing activities, yet in the early 1800s, there was a big crisis between pastoralists and other land users (Stokes *et al*., 2008). Prior to 1800, the various land users had co-existed peacefully but with the high demand for sheep's wool, there was a sharp increase in pastoralist activities leading to increased usage of land for grazing activities. Uncontrolled grazing started affecting other land users adversely and to prevent anarchy, various land use acts including the Early Land Acts, the 1962 Commission & Land Act, the Native Title Act of 1993, the 1995 Environmental Protection Act and the Vegetation Management Acts of 1999 and 2004 were enacted (Stokes *et al*., 2008).

While this study will not specifically analyze the provisions of the Acts, it is pertinent to state that the main essence of the Acts was to curb unbridled and uncontrolled grazing as any form of grazing that is not controlled can only be an invitation to anarchy as such will be resisted, often by violence, by other land users. To this end, various Australian governments leant towards the granting of grazing leases to pastoralists, and land management usages including the granting of the ownership of private ranches to individuals who can afford them and the encouragement of managed cooperative ranches called 'Agistments' whereby several pastoralists pool resources together to create a chain of grazing reserves for their herds (Reid *et al*., 2008). The Australian experience, in terms of pastoralists and farmers face-offs, also played out in the United States of America in the 19th century and controlled grazing through the encouragement of the establishment of ranches and paddocks was the solution to the problem.

Oluka, Ativie and Efeosa-Temple (2019) also point out that pastoralist activities were major crisis issues in China and Mongolia. Herds often encroach into farmlands resulting into violent and armed confrontations between herders and farmers in the two countries. Rape and assassinations were also rampant as direct consequences of the animosity between the herders and the farmers. Illiteracy was also a major factor given the fact that the children of the nomadic pastoralists shunned formal education. After a period of extensive consultations, the Chinese and Mongolian governments decided to restrict pastoralists to their local communities and the number of cows a pastoralist could possess was also restricted based on his/her capacity to manage and feed the cows. Farmers in neighboring communities were also encouraged to cultivate grass and sell to pastoralists.

Before long, there existed cordial relations between the pastoralists and farmers and the high rate of crimes were drastically reduced. Both the farmers and the pastoralists in the two countries also experienced considerable enhancements of their socio-economic statuses (Oluka *et al*., 2019).

The problem of uncontrolled grazing is however more challenging in Africa than in any other part of the world. This is because Africa has the greatest concentration of nomadic pastoralists in the world. While about 55% of the world's pastoralists are to be found in Africa which has about 61% of its land surface fit for grazing activities, only 10% of the world's pastoralists enjoy the 77% of Australia's land surface with 20% of the world's pastoralists located on 49% of Asia's land surface (Reid *et al*., 2008). This high concentration of pastoralists in Africa has dire consequences for the continent. For example, uncontrolled grazing in Botswana led to serious issues of environmental degradation which was only ameliorated through managed grazing in commercial ranches (Kgosikoma *et al*., 2013).

Chad and the Niger Republic also present interesting case studies in their handlings of the problem of uncontrolled grazing vis-à-vis other land users. The 1959 law regulating the mobility of livestock in Chad dictates that before livestock is moved from one place to another, their owners must submit detailed itinerary of their movements to the appropriate authorities who will ensure that unnecessary conflicts do not arise on the routes to be taken by the pastoralists (Dyer, 2008). The 1993 Code Rural in the Niger Republic also dictates that while pastoralists have priority rights over the land in their home areas, their movements in other areas must be well controlled and regulated (Dyer, 2008).

The Rural Grazing Area (RUGA) policy debacle

Uncontrolled grazing has become a major crisis in the Nigerian state especially as a result of the armed confrontations between Fulani herdsmen and farmers in the Middle Belt and Southern parts of the country resulting into the deaths of thousands of Nigerians and the wanton destruction of property (Apikins, 2020; Ekpo & Tobi, 2019). The crisis, in recent times, has even overshadowed the Boko Haram terrorist group activities in Nigeria with the marauding Fulani herdsmen being labelled the fourth deadliest group in the world as a result of the many deaths occasioned by their activities in the country (Apikins, 2020; Ekpo & Tobi, 2019). To resolve the crisis, in May 2019, the Buhari administration came up with the Rural Grazing Area (RUGA) policy which has as its chief aim, the establishment of grazing settlements in the 36 states of the country (Agbakwuru & Awujo, 2020; Rine, 2019; Toromade, 2019).

The RUGA policy was not the first of its kind. Attempts had also been made at various times in the Nigerian state to curb uncontrolled grazing. For example, the 1965 Grazing

Reserve Law had as its main objective the establishments of Grazing Reserves in Northern Nigeria where herdsmen, who are mainly from Northern Nigeria, will be settled (Sayedi & Ndagi, 2019). Many apologists of pastoral activities may also want to point to the Land Use Act of 1978 which mandates State Governors to set land apart in each state for grazing purposes but a careful consideration of the Act will reveal that the land set apart is not meant to accommodate pastoralists and their livestock but only for the growing of fodder for the livestock (Dyer, 2008). In contrast to these earlier attempts however, the RUGA policy was to have a national spread and it was to be centered on the settlement of Herdsmen in reserved areas all over the country.

While the apologists of the policy argue that the policy was designed to be a permanent solution to the lingering crisis between the herdsmen and the farmers (Agbakwuru & Awujo, 2020; Sayedi & Ndagi, 2019; Toromade, 2019; Udegbunam, 2019); a means of ensuring the economic prosperity of the country as the grazing areas will lead to the creation of jobs, increase in foreign investments, increase in exportable dairy products and the enhancement of related industries including the cultivation of fodder (Agbakwuru & Awujo, 2020; Sayedi & Ndagi, 2019; Toromade, 2019; Udegbunam, 2019); and the promotion of nation building and national unity in the country as the herdsmen, who mainly belong to the Fulani ethnic group and the other ethnic groups in the country will learn to peacefully co-exist (Sayedi & Ndagi, 2019; Toromade, 2019; Udegbunam, 2019), the unprecedented criticisms that greeted the announcement of the policy made the Buhari administration to quickly announce the suspension of its planned implementation (Toromade, 2019).

The critics of the policy viewed it as a plot by the Buhari administration to expropriate land all over the country for his Fulani kinsmen (Rine, 2019). The stand of the critics was informed by several factors. Firstly, the herdsmen became more militant and destructive in the Middle Belt and Southern Nigeria when Muhammadu Buhari, a Fulani, became the President of the country in 2015 (Agbakwuru & Awujo, 2020; Ekpo & Tobi, 2019). In the same vein, the 'loud' silence of President Buhari on the activities of marauding Fulani herdsmen also lent credence to the view that the herdsmen have the tacit approval of the government to indiscriminately graze their cattle in any part of the country and to ride roughshod on any opposition ((Agbakwuru & Awujo, 2020). The fact that most of the top figures in the security institutions of the country are from Northern Nigeria and are kinsmen to these herdsmen also made the suggestions of the support of these security institutions for the marauding herdsmen believable (Agbakwuru & Awujo, 2020). The choice of the 'RUGA" acronym for the policy which is also the Fulani word for cow settlements reinforced the suggestions that it was packaged to further the grand 'Fulanization' project geared to subject other ethnic groups to the Fulani (Agbakwuru & Awujo, 2020; Apikins, 2020; Ekpo & Tobi, 2019; Olokooba *et al*., 2020; Oluka *et al*., 2019). The rebuttal of the Federal Government's explanations that the policy was

arrived at after extensive deliberations by the National Economic Council (NEC) of the country by the Office of the Vice President and some state Governors also buttressed the suggestions that the policy was orchestrated to further Fulani hegemony as it was claimed that the policy did not emanate from NEC (Apikins, 2020). The refutations of the office of Vice President, Prof. Yemi Osinbajo, a Yoruba, that the Vice-President was to be actively involved in the planned implementation of the policy (Adeniyi, 2019, Komolafe, 2019); the colossal amount of money earmarked for the implementation of the policy which was seen as a reward system for the marauding herdsmen; and the unguarded and unchecked statements of the Miyetti Allah Cattle Breeders Association of Nigeria (MACBAN), the umbrella body of these herdsmen to the effect that they had the right to graze anywhere in the country and to deal with any opposition all contributed to the rejection of the policy by Nigerians (Ademola, 2020; Agbakwuru & Awujo, 2020; Ekpo & Tobi, 2019).

Conclusion

The study has shown that while climate change may have resulted into reduction in the available land for cultivation and grazing, the politics of acrimony in multi-ethnic states often cause crisis in the allocation and usage of available resources. This is the experience in Nigeria where herdsmen, who are mainly Fulani, move from the Northern part of the country as a result of drought and desertification to find pastures for their cattle in the Middle Belt and Southern part of Nigeria. The cattle of these Fulani pastoralists often end up grazing in farms in these regions leading to violent clashes between the farmers and the herdsmen with attendant colossal losses of lives and property.

The RUGA policy of the Federal Government of Nigeria targeted towards resolving the crisis was also rejected on the basis of the perceptions of Nigerians that the policy was packaged to favor the Fulani ethnic group over the other ethnic groups in the country.

Recommendations

Bad governance is always at the root of the inability of governments to authoritatively allocate resources in multi-ethnic states (Abiodun & Adenuga, 2018). A government that operates mainly on the principles of nepotism, favoritism and ethnic biases would have issues concerning the implementations of policies as the citizens would view such policies from the prisms of ethic affiliations and if found to be more favorable to a/some ethic group/s over the others, the rejection of the policies become inevitable. Thus, the main recommendation of this study is that governments should base the formulations and implementations of policies on the democratic ideals of inclusiveness, responsiveness and accountability.

Trust is an essential ingredient for nation or region building (Kuhnhardt, 2008). This study has shown that the RUGA policy was rejected in Nigeria because of the scarcity of trust between the citizens and the leaders of the country and amongst the ethnic groups making up the Nigerian state. To establish the needed trust and thus ensure nation building, this study recommends that the Nigerian government convenes a new national sovereign conference where the representatives of the different ethnic groups will discuss and sort out issues concerning areas of conflicts in the country. When the challenge of nation building is adequately addressed, allocations of available resources become easy and crisis free.

The Nigerian government should also tackle the challenge of climate change head-on by addressing the problems of drought and desertification in Northern Nigeria. As noted earlier, climate change is often the end results of human activities, thus, activities that engender environmental degradation should be discouraged through public enlightenment campaigns. Funds should also be made available to counter the effects of climate change in Nigeria.

The Nigerian government should also embrace global best practices on the issue of grazing by promoting the idea of ranches mainly in Northern Nigeria and by encouraging farmers to cultivate fodder to be sold to these ranches.

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Agricultural Policy and Food Security in Nigeria: An Appraisal of the Ban on Rice Importation (2015–2020)

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Abstract. The paper focuses on agricultural policy and food security in Nigeria. We explored the ban on rice imports for the period 2015–2020, by the Buhari administration, implementation and results in terms of food security. The study was guided by the Grossman Helpman's theory of growth, which argues that the endogenous approach, especially in the area of innovation and investment in knowledge and technology is important for economic growth. The ban is necessary in light of the need to take into account the experience and lessons learned from the coronavirus pandemic. However, the study showed that the ban on the import of rice can be likened to a case of placing the carriage before the horse. This is because

the Buhari led government took the right step by placing a ban on rice importation with the intention of boosting the nation's economy and minimizing importation, but failed to first put a lot of factors into consideration. Some very crucial areas which the government failed to address before adopting this policy includes failure to ensure that the deplorable state of roads and rail lines across the country are fixed to ease transportation of goods. The government also failed to adequately address security concerns to ensure farmlands are not kidnappers' den or places where crime is perpetuated as this tends to discourage farmers from freely carrying out their farming activities. It has also not provided relevant technologies for the majority of farmers, especially in rural areas. Lastly, research into crop improvement is inadequate. The ban on rice imports has therefore not reached its full objective. Instead, smuggling of goods into the country continued to hamper local production. This is explained by a strong demand that local farmers are currently unable to meet. The general conclusion is that current circumstances and challenges are impediments to Nigeria's journey towards food security.

Keywords: agricultural policy, ban, food security, importation.

Introduction

Policy is an integral part of governance. It is a deliberate or intentional plan of action aimed at guiding decisions and achieving a rational or expected result, that is, a change.

Nigeria is a hugely populated African country with a population of more than 180 million. The Federal Republic of Nigeria also has an area of 923,769 square kilometers (made up of 909,890 square kilometres of land area and 13,879 square kilometres of water area) (NBS, 2016). Before the discovery of oil, the Nigerian economy was majorly an agrarian economy known for the production of different types of food and cash crops with some being exported to other countries (Akinyetun, 2018).

Nigeria has had more than 20 years of ongoing democratic governance since 1999. Different administrations have developed one agricultural policy or another. These policies, although with a similar purpose, continue to change names from one jurisdiction to another.

Agriculture improves food security when the right agricultural policies are formulated and consequently implemented and when the citizens (both the leaders and the led) have a positive approach and attitude towards agriculture and the development of the nation at large. In other words, inadequate agricultural policies can gradually make agricultural work less attractive, which in the long term will aggravate food production and other agricultural production (Owolabi *et al*., 2016).

It is imperative to state here that, the quest to eradicate poverty and hunger as well as attain food security is an issue of global concern which is why it was indicated as part of the objective in the Millennium Development Goals (MDG) and the Sustainable Development Goals (SDG) which both convey global development agenda.

Agricultural policy is very fundamental because it is often geared towards improving agricultural production, achieving self sufficiency in basic food supply in other to ensure food security, creates employment, improves standard of living, promote the use of modern technology in agricultural production, producing with a focus to export surplus goods to mention a few. Nigeria has been a country with a history of importing diverse products/goods. Adebayo (2010) is of the opinion that Nigeria's reliance on imported food products continues, although food production is expected to increase. This, according to him can be attributed to the slow growth in the area of food production as compared to the high growth of the nation's population as well as the high level of losses sometimes realized after harvesting. The combination of these factors creates a gap between the actual food produced and the amount of supply available.

Rice is one of those imported products, most of which come from other countries, particularly Asian countries, and that sometimes leads to many evils or disadvantages. Some of the challenges of importation of rice include possible importation of expired rice, inability of Nigeria's local rice industries to grow, excess spending of her resources on foreign exchange, low productivity to mention a few. To this end, the government of President Buhari saw fit to prohibit the importation of rice with the aim of remedying these setbacks. Yomi (2019) argued that President Buhari had repeatedly discussed plans to achieve food sufficiency and boost local agriculture with rice as the centrepiece of the strategy. Thus, a crackdown on rice imports with customs duties and levies totalling 70% and a $150 million loan program for local rice farmers was established. The government has taken this step to reduce the attractiveness of imports while boosting local rice production and consumption.

Thus, this paper is a study of agricultural policy and food security in Nigeria with specific attention on the ban of importation of rice by the Buhari led administration and the implementation of the policy so far as well as the outcome in the area of food security for the nation. More specifically, this research aims to:

—Investigate the reasons for the continued importation of rice despite the ban;
—Explain some of the factors that can lead to poor farm output; and
—Identify actions needed to address food insecurity in Nigeria.

Conceptual Clarifications

Understanding any work requires clarifying some of the keywords used in the work. These concepts include agricultural policy, food safety, assessment, ban and import.

Agricultural Policy: Policy is a fundamental aspect of governance and it has to do with a plan of action introduced to guide decision and consequently achieve change in a particular area. Agricultural policies, however, can be seen as laws relating to domestic agriculture deliberately introduced and implemented by the government to achieve certain results. It can also be considered an action statement used by a country to achieve agricultural development. Agricultural policy is essential to food security, especially when good policies are formulated and implemented.

As a matter of fact, agriculture policy, like any policy, is formulated or implemented with certain objectives. In the opinion of Frank *et al*. (2007),

> Policy formulation and adoption includes the definition of objectives—what should be achieved by the policy—and the consideration of different action alternatives (p. 8).

Agricultural policy is an important issue that comes either as a result of the change or formulated to create some form of change and this change is largely expected to positively affect the being of the citizen and the nation at large.

Food security: Food is a fundamental requirement for human survival. Food security is the availability of food, both in quantity and quality, so that the people of a country can easily access it without too many problems. Simply put, a country is food –secure when the majority of its population has access to food in adequate quantity and quality consistent with decent existence at all times (Idachaba, 2004). It is imperative to also add that the food must always be in a good condition that is hygienic and in line with internationally accepted standard so as to ensure the healthy lives of the citizens who consume it. Food security is one of the major concerns of every purposeful government and, government often introduces policies, programmes and strategies geared towards boosting the agricultural sector with a desire to achieve food security.

Evaluation: Evaluation is the assessment, evaluation or judgment of the value, performance or nature of a thing or person. As used in this work, the word "Appraisal" is used with the intention of assessing the extent to which a particular government policy has yielded result considering the factors surrounding the policy, the intention behind the formulation of the policy and the level of its implementation so far.

Ban: The word ban means to forbid, prohibit or disallow something or someone from freely carrying out certain operations or actions. That means criminalizing something as well. As used in this work, the word "ban' means prohibited by law or by official or formal rules with the aim of stopping something that had hitherto freely been in existence.

Imported: Importation means to bring in commodities (goods or services) from a foreign country into another country. The antonym of the term "import" is "export" which simply means transferring or selling goods in one or more countries. It is also important to note that the importing and exporting jurisdiction can impose a tariff (tax) on goods. Nigeria imports rice among other commodities for its citizens and food imports occur primarily when local supply is inadequate.

Literature review

Nigeria suffers from a number of development problems. Without a doubt, hunger and poverty are some of the endemic problems facing the nation. Ojo and Adebayo (2012) argued that Nigeria is one of the food-deficient countries in sub-Saharan Africa, though it is probably better in terms of production than others. Stressing the importance of food, they went on to add that, a hungry and an unenlightened nation is a weak one while any region subject to famine or starvation is an insecure one. Such a region will continue to be constantly under threats and be exposed to external penetration either by ways of aids, relief materials or other forms of assistance presumably put together to ameliorate the people's suffering (Ojo & Adebayo, 2012). Over the years, especially after independence, a number of agricultural policies have been adopted by different governments in power with similar objectives. The objectives of these policies, which are often similar in most cases, are motivated by the intention of stimulating the agricultural sector and ensuring food security as well. Agriculture in Nigeria has, however suffered neglect and met with some setbacks due to the heavy reliance of the Nigerian government, over the years in the oil and gas sector especially during the oil boom era in the 70s. Clearly, the persistent failure of agricultural programmes in Nigeria has revealed a basic weakness of agricultural policies in Nigeria and the inability of administrations to solve the fundamental problem of agricultural development (Amalu, 1998). It is equally important to state that the Nigerian government has over the years introduced agricultural policies with little or no effort at matching these policies with corresponding technological and financial assistance that make for success.

Nigeria's agriculture sector has gone through a variety of programs and projects. Ojo and Adebayo (2012) argued that,

> Successive administrations have been trying to ameliorate the food security problem. But the wide gap between intents and actual practices has always been the bane of Nigeria's agricultural policies (p. 211).

These programs or policies are often designed to support and enhance the national agricultural sector. Food security is a commitment by all serious governments to protect

their citizens. To that end, governments strive for food security. Unfortunately, the majority of countries, especially in Africa, are devastated by food crises such as hunger, malnutrition, poverty, etc.

Theoretical framework

The Grossman–Helpman's theory of growth being adopted in this work in explaining how Agricultural policy can achieve food security argues that economic growth is primarily the result of endogenous forces. It is the argument of these theorists that economic growth occurs especially when there is investment in human capital, technology, research and development and also appropriate innovations are put in place for maximum production in a largely populated country like Nigeria.

Grossman–Helpman's growth theory sheds light on the role of innovation in growth. There is a belief among theorists that innovation leads to growth. In other words, innovation is an important instrument of long-term growth (Grossman & Helpman, 1994). Theorists believe that goods have to undergo a constant improvement of the product that will trigger growth. The theory maintains that the place of research is important because it assures effective knowledge for innovation and competition. Innovators can also learn from one another's failures and successes, evolve and improve their products.

The choice of this theory in the explanation of agricultural policy and food security with an appraisal on the ban on rice importation is hinged on the area of innovation and investment as necessary aspects of growing an economy. Reliance on imported products can interfere with a country's ability to fully maximize its local production capacity.

In summary, the underlying premise of this theory, which focuses on the endogenous approach, is that information, innovation, investment and technology are essential determinants of economic growth. This research was based on secondary data.

Agricultural Promotion Policy (2016–2020)

This policy builds on the Agricultural Transformation Program implemented by the previous government from 2011 to 2015. Despite the challenges faced, the Agricultural Transformation Program has a number of accomplishments. There continued to be a gap in rice production under the Agricultural Processing Program. The demand for rice (6.3 million tons) continued to exceed supply (at 2.3 million tons). This was a challenge (Federal Ministry of Agriculture and Rural Development [FMARD], 2016). This has informed the formulation of agricultural promotion policy in the hope of bridging the gap

between supply and demand. The Buhari administration intended to pursue this policy in partnership with other stakeholders to achieve the policy goals.

Agricultural policy and food security in Nigeria

Results and discussion

Nigeria's reliance on other countries for food has not been beneficial. Rice (oriza sativa) is a widely consumed basic food imported into the country from external sources to increase or supplement local production. Nigeria was spending billions of dollars importing rice and other food products because local supplies were inadequate. As Ajala and Gana (2016) argue Nigeria's inability to meet local demand for the product created the atmosphere for importation. Population growth is another factor that has contributed to importation of rice.

The ban on importation of rice by President Buhari's government is not the first in the history of Nigeria. The reasons for ban on importation also border on inconsistency in government policies (Ajala & Gana, 2016). Local production has increased over the years, something Ajala and Gana have attributed in part to the ban on importation in 1985. This ban needed to be maintained to guarantee better results. Easing the ban in 1997 was not in the interest of the Nigerian economy as it meant flooding the market with foreign rice. It also meant a huge foreign exchange investment in ensuring that rice was available through importation.

Thus, the Buhari administration was easily commended for the ban on rice import. Increasing local production remains a key motivation. According to Global Agricultural Information's (GAIN) report (2017), the measures adopted by the Central Bank of Nigeria (CBN) in 2015 which excluded importers of about 41 commodities (including rice) from being given foreign exchange has not fully tackled the challenge confronting the country in the area of the depleting value of its local currency.

The Anchor Borrower Programme is an initiative of the government to increase agricultural productivity. The programme, launched on November 17, 2015 was basically introduced to aid farmers with the necessary incentives (CBN, 2016). The Central Bank of Nigeria in collaboration with other stakeholders is to jointly carry out the various responsibilities towards ensuring the achievement of the objectives of the programme which is basically geared towards giving local production a face-lift. Furthermore, as submitted in the Central Bank of Nigeria's annual report (2017), the range of commodities eligible for financing under the Anchor Borrower Programme was expanded from 4 in 2016 to 9 in 2017 due to new risk-sharing models introduced to make the Programme more attractive

for prospective anchor companies and financial institutions. These products included rice, wheat, corn, soybeans, beans, peanuts, cassava, cottonseed, etc.

Moreover, as reported in the 2017 ECN Annual Report, the beneficiary farmers operated under 44 anchor companies in 26 states of the Federation. The program includes lending to small farmers to support their agricultural work.

Appraisal of the ban on rice imports.

Some analysts have argued that the ban on the importation of rice has encouraged more farmers to go into farming and equally increased indigenous production of rice by most farmers who perceive the ban as an opportunity to promote local production. Olushola (2018) argued that government policies and the investments of some private investors have led to an increase in rice production. Olushola also added that the Dangote Rice Limited introduced the out growers' scheme in 2016 in Hadejia, Jigawe State creating job opportunities for farmers and that plans are in place to establish more production companies.

In fact, some analysts are of the opinion that due to the ban, several rice milling companies have sprung up across the country and most States now engage in rice farming though most of them are still at subsistence level. Also, it is the argument of such analysts that the gradual increase in rice farming has equally led to both direct and indirect job opportunities which is one of the objectives of the Agricultural Promotion Policy.

An important aspect to note is the fact that Nigeria has been able to overcome some of the challenges observed during the global coronavirus epidemic. Most countries have closed their borders to minimize the spread of the virus, which has hampered the importation and export of goods and services during the lockdown period. Had Nigeria depended on rice imports, the supply challenge would have been enormous and likely intolerable given the country's population.

However, other analysts have argued that Nigerian rice farmers have seen their production decline because of certain factors. These factors include flooding of agricultural land, rising input costs, endemic cases of insecurity (kidnappings, bandit attacks and clashes between ranchers and farmers), lack of modern technologies, etc. These challenges show that the increase in the production of rice cannot be said to be consequential enough to bridge the gap of the demand-supply chain as rice production is yet to hit an appreciable level.

Most States in Nigeria are into rice production, although this is mainly done by local small-scale farmers with crude technology, which makes it challenging to achieve adequate and optimal production of rice that is commensurate with its demand.

The consumption rate of our locally grown rice is gradually increasing and more and more people are starting to use locally grown rice because it has a higher nutritional value. It is also healthier for consumption than some of the imported rice, which may have remained for so many years before being imported, sold and consumed. It has been alleged for some time that rice suspected to be plastic rice has been imported, and this rice is unhealthy for humans. The ban, however, helps control some of the ills associated with importation.

An important aspect of the ban on foreign rice flows relates to the enormous savings in our currencies. The money initially used to import rice was large. It can now be retained and invested in the development of our local agricultural industries and other sectors.

However, despite agricultural policies on the ground, Nigeria in the current circumstances may be considered food insecure (Attah, 2012). The ban on rice imports has not totally stopped the flow of foreign rice into the country. Smugglers smuggling foreign rice across our porous borders and flooding the Nigerian marketplace are a serious problem. In fact, smuggled rice costs Nigeria enormous import rights which should be returned to it. Customs officers have on some occasions been accused of aiding and abetting the smuggling of contraband items and this reflects how porous our borders are and how compromised some public officials are too. As a result, contraband rice adversely affects locally produced rice because some consumers prefer foreign rice to local rice. Suffice to say, some of the rice being produced and processed in Nigeria is of low quality and this tending to influence the choices of some people, especially in the urban areas. Some people are not encouraged to use this "bad quality" rice because of the large quantities of stones and flakes in the rice. It should be noted that production and processing technology is still at a very low level, which contributes to this poor-quality rice (presence of stones and sequins). Nigeria's technological base remains very weak and requires considerable attention and investment to improve local output. Most farmers are having difficulty accessing facilities for advanced food production (Matemilola & Elegbede, 2017). A good number of rice producers in Nigeria are smallholder farmers who are faced with lots of challenges such as lack of funds, lack of modernized technology, lack of appropriate varieties of rice or the low adoption of modern varieties, limited supply of agro-chemicals and fertilizers to mention a few. Ake (2002) opines that local food producers grow food for subsistence hence food production was and still is mainly for use-values as opposed to exchange-values resulting in limited exchanges and weak market mechanisms. Okosun *et al*. (2016) argued that this has a negative impact on production capacity, affecting the country's struggle to overcome the challenges of food insecurity. In fact, it is unfortunate that most of the agricultural development programmes and River Basin Development Authorities which are established to provide rice cultivation facilities and infrastructures are now ineffective due to neglect, underfunding and so on.

Furthermore, increased safety concerns have a significant impact on rice and other commodity production. It is consistently reported that farmland has been invaded

by kidnappers, bandits, shepherds and other criminal elements, and that some farmers have been raped, killed or abducted. For instance, on November 28, 2020, more than 43 rice farmers were horrifically murdered by members of the Boko haram while growing rice. Moreover, an unconfirmed number of women and girls were allegedly abducted during the same attack. This type of invasion of agricultural land scares and discourages farmers from engaging confidently and fearlessly in agricultural activities for fear of being attacked. These bad actions are not only a threat to achieving food self-sufficiency, but also an attack on Nigeria's economy.

In addition, some of the top agricultural officials are reportedly corrupt. For instance, the Managing Director of the Nigeria Incentive-Based Risk Sharing System for Agricultural Lending (NIRSAL) M. Aliyu Abbata Abdulhammed has been accused of corruption, fraud and lack of transparency, according to an on-line report. Also, the Anchor Borrowers Programme has not benefitted many small holder farmers who truly deserve it as intended and this makes it difficult for them to increase their productivity due to financial constraints.

In addition, agricultural research centers in Nigeria have not been fully efficient and effective as expected. Research on key crops like rice has suffered enormously. For example, the National Cereal Research Institute is limited by a lack of funding and staff, which hinders the achievement of its full potential (Longtau, 2003). There are only a handful of multi-national corporations such as the International Institute for Tropical Agriculture (IITA), International rice research Institute (IRRI) and West Africa Rice Development Association (WARDA) and NGO's that are directly involved in the dissemination and research of rice technologies (Abdulwaheed *et al*., 2017). Research institutes must continuously conduct in-depth research on improved rice varieties and introduce ideas and innovations that can boost the productivity of local rice. Odunze (2019) rightly pointed out the importance of the availability and accessibility of information in the agricultural sector. A synergy or collaboration among farmers, research institutes and ministry of agriculture and rural development as well as the needed support from government is highly needed at this point as all hands must be on deck if the dream of food sufficiency must be a reality.

Conclusion

There is no doubt food is essential and necessary to human strength and survival. Food insecurity, nevertheless, is a huge challenge in many countries of the world, and worse in developing countries (Matemilola & Elegbeda, 2017).

The ban on rice imports has not been a success as cases of smuggling of the product remains a key concern. The country does not have sufficient facilities on the ground to ensure local

production or cultivation of adequate quantity and quality of rice to meet local demand. Thus, it is imperative to put the necessary measures in place to enhance productivity in the agricultural sector so as to ensure expansion of food production at a rate that equals food deficit and to consequently eliminate the dependence on food import (Adebayo, 2010). Nigeria needs to be more committed to stimulating local production and patronage.

The introduction of the African Continental Free Trade Agreement (ACFTA) makes a demand on Nigeria to put the necessary measures in place and be better positioned and prepared to produce high quality products, favorable for competition with other African countries. The government needs to address the challenges that continue to ravage the agricultural sector, such as lack of funding, security threats, lack of modern technology and quality seeds to improve production, etc. When these challenges are tackled with the relevant stakeholders playing their roles, along with research and innovation, the agricultural sector will record impressive boost especially with regards to the production of rice.

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Climate Justice and Degradation Impacts of Capitalist Natural Resource Appropriation: Experience from the Niger Delta, Nigeria

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Abstract. This paper provides on-the-ground evidence of recent and incendiary degradation impact of capitalist oil resource appropriation by Multinational Oil Companies (MNOCs) in the Niger Delta and how this contradicts the climate justice paradigm. The paper follows the political ecology framework and discusses climate justice and what makes it a viable option for mitigation of climate change vulnerability arising from degradation impact of capitalist oil resource appropriation exemplified in oil spill, water and land pollution, acid rain, gas flaring, deforestation and resurgent black soot with case examples. The paper demonstrates that capitalist oil resource appropriation contradicts the ideals of climate justice. In the alternative, argues that while there is a need for a debate on the possibility of finding international agreement on the values involved in climate justice, this debate cannot be separated from ecological and ethical debates on the issues of equality, social and ecological justice. Thus, discourses on climate change, cannot set climate justice aside. The paper concludes that, to mitigate climate injustice in the Niger

Delta, there is need to make a distinction between issues of capitalist oil resource appropriation of MNOCs, resource transparency, and ecological just social order as central to climate action (SDG: 13)—a globally expanding climate construct.

***Keywords*:** SDG: 13, climate justice, MNOCs, equality, capitalist resource appropriation, climate change.

Introduction

The exponential rise in recent decades of natural resource appropriation of the Multinational Oil Companies (MNOCs) described as 'capitalist oil resource appropriation' and corresponding climate vulnerability and environmental degradation implications among the poor societies of the global South has rarely been explored from the lens of climate justice. Climate change is the greatest humanitarian challenge facing mankind today and it is a challenge that has a grave injustice at its heart. The developed economies of the world contribute the overwhelming majority of global greenhouse emissions. But it is the poorer and least developed nations that are hit hardest by its impact (Anan, 2009).

Climate justice examines dynamics of complex injustice linked to climate resources and its use as well as corresponding implications on the poor societies. It explores concepts such as environmental racism, ecological justice, climate vulnerability, asymmetries in capitalist natural resource appropriation, feminist ecology, inequality, environmental rights, collective natural resource rights, and the historical responsibilities for climate change.

Across Africa, increasing concern on climate justice has re-emerged following global climate vulnerability and environmental insecurity at the heels of the United Nations' Conference of the Parties (COPs). Bond (2012) foreshadowed 'Africa and the Politics of Climate Justice' following world leaders' responses to climate change at the aftermath of series of United Nations' COPs (Kyoto, Copenhagen, Cancun and Durban) and argued that the elites are incapable of reconciling the threat to the planet with their economies' addiction to fossil fuel.

The Intergovernmental Panel on Climate Change (IPCC) was set up in 1988 by the World Meteorological Organization (WMO) and the United Nations Environmental Program (UNEP) to provide trends in climate change. In their first report, in 1990, they showed that climate change is a reality and that it is caused by anthropogenic activities (Amadi, 2013). In 2000, the first climate justice summit was held in The Hague. Conference participants placed much of the blame for both global warming and the lack of significant progress in the climate negotiations on giant oil corporations.

With the recent 'climate shocks' following resurgence of black soot, persistent oil spill, water and land pollution, coastal flooding, sea level rise and deforestation alongside broader rise of environmental movements across the Niger Delta, Nigeria, it appears that some of the core foundations of climate justice is contestable. Such contentions have led to spirited discourse on climate change mitigation as much of the climate distortions are evidenced in lethal feedbacks from capitalist oil resource extraction by multinational oil companies (MNOCs) in the Niger Delta (Uyigue & Agho,2007; Amadi, 2013; Amadi & Ogonor, 2015; Yakubu, 2018; Amadi & Alapiki, 2018). Many of these studies, however, have tended to overlook the longer-term effect of climate justice in mitigating degradation impacts of capitalist oil resource appropriation—a gap which extends to the dominant theorizations in ecological studies. Thus, recent studies have emphasized marginal policy response with regards to capitalist oil resource exploitation in the Niger Delta (Allen, 2010; Amadi & Alapiki, 2018).

This paper seeks to critique lethal outcomes in capitalist oil resource appropriation by highlighting the importance of climate justice in the poor and ecologically vulnerable societies of the global South drawing on the Niger Delta experience. In particular, it draws attention to the role of climate justice in the construction and maintenance of eco-friendly, equitable and sustainable social order across developing societies whose environment is unjustly degraded as integral to the attainment of global climate action (SDG: 13) and in particular, the remaking of deleterious capitalist oil resource appropriation of MNOCs in the Niger Delta notably Shell, Mobil, Agip, Chevron, Texaco, Total, etc.

Appropriation in this paper is used in development context to imply expropriation or exploitation. In strict Marxian term as Fairhead *et al*. (2012) argue, appropriation suggests "control over resources that were once publicly or privately owned—or not even the subject of ownership—from the poor (or everyone including the poor) into the hands of the powerful. It is an emotive term because it involves injustice" (p. 238). This emphasis on climate justice and capitalist resource appropriation not only underscores some marginalized aspects of Third World ecological concerns but also better accounts for the specific contexts capitalist oil resource appropriation and degradation impacts undermine climate justice. It identifies salient evidence of environmental degradation and its linkages with climate injustice-an issue that most development studies themes have ignored. Put differently, the assumption that capitalist oil resource appropriation of the MNOCs is eco-friendly will be fundamentally challenged. In the alternative, the paper provides concrete evidence of environmental degradation accounting for persistent climate change in the Niger Delta akin to climate injustice, which has been an increasingly marginal issue in environmental politics discourse in Nigeria.

Our argument follows on the heels of a number of recent scholarship that have emphasized the persistence of climate injustice and complex ecological implications in the

developing societies (Kovel, 2002; Bond, 2012; Amadi, 2013; Jafry *et al*., 2019; Newell *et al*., 2020). Much of the debates on climate justice highlight the poor policy response of the Nigerian state (Allen, 2010; Amadi & Alapiki, 2018), which reflects a dilemma in climate vulnerability and mitigation challenges that both sub national and national governments have not responded to, effectively. Further, many accounts of environmental degradation in the Niger Delta have been criticized for shortcomings in their analysis of the capitalist degradation impact of oil resource appropriation, as well as their failure to address the relevance of climate justice in Nigeria's environmental policy that have been in the margins and, in some instances could help foster sustainable and inclusive oil resource appropriation against the dominant deleterious capitalist strand (Amadi & Alapiki, 2018).

The paper draws from some of these previous debates and, in a distinct manner, shares their perspectives on the centrality of the argument on climate justice in the oil rich Niger Delta. Thus, by focusing on degradation impacts of climate injustice, the paper aims to make a distinct contribution to the wider climate change scholarship and climate justice in particular, which is relevant to both an understanding of the specific contexts of the degradation and the construction of capitalist resource appropriation in general—a debate that speaks to global climate change policy makers and the contemporary context of a reinvigorated climate action in the developing societies. In this regard, this paper conceptualizes climate justice to demonstrate how and why it is important in redressing environmental degradation, thereby making original contribution and filing an important gap in the literature.

The rest of the paper is structured as follows; theoretical linkages between climate justice and political ecology, dynamics of degradation impacts of capitalist oil resource extraction drawing on some case examples, conclusion and recommendations.

Theoretical linkages between climate justice and political ecology

Theoretical arguments on climate justice suggest that the term has been often used as an ethical concept to explore complex challenges of global warming and political issues, rather than mere environmental discourse (Brunnée, 2009; Gardiner *et al*., 2010; Lobeda, 2016). On its part, political ecology is essentially concerned with the understanding of the underlying implications of 'politicized environment' especially in the third world. Such socio-ecological construct is emphasized by Peet and Watts (1996) who argue that political ecology deals with issues such as degradation, marginalization, environment, conflict, conservation and control, environmental identities and social movements. Political ecology in the views of Robbins (2012) examines how unequal relations in and among societies affect the natural environment especially in context of government policy.

Similarly, political ecology, as Bryant and Bailey (1997) posit, is concerned with issues of inequitable distribution of cost and benefits in environmental change. Changes in the environment differently affect society as well as inequality in resource distribution.

The study of the theoretical linkages between climate justice and political ecology within development studies suggests that climate justice issues have been increasingly marginalized by political actors leading to ecological breakdown. A substantial body of literature has reinforced this argument (Sharife & Bond, 2009; Bond & Desai, 2011; Cameron *et al*., 2013; Robbins 2012; Amadi,2012; Jafry *et al*., 2019; Svarstad & Benjaminsen, 2020). With specific reference to the Niger Delta and, in particular, the distinct character of the political relations between the Nigerian State, the capitalist oil multinationals and the host oil bearing communities, a number of theoretical perspectives have sought to theorize the connections between these concepts (Watts, 2004; Omeje, 2006; Amadi, 2018). Perhaps more than any other critique of the "mainstream" asymmetrical resource extraction, Foster, Clark and York (2011) have rediscovered and expanded Marx's understanding of the alienation of human beings from the natural world, crystallized in the concept of metabolic rift.

The metabolic rift is a concrete expression of the human estrangement from the material conditions of life-from nature (Foster *et al*., 2011). This has drawn out the structural interconnections between resource appropriation and inequality as well as the vulnerability arising from such mode of exploitation. Foster *et al*. (2011) provide further theoretical substance to the generative forces and consequences of the capitalist natural resource exploitation by explicating the underlying assumptions of capitalism and meaning it creates, which shapes its mode of exploitation while at the same time demonstrate the ways in which the internationalization of political ecology can provide a viable alternative to resource exploitation and degradation. Tanuro (2013) adopts a similar line of argument in exploring the impossibilities of a "green democracy" this emerges at the heels of fusion of power and inequality inherent in capitalism.

Our primary focus here concentrates on the political ecology of climate justice, arguably the most influential explanation of the distinct political character of the political ecology of the Niger Delta, and its relation to Marxian approaches as appropriate is found in the arguments by Amadi *et al*. (2014), Amadi and Igwe, (2016), and Amadi (2018). Marxian political ecology as Amadi (2018) broadly argued is premised on access, alienation, control and unequal exploitation of the natural ecosystem as well as the political implications or attendant social outcome. In particular, Amadi (2018) explored the political ecology of upland and riverine Niger Delta and argued 'that the distortion of subsistence and livelihood of the upland and riverine Niger Delta is better understood from the Marxian political ecology perspective' (p. 100). Such comparative exploration deepens the understanding of specific contexts the theoretical remit of the political ecology is suitable for the Niger

Delta study. The asymmetrical stance of capitalist resource exploitation provides the most sustained theoretical account of the Marxian political ecology and why political ecologists strive to resolve contending ecological crises that have confronted the post- Cold War era (O'Conor, 1998; Foster, 2000; Kovel, 2002; Bond, 2012; Amadi, 2018). For these reasons, it is worth exploring the complexities and contradictions of climate justice in the developing economies, the Niger Delta experience represents such arguments contextualized within the marginalized societies of the third world. With more critical approaches framed from the lens of political ecology, it is essential to understand the dynamics of power, access and control inherent in MNOCs and natural resource politics and its attendant climate justice implications.

Central to Marxian political ecology, the analysis of resource exploitation is an emphasis on power, inequality and access. In political ecology contexts generally, it is the specific exploitative character of capitalism that fosters inequality which accounts for the underdevelopment of the low-income societies of the Third world and undermines their ability to achieve economic freedom and independence. The essence of such freedom forms the theoretical basis of Sen's (1999) definition of development as freedom. Thus, capitalist resource alienation and marginalization constitute historically unprecedented scenario, which accounts for increasing resource curse in terms of instability and crisis arising from natural resource conflicts. In particular, the powerful states are at the center of political ecology of resource exploitation linked to the western multinationals as Marxian political ecology analysis suggests. This analytical trajectory of the political ecology debate forms the central theoretical approach of this paper.

Dynamics of degradation impacts of capitalist oil resource extraction: Some case examples

The wider discipline of climate justice is a response to increasing environmental or climate related challenges, such as alienation and marginalization of the societies of the global South. Climate justice discourse includes academic and public reaction to such challenges. In many ways, climate justice has developed alongside environmental and intellectual activism as the environment and its resources as conceived largely as commodity by capitalists could be seen alternatively from ethical lens. Climate justice is characterized by those issues that extend to eco-efficiency, ecological footprints, greening and bio conviviality, particularly issues which are eco-friendly in the public sphere. Thus, as new types of climate awareness are emerging to deal with increasing degradation of the environment, there is need to address climate justice issues both nationally and globally. For instance, decades of oil resource extraction in the Niger Delta by multinational oil companies have not only destroyed the ecosystem, rather has impoverished the people. Climate justice raises questions that challenge capitalist resource extraction by advocating for a more bio convivial and ethical stance in resource

extraction, it raises more fundamental questions about sustainable development, which are ignored in capitalist resource extraction.

However, over the decades, the degradation impact of oil extraction of these multinationals in relation to climate justice has not been given adequate scholarly attention. This section explored some case scenarios to provide evidence of environmental degradation, this includes the black soot air pollution, coastal erosion and sea level rise, oil spill, water and land pollution, mangrove deforestation and natural gas flaring.

The Niger Delta extends over about 70,000 km^2 (27,000 sq mi) and makes up 7.5% of Nigeria's land mass. The region is an oil rich coastal area in South-South Nigeria. It is the World's third mangrove forest bearing not only Nigeria's most abundant petroleum resources, but also diversified ecosystems, and numerous aquatic and terrestrial organisms (Okonkwo, 2015). Although crude oil was found in commercial quantity in Oloibiri a community in the Niger Delta in 1956 by a leading oil multinational namely Shell, presently, there are several oil multinationals in the Niger Delta (see table 1).

Table 1. Some multinational oil companies operating in the Niger Delta

No	Oil Company	Shareholders	Operators	Share of National Production
1	Shell Petroleum Development Company (SPDC)	NNPC-55% Shell-30% Elf -10% Agip-5%	Shell	42.0%
2	Mobil Producing Nigeria	NNPC-50% Mobil-42%	Mobil	21.0%
3	Chevron Nigeria	NNPC-60% Chevron-40%	Chevron	19.0%
4	Nigeria Agip Oil	NNPC-60% Agip-40%	Agip	7.5%
5	Elf Petroleum Nigeria	NNPC-60% Elf-40%	Elf	2.6%
6	Texaco Overseas (Nigeria) Petroleum	NNPC-60% Texaco-20-% Chevron-20%	Texaco	1.7%
Total				93.8%

Source: [EIA] (2020) Energy Information Administration: Country Analysis Briefs

The case of black soot air pollution

Black soot primary occurs where there is massive burning arising from fossil fuel or heating system experienced in crude oil extraction. Black soot is a black substance in the atmosphere which arises as a result of oil related pollution. There have been evidence of black soot in parts of Rivers State. However, the most incendiary was experienced

in the last quarter of 2016 as residents of Port Harcourt in Rivers State, and adjoining communities experienced adverse environmental impacts of particle (soot) pollution. The soot causes air pollution with black particles in the atmosphere considered an environmental health threat. In February 2017, several months following the onset of the pollution, the government declared an Emergency, and set up a Task Force to investigate and find a solution to the problem (Yakubu, 2018). Despite the task force setup, the soot continued and poses a serious environmental threat. In a recent study, Yakubu (2018) found that Aluu community in Rivers states was adversely impacted. Other studies found that Abuloma axis and adjoining communities of Amadi-amadi and local communities

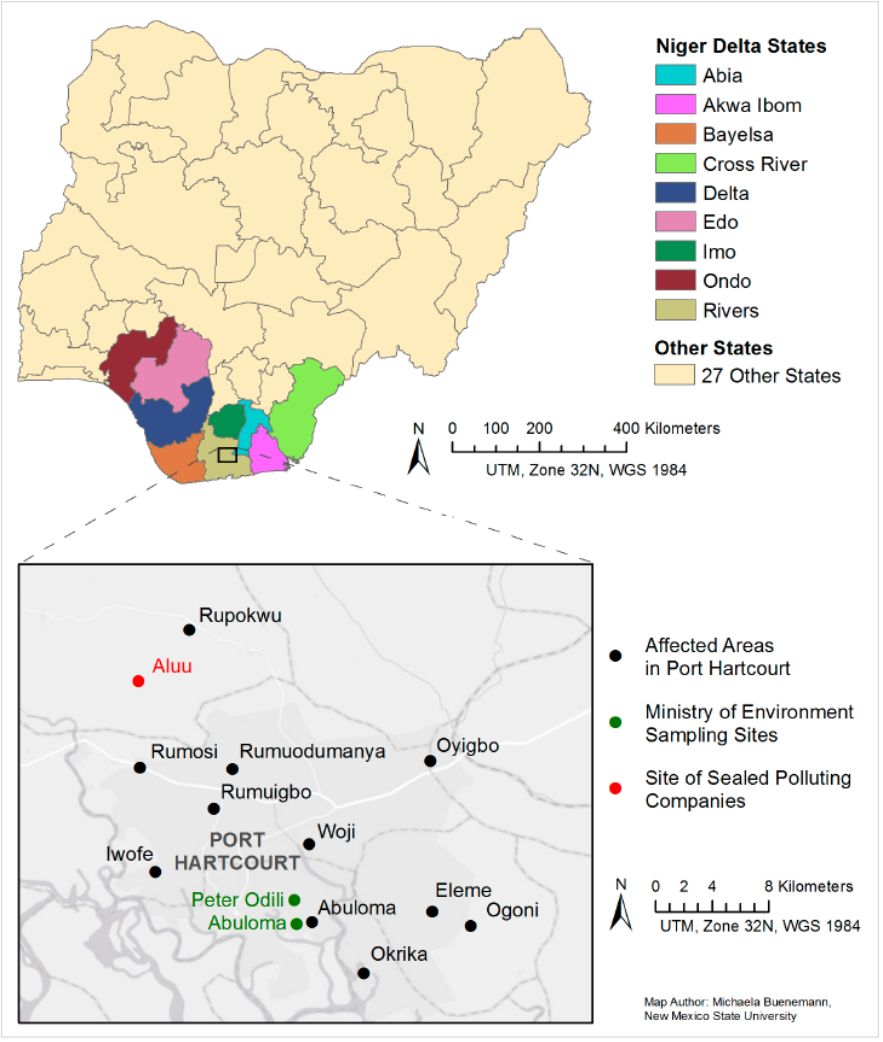

Figure 1: Map of Nigeria showing the Nine Niger Delta States

Source: Yakubu, 2018.

around Abuo in Abua/Odual lGA were impacted (Kalu, 2018). In Aluu, Yakubu (2018) found that particles of black soot posed a health hazard to the community as the atmosphere increasingly changed. The company involved in the pollution was sealed by the government. Apart from impacts soot has on respiratory system, it is argued that it could trigger other respiratory diseases which are antithetical to human health and survival. The most significant negative impacts on health are caused by air pollution. This underscores the need for rigorous mitigation and climate regulatory policies.

The case of oil spill

A common environmental degradation impact of capitalist oil resource extraction is oil spill. Oil spill has been a perennial occurrence in most host communities in the Niger Delta such as communities from Ogoni axis notably Bodo where water and land pollution by Shell remains both ecological and human problem. Recent data by the Department of Petroleum Resources (DPR) estimated that 1.89 million barrels of petroleum were spilled in the Niger Delta between 1976 and 1996 out of a total of 2.4 million barrels spilled in 4,835 incidents (approximately 220 thousand cubic metres) (Daily Independence, 2010).

In 2006, UNDP Niger Delta human development report showed that there are a total of 6,817 oil spills between 1976 and 2001, which accounted for a loss of three million barrels of oil, of which more than 70% was not recovered, 69% of these spills occurred offshore, a quarter was in swamps and 6% spilled on land where the host communities derive their means of livelihood (UNDP, 2006).

There are individual spills either erroneously or a result of environmental agitation by aggrieved youths or environmental movements the most incendiary include the blowout of a Texaco offshore station, which in 1980 deposited an estimated 400,000 barrels (64,000 m3) of crude oil into the Gulf of Guinea. Nwilo and Badejo (2001) reported Shell's Forcados Terminal tank failure, which resulted in a spill estimated at 580,000 barrels (92,000 m3). In a related study In a 2010 study, Baird (2010) found that between 9 and 13 million barrels of oil were spilled in the Niger Delta since 1958.

The spill has complex effects rural livelihoods and the mangrove forests are destroyed as most households survive by relying on their immediate natural environment (Amadi, 2013). Thus, crops and aquaculture are affected as a result of contaminated groundwater and soil for cultivation. Simire (2012) estimates that 5 to 10% of the Niger Delta mangrove ecosystems have been wiped out by oil extraction of the MNOCs. Similarly, Manby (1999) showed that the rainforest has also disappeared as most oil-bearing communities are famers whose farmlands are often polluted through oil spill. In a recent field study Amadi (2018) found that persistent pollution is common across several oil-bearing communities in the Niger Delta.

A seminal data provided in 2011 by the United Nations Environmental Programme (UNEP) which implicated the MNOCs gave credence to environmental degradation impact of oil extraction in the Niger Delta (UNEP 2011). The report paid particular attention to Ogoni communities and found severe land pollution, tap water contamination, loss of aquatic animals, destruction of mangroves, and "weak institutional capacity of the federal government to control the MNOCs and the oil sector in particular (UNDP, 2006; UNEP, 2011). On January 30, 2013, a Dutch court ruled that Shell is liable for the pollution in the Niger Delta (Ridderhof, 2013). In January 2015, Shell agreed to pay $80 million to the Ogoniland community of Bodo for two oil spills in 2008 after a court case in London. To date, the polluted communities have not been cleaned despite the recommendation by UNEP for a clean-up as the clean-up and restoration program the federal government launched in August 2017 have been ineffective (Ameh, 2018).

Coastal flooding and sea level rise

As the second largest delta in the world, coastal flooding has been one of the major climate change problems that confronts the Niger Delta. Oil resource exploration accounts for ocean surge leading to sea level rise. Most rural communities in the Niger Delta are often inundated as they are vulnerable to sea level rise. Thus, rising sea levels continues to threaten human survival and socio-economic and ecological existence. Much of the causes as recent study suggest is an attribute of both on shore and offshore oil drilling which accounts for overflowing of riverbanks.

Importantly, coastal vegetation especially the mangroves have been lost to sea level rise and coastal erosion. Beyond these, several households are displaced and livelihoods are distorted, thus sea level rise and coastal flooding account for livelihood vulnerability. The inundation arising from the rise in sea level as Apata (2010) suggested increases the problems of floods, intrusion of seawater into fresh water sources and ecosystems destroying such stabilizing system as mangrove, and affecting agriculture, fisheries and general livelihoods.

The case of mangrove deforestation

Across the Niger delta mangrove deforestation remains a major consequence of capitalist oil resource extraction. In several ways, prospecting for oil accounts for massive destruction of the mangrove this has adverse effects for plant and animal species as well as human beings. The extensive brackish swamp forests, mangrove forests and rainforests which constitute much of the vegetation of the Niger River Delta remains increasingly deforested. For instance, oil spill on mangroves acidifies the soil and makes the mangrove uninhabitable for the natural plant and animal species. The massive mangrove forests are estimated to cover approximately 5,000 to 8,580 km^2 of land. However, persistent falling of trees, pollution

of the swamp during petroleum exploitation by MNOCs, endanger mangrove species while some rare aquatic animals go extinct as a result of lager vacated massive portion of the vegetation.

The subsistence challenges of deforestation faced by the host communities is captured by Amadi (2013) who demonstrated that the oil bearing communities under ideal circumstance derive their subsistence from the mangrove.

The loss of mangrove forests not only destroys plant and animal lives, it also affects humans. Mangrove forests have been a major source of herbs, animals for hunting and wood for building of houses and canoes by local communities. Manby (1999) demonstrates that mangroves are home for fish stock and provide essential habitat for fish, rare and endangered species.

The case of decimation of aquatic creatures

The Niger Delta people are predominately fishermen and women and farmers. One of the major climate constrains of the coastal Niger delta is decimation of aquatic creatures as a result of water pollution There are several aquatic creatures common to the Niger Delta which is a source of food and income such as fish, shrimp, crayfish, sea animals such as whales, Shark and hippopotamus. In 2019 a massive Whale was found dead in the shores of a coastal community in the Niger Delta as a result of oil related pollution of the coastal waters. Ayanlade & Proske (2015) highlight that oil spill, dredging of larger rivers, and reclamation of land due to oil and gas extraction across the Niger Delta region have been on the increase and costs about US$758 million every year. However, 75% of the cost is borne by the host communities who experience biodiversity loss, arising from land and water pollution (Amadi & Igwe, 2015). In a related study, Molles (2005) found that trees and shrubs which provide shade and habitat for marine species, while reducing fluctuation in water temperature are deforested

The case of natural gas flaring

In the Niger Delta the case regarding gas flaring and climate change is linked to the MNOCs. Friends of the Earth (2004) provides a useful insight in this regard as they argued that he MNOCs extract natural gas for commercial purposes but prefer to extract it from deposits where it is found in isolation as non-associated gas. Thus, associated gas is burned off to decrease costs, hence flaring. Gas flaring releases toxic components into the atmosphere which has complex hazardous implications, this includes methane, known to have a high global warming impact, there is greenhouse gas, and release of carbon dioxide. Nigeria was projected to have emitted over 34.38 million metric tons in 2002 alone, accounting for about 50% of all industrial emissions in the country and 30% of the total CO2 emissions

(Friends of the Earth 2004). Similarly, a World Bank study of the environment in 2000, shows that gas flaring, in the Niger Delta, particularly in Rivers and Bayelsa States, releases about 35 million tons of carbon dioxide and 12 million tons of methane each year—about 815,000 metric tons per year of air pollution load exists in both States (Ezemalu, 2014; Amadi, 2018).

Gas flaring has long term harmful effects on the health and livelihood of host communities, as flares release poisonous substances including carcinogens such as benzapyrene and dioxins. Nearby communities exposed to such substances are prone to suffer respiratory disorder (Friends of the Earth, 2004). Gas flaring is often close to several host communities as they are not shielded or protected against flaring, hence vulnerable.

For instance, in the months of September and October 2016, 13 lives were lost to gas flaring in six communities of Warri Southwest and Ndokwa West councils of Delta State. The communities include Koko, Diagbene, Kwale, Abbe, Utagbe-Uno and Ebede. The Chairman of Warri South West, Mr. Sheriff Mulade, appealed to the Federal Government to adopt severe punitive measures with MNOCs regarding their refusal to end flaring (Akenzua, 2016; Amadi, 2018).

The increasing high temperature and changes in weather condition occasion by heat is largely an attribute of gas flaring in the Niger Delta. Most host communities experience gas flaring the high temperature occasion by faring is antithetical to human health and the natural ecosystem. While flaring was declared illegal in 1984 under section 3 of the "Associated Gas Reinjection Act" of Nigeria, evidence shows that flaring persists unabated in Nigeria. Hinsch (2019) shows that Nigeria flares more natural gas associated with oil extraction than any other country, with estimates suggesting that of the 3.5 billion cubic feet (100,000,000 m^3) of associated gas (AG) produced annually, 2.5 billion cubic feet (70,000,000 m^3), or about 70%, is wasted by flaring (Hinsch, 2019).

In 2016, the people of Ebedei and Obodougwa-Ogume, Oil and gas producing communities in Ndokwa and Ukwuani Local Government Areas of Delta State appealed to the federal government and the international community to take urgent steps to end the flaring of gas by oil companies operating in their areas within the shortest time possible (Onabu, 2016; Amadi, 2018).

In 2012 at Mgbede community and adjoining communities in Egbema area in Rivers State, the people demonstrated against the dire impacts of gas flaring on their livelihoods which have continued unabated, for over five decades. They reported that the high temperature from gas flared in their communities affects food crop cultivation and their very survival (Ezemalu, 2014; Amadi, 2018).

While some new ethical considerations brought about by bioethics fall within the remit of resource efficiency (Hellstein, 2008), such as terms like triple bottom line and ecological

footprints, others have a much wider social and ethical scope, such as ecological accounting and greening these ought to reshape global power relations in resource exploitation among rich and poor countries.

Conclusion

The evidence provided in this study suggests increasing concern in meeting SDG 13 (climate action) among the developing societies of the South. Such concern remains topical in climate change debate and expands the understanding of the link between climate justice, ecological rights, natural resource equality, social justice and deleterious capitalist natural resource extraction. The increasing incidence of environmental degradation in contemporary climate change discourse as well as climate injustice in relation to the global climate action has brought climate justice issues to the center of current academic debates. The emergence of climate justice movements and discourses promoting resource transparent such as extractive industries transparency initiative (EITI) is connected to a rise of interest in climate change dialogue and sustainable development in general, combined with an increasing awareness of the linkages between climate justice and ecological awareness.

What this paper has so far done is to demonstrate that while there is a need for need for possible international consensus on climate justice, such debates cannot be separated from the increasing contradictions of capitalist natural resource exploitation among societies of the global South. Thus, debates on the issues of global distributive justice and resource equity are essential for climate change mitigation. When we discuss climate justice issues, issues of distributive justice cannot be set aside, even when we seek for possible of universal normative claims for climate change adaptation Again, when we attempt to build consensus on the nature and scope of climate change, we need to make a distinction between issues of climate justice both as a distinct field of inquiry and policy tool. In essence climate justice as argued here is as an attempt to universalize a normative set of climate principles and values by putting just approaches to climate issues first and making them functional and applicable locally and internationally. In relation to capitalist resource extraction the complex thread of, capitalist exploitation should be re-examined. The point the paper has been emphasizing is that the prospects and challenges of climate justice should be considered in the study and practice of climate change.

Recommendations

Against the backdrop of the foregoing discussion, climate justice is inevitable if climate change mitigation and adaptation is anything to go by. Both developed and developing societies need climate justice. However the poor societies are increasingly marginalized as they bear much of the brunt of climate injustice.

For climate justice to provide any normative guidelines in the issues of climate change and ecological transformation of the marginalized societies of the global South; first, there is need to expand policy focus of climate justice internationally to cover various societies, cultures, norms, values as well as socio-economic contexts that are ignored to address dire climate justice issues such as increasing environmental degradation, endangered species, deforestation, climate related gender inequality, ecological rights of minority indigenous groups and in particular, there is need to have a fundamental grasp of the ecological issues involved in the workings of various climate related challenges as the basis for international response to climate justice and global conventions.

Secondly, specific climate analysis of local climate justice issues and their relation to global discourses and, in particularly, climate action (SDG 13) is essential for a possible moral framework of climate justice.

Thirdly, climate issues should be largely considered as ethical issues, thus, there should be caution regarding all forms of interactions of Western multinationals, or any other stakeholder in climate disruptive activities. Climate values should be universal and harmonized among nations. These values and practices have to be linked to the all forms of interactions with the natural environment or ecosystem as the basis for global climate justice standards.

Fourthly, the institutional deficiencies demonstrated by most third world governments such as the Nigerian government leading to increasing environmental degradation of the Niger Delta by MNOCs needs to be revisited. This study corroborates policymakers' concerns regarding ecological justice and remediation of environmental degradation and in particular, protection the ecological rights, livelihoods of the oppressed groups such as local oil-bearing communities, women, minority groups, the politically or economically marginalized and engendered plant and animal species such as periwinkles, Ngolo, Ngala, Oysters, etc.

Fifth, the discussions suggest the need for more efficient and inclusive mechanism of state response to protect the Niger Delta climate, guarantee and facilitate ecological security, social justice and equality. Moreover, this study has shown that climate justice is more relevant to influence and reshape the conduct of climate governance among the developing societies particularly the coastal areas in a democracy.

Thus, both local and global actors should normatively engage in climate change dialogue, and recognize the importance of climate justice. While building a consensus on the normative guidelines for international climate justice is essential, local ethical concerns on climate justice is needed. This will help different countries, to better understand the core ideals of climate justice. It is desirable and indeed important for contemporary climate justice study to be clear in the context of its areas of inquiry and to pursue its distinct

academic agenda, thus 'climate justice' is needed to mitigate the complex challenges of climate change vulnerability.

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Water Management in the West Bank: Implications on the Israeli–Palestinian Conflict

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Abstract. The struggle for scarce natural resources (like water) exacerbated by climate change often leads to conflict. This paper exposes the implications of the control and distribution of water between the Palestinians and Israelis in the West Bank. The objective of this paper was to discover how this struggle in a water-stressed area, impacts the Israeli–Palestinian conflict. The intraspecific competition theory from the discipline of Ecology was operationalized to give the paper an understanding of the relationship between the Israelis and Palestinians as regards water distribution in the West Bank, and the resultant consequences caused by this struggle. The paper is qualitative, and the content analysis method was utilized in analyzing secondary data collected for this research. The paper finds that beyond the political issues of statehood, the water resources strategically located within and around the West Bank, like the Western Aquifer, Northeastern, and the Eastern Aquifer remain catalysts for the prolongation of the conflict, as Israel needs these water channels

to support its growing and expanding population. The paper also finds that the annexation and building of settlements in the West Bank by Israel have the objective of the continued control over these water resources for the sustenance of the State of Israel at the detriment of the Palestinian people. It concludes that as long as Israel continues to rely on water from the West Bank, a sovereign Palestine state will remain in Limbo. The paper recommends that greater international pressure be mounted on the State of Israel to ensure it cooperates with the Palestinians, to allow for a more equitable distribution of water in the West Bank.

Keywords: Water Management, West Bank, Conflict, Intraspecific.

Introduction

The alteration in global atmospheric temperature levels resulting from emissions generated from the continuous dependence on fossil fuels and the depletion of global forestry have caused a change in normal weather patterns and an increase in global heat levels, flooding, droughts, intense storms, and other natural calamities. This change in climatic conditions has seen an increase or reduction in the amount of water available in certain regions of the world (Gleick, 2017; Cetkovic & Buzogany, 2016; Werndl, 2016; Weart, 2003).

The Middle East region where the West Bank is located is endowed with 1% of global fresh water and is the *lebensraum* of 6% of the world's population. Again, it is the driest region in the World with a yearly precipitation of 166 m. The West Bank is an area that covers 2,180 square miles with 93 forest areas that cover approximately 3.9% of the West Bank (Ghattas, Hrimat, & Isaac, 2006; Mongabay, 2010)

The United Nations General Assembly in UNGA Resolution 181 (II) approved a partition plan that designated about 56% of the territory of Palestine for the creation of a Jewish state while about 43% was designated for the creation of a Palestinian Arab state with Jerusalem as a *corpus separatum*. The West Bank area which falls under the envisioned Palestinian state is strategically endowed with water reserves that are crucial to the sustenance and survival of the Jews and the Palestinian.

The Israeli / Palestinian conflict has most notably been cast on issues like sovereignty, territory, right of return, leadership, refugees, religion, terrorism, peace deals, etc. with little emphasis on the crucial and very important issue of water and how it continues to shape the activities on the ground in the Occupied Palestinian Territory of the West Bank. This paper intends to draw more academic and general global attention to the argument/debate that water is a significant variable and a primary bone of contention in the Palestinian/ Israeli conflict.

This paper raises questions on how the resource of water has been weaponized against the Palestinians by the State of Israel in the West Bank, the methods adopted by the occupying power in achieving this, and how this, in turn, has had a significant effect on the delay in the resolution of the Israeli–Palestinian conflict. The paper also has the objective of (a) ascertaining the importance of water and its underlying effects on the intractable Israel/Palestinian impasse, (b) examine the weaponization of water distribution of water in the West Bank, (c) analyze how water management in the West Bank has increased settler activities in the area.

Literature Review/Theoretical Framework.

The interdisciplinary nature of international relations allows scholars in the field to engage theories from other academic fields to explain, make predictions and give clear comprehension of existing phenomena. This paper adopted the Intraspecific Competition theory from Ecological studies to give meaning and understanding to the events taking place in the occupied West Bank.

The theory emphasizes that competition is inevitable between members or individuals of the same species concerning scarce resources like living space, drinking water, food, mineral resources, territory, etc. The competing individuals or groups engaged in this interaction ultimately leads to a reduction in the sustainability of one of the contending groups (Keddy, 2001; Silvertown, 2004).

In the context of this paper, the Palestinians and Israelis are engaged in a competition for water, in which one side will ultimately lose out in this struggle. The disparity in resource requirements by the contending individuals or groups due to resource requirements and population numbers can also lead to a condition of constant tension and competition in the resource area in focus. The population of Palestinians in the West Bank continues to grow with varying estimates from different governmental and non-governmental bodies, however, the United Nations Population Fund (2015) estimates that there are 2.9 million Palestinians in the West Bank, with a fertility rate of 3.06%. The Israeli Central Bureau of Statistics (2018, cited by Lazaroff, 2019) puts the population of Israelis in the West Bank at 427,800 in 2018. These population estimates translate that one side would need more water to satisfy its population more than the other.

The Intraspecific Competition theory also posits that when the population in a particular geographical location have an abundance of the needed resources for survival, the chances of conflict erupting is greatly minimized and the population in that environment would experience a population increase, however, because the resources in the earth are finite, competition is somewhat inevitable. This kind of competition can be very well expressed

by opposing populations directly or indirectly. Indirectly, any of the contestants to the particular resource in question (water in this case) can reduce or outrightly prevent the flow of that resource by building impediments or breaches that would stop the other party from using that resource (Wise,1992)

Gause (1934) and Begon *et al*. (2014) suggested that when resources are scarce it becomes inevitable that the contending populations cannot coexist in the same niche, without a descent into a conflict situation, in which one group would strive to eliminate the other. This position is effectively expressed in the continued skirmishes that take place in the West Bank between the Palestinians and the Israelis.

Alley (1985) also argues that humans that do not usually interbreed will also engage in an overt and covert struggle for the control of resources in a particular geographical location. The animosity that exists between the Jews and the Palestinians created by decades of conflict has made it a rarity for both populations to intermarry and interbreed. Israeli law prevents Palestinian/Israeli couples from citizenship or residency in Israel.

The West Bank and Water

The West Bank derives its name as a result of it being located on the western side of the River Jordan. The area was divided into areas A, B and C in line with the Oslo II Accords. There is a Palestinian population concentration in Areas A and B and these areas fall under the partial civil administration of the Palestinian Authority (P.A). Area C is where there is much development as regards the building of Israeli settlements and other urban, industrial and agricultural infrastructure. The river Jordan is a major source of water for the inhabitants of the West Bank. However, the riparian privileges of the Jordan river are not only vested in the West Bank but it is enjoyed by the countries around the river, namely Syria, Egypt, Lebanon, Jordan, Israel and the West Bank.

The Jordan river is approximately 251 kilometers in length and links the sea of Galilee to provide water supplies for irrigation, agricultural activities, industries and domestic use and consumption for countries and territories around its flow (Food and Agricultural Organisation, 2008).

According to the United Nations (2014), the increase in global temperatures caused by Climate Change translates into the reduction of precipitation in the Middle East and the West Bank in particular. The West Bank has been experiencing extreme drought conditions as a consequence of less rainwater. Less rainwater also has meant that water infiltration into the Mountain aquifer has decreased as well as reductions in spring flow at the discharge points of the aquifer. The figures below from 1948 show a steady decline in

the amount of water that flows from the Jordan River into the Dead Sea:

1948 = 1400 MCM/year
1967 = 700 MCM/year
1982 = 500 MCM/year
1990 = 150 MCM/year
2006 = 50 MCM/year

The Mountain Aquifer is a major source of water in the West Bank, the aquifer is trans-boundary and is about 150 km long and 35 km in width, covering an area of 6,000 square miles between the West Bank and Israel. Precipitation caused by the absorption of rainwater from the mountainous environment replenishes the water reserves in the aquifer.

Gvirtzman (2012) contends that the Palestinian claims to the Mountain Aquifer have failed to consider the hydrological qualities of the aquifer. An aquifer comprises its source and discharge points. The mountain aquifer has its discharge points in springs that are located in Israeli territories, like the Yarkon Spring. This is an argument that supports the Israeli position that they have as many rights to the Mountain aquifer as the Palestinians.

The Mountain Aquifer comprises three aquifers, the Western aquifer, the Northeastern aquifer, and the Eastern aquifer. These aquifers are also regenerated through the precipitation process with a yearly water recharge of approximately 350 million cubic meters (Food and Agricultural Organisation, 2016). The West Bank also has approximately 383 wells, however, 119 of these wells require repairs or no longer provide water for residents of the area.

Rainwater Harvesting (RWH) is another source of water in the West Bank. This method is usually applied in areas that have a very climate and less rainfall. The area experiences a yearly rainfall average of approximately 155 mm in the area surrounding the Jordan River to a maximum of approximately 698 mm in the mountains and 80% of this rainfall activity takes place during the winter season (Shadeed, 2013). The obvious and glaring deficiency in rainwater in the West Bank can be seen when compared to a place like Lloro in Colombia that experiences rainfall of approximately 12,717 mm in a year (Burt, 2013).

Water Management in the West Bank

Water Management entails the process of administration, development, and distribution of water resources to ensure that it gives value and benefit to human life. When water is properly managed populations would have sufficient water for their consumption, sanitation needs, agriculture, and leisure/fun. Water Management ideally should ensure the equitable distribution of water while also ensuring that the ecosystem is maintained

and protected from pollution and degradation from human, industrial and agricultural activities (Loucks & Beek, 2017).

Water Management means that water in an arid environment like the West Bank involves proper recycling and treatment of wastewater for it to be safe for human consumption to avoid waste. Irrigation systems will also be built and deployed in agricultural zones to ensure that crops do not wither as a result of the heat, water conservation methods would be adopted by ensuring that water is not used unnecessarily and building structures where water can be stored. These processes make the management of water a very intricate venture (Biswas *et al*., 2009).

The Six-day war of 1967 saw Israeli forces forcefully taking control of the West Bank. The occupation of this territory also meant that Israel found itself in a position to control the management and distribution of the natural resources in the seized area. Israel controls the water in the West Bank through the enactment of decrees and the use of its military for enforcement. Israel controls the water flow from the Jordan River and the Palestinians do not have the liberty to make use of any of the water from the river as the water is diverted to areas where Israel has its population for domestic, industrial and agricultural purposes. The water generated from the Mountain Aquifer is the primary source of freshwater arising from increased temperature levels in the area, this source of water also a no go area for the Palestinians (Bridges, 2016).

Population estimates from the Israeli Central Bureau of Statistics (ICBS) for 2018 and early 2019 report that the territory has an Israeli settler presence of 427,800 while the Palestinian Central Bureau of Statistics (PCBS) in 2017 puts the Palestinian figure at 2.9 million humans distributed in the eleven governorates. The population of Palestinians is expected to continue to grow at a rate of 2.18% yearly, while the population of Israel is growing at 1.67%. This ordinarily would translate into the Palestinians needing more of the water, however, an estimated 95% of the groundwater in the area is appropriated for use in Israel and its settler community in the West Bank. According to Amnesty International (2017), The daily water consumption for each Palestinian in the West Bank falls within the 20-litre margin in direct contrast to the 300 liters that each citizen of Israel has access to.

The Palestinians are restricted from developing or building water infrastructure in the West Bank and the collection and harvesting of rainwater is also a major challenge because the Israeli military occasionally carries out raids to destroy water containers or tanks in the West Bank with the excuse that these infrastructures do not have the needed permits (United Nations, 2019).

Mekorot is the state-owned water agency that was handed control of the water resources in the West Bank in 1982. The agency has its operations in Israel and the West Bank, it has over the years developed and built the needed infrastructure for the channelling of water

from the underground water aquifers into Israel and the settlers in Area C of the West Bank. The agency provides approximately 90% of the drinking water in Israel and also provides limited water supplies to the Palestinians in Areas A and B. The agency effectively controls the water market in the West Bank and the Palestinians are heavily dependent on it for a large number of their water needs. In 2018 Palestinians purchased 83 million cubic tones of water, representing 22% of the water needs of the people (Economic and Social Council, 2020; Lazarau, 2016)

According to the World Bank (2018), The Palestinian authorities through the Palestinian Water Authority (PWA) is regularly indebted to Mekorot. The Ministry of Finance collected 94 million U.S. dollars from funds accruing to the Palestinian Authority to offset its water debts to Mekorot. The total amount owed to Mekorot in 2017 amounted to 333 million U.S. dollars.

Methodology

This study was qualitative research that employed the descriptive research design. The design enabled the paper to as much as possible effectively and systematically describe the water management situation in the West Bank. The design also allowed the study to determine the cause and reasons for the existing behavior of the contending groups and also appraise the effects of their behavior.

Nature and Sources of Data

The nature of the data for this paper is secondary. Secondary data materials were sourced from books, published articles in journals, magazines, inter-governmental organizations, reports and studies from non-governmental organizations, interviews, newspapers, speeches, etc.

Method of Data Collection and Analysis

The Content Analysis method performed two functions in this study. It was used to collect data and also locate and extract the relevant information for the study. It was also used to analyze the information needed for this research.

The Content analysis method provided the paper with the ability to identify related sequences in the data collected.

This method also enabled the paper to identify the relationships that exist between the variables that were studied, and also the effect one has on the other. Using this method the

paper gleaned information that was utilized in answering the research questions:

- How has water management in the West Bank been weaponized against the Palestinian population?
- What methods have been adopted by the occupying power to achieve this? and
- How has water management in the West Bank affected the Israeli /Palestinian conflict?

This research will complement the efforts of the academic community, to bring global attention to the importance that water plays in the Israeli–Palestinian conflict, and how water management is crucial to any hopes of peace between the belligerents.

Findings

The Weaponization of Water Management in the West Bank

Weapons are instruments or materials that can be utilised to inflict physical, psychological, environmental harm to gain an advantage or defence in any conflict situation.

The intelligence services in the United States have argued that as climate change continues to make water resources scarcer the tendency for states to use water as a weapon to deploy against perceived and confirmed enemies increases (Office of the Director of National Intelligence, 2012).

The former United Nations Secretary-General Boutrous Ghali posited that war in the Middle East would soon not be about politics or oil reserves but rather about water, emphasizing that a future Palestinian state without control over its water resources, especially those in the West Bank could pose a grave danger for peace in the Middle East.

Water weaponization in the West Bank has been expressed in a Strategic and Coercive manner

Strategic

The paper finds that after the defeat and subsequent withdrawal of Jordanian military forces, Israeli forces confiscated all the water resources and channels in the West Bank. This was done through Military orders, and such military orders are obeyed by the military and recognized by Israeli military courts. Palestinians living in the West Bank were constrained to obey these orders from 1967 to 1994 before the setting up of the Palestinian Authority (P.A) while the Israeli settlers in the West Bank are not subject to these orders.

According to Weill (2014) Israeli military orders concerning water in the West Bank Include:

Order 92 of 1967: Giving total control and authority of all matters regarding water to a water official appointed by an Israeli court.
Order 158 of November 1967: An Amendment of the water supervision law that emphasises that all water infrastructure projects, springs and water wells are to fall under the administration of the Israeli Military and allows for the seizure of such facilities built without permission.
Order 291 of 1968: Designates all pre-1967 water-related plans and procedures as null and void.

The use of Military orders is a method that Israel uses to forcefully deprive Palestinians of having access to water in the West Bank.

The Mountain Aquifer is transboundary groundwater between the West Bank and Israel and provides 25% of the water needs of Israel. Israel also consumes 80% of the water generated from this aquifer (Beyth, 2006). The paper finds that this unequal usage of water greatly benefits Israel at the detriment of the Palestinians, who from the data provided from the Palestinian and Israeli official census figures greatly outnumber the Israelis.

Palestinians Central Bureau of Statistics estimates that 2.9 million Palestinians live in the West Bank.

Coercive

With the occupation of the West Bank and the confiscation of its water resources and channels, the Israeli authorities had to establish the means of diverting water from the West Bank to serve the needs and purposes of Israeli citizens and their interests. Area C of the West Bank is where there is a concentration in the building of Israeli settlements. Water is diverted to this area through the construction of submersible pumps, water pipes/fittings and water control stations. Conversely, while the Israeli authorities are diverting water for Israeli use, it is also destroying Palestinian residential and water infrastructure under the excuse that these structures were built without obtaining a permit (United Nations, 1980; Asser, 2010; Corradin, 2016).

According to the Nations Office for the Coordination of Humanitarian Affairs (2019), in the first quarter of 2019, there was the destruction of 136 structures, with 7% of these demolitions having to do with water supply and distribution. Some notable destructions to water infrastructure in the West Bank include:

—Destruction of the water network constructed by the NGO Action Hunger to supply water to 13 Palestinian communities in Area C, affecting about 1,272 residents;

—Destruction of a 750 meter water pipeline that supplied water to the Beit Faruk and Beit Dajan communities, affecting over 18,000 residents;
—Destruction of 1.4 km water pipes in the MassaferYatta area, affecting over 1,300 residents; and
—Destruction of 2 km water pipes in the Wadi Abu area, affecting about 320 residents.

Again, Palestinians numbering over 13,000 residing in 99 villages in the West Bank have been categorized as being in a dangerous water scarcity predicament, as these villages are not linked to the water supply network or have enough facilities to reserve water. The amount of water available to a majority of Palestinians in the West Bank is below the stipulated 100 litres per day by the World Health Organisation (WHO) and this has resulted in health and sanitation challenges for the Palestinians living in these areas (WHO, 2011).

It has also caused the displacement of Palestinians who are forcefully inclined to seek out other living spaces where water supply can be better guaranteed. Area C is also where the Jordan valley is located and it is the most fecund area in the West Bank, making it ideal for the ongoing and illegal residential and industrial development by Israeli citizens. Palestinians are regularly denied the needed permits to build in Area C and some of these areas are designated as Military zones, national parks and reserves or live fire zones to deter and prevent Palestinians from accessing the area.

Water was the unseen motivator for the launch of the Israeli military offensive in 1967. The strategic location of the Jordan river in Palestinian territory was an environmental disadvantage as well as an existential threat to Israel. The Jordan river had to be in Israeli hands to make it possible for the waters to be diverted to areas with an Israeli population. Water from the Mountain Aquifer combined with the Sea of Galilee provides over 50% of the water needs Israel

The paper also finds that the restrictions placed on Palestinians, especially in Area C of the West Bank, is primarily to prevent them from establishing “facts on the ground”. This Israel does by building more settlements and also refusing to give permits for Palestinians to build structures in Area C.

Approved permits for Palestinians to build in Area C were below 4% in 2019, and 21 out of the 1,485 building applications were approved from 2016 to 2018, while the Israeli Civil Administration in the West Bank approved over 2,000 demolition orders on Palestinian properties for failing construction and planning procedures and processes (Middle East Monitor, 2020).

The diagram above shows a steady and rapid increase in the number of Israeli settlers in the West Bank from 2015 to 2018.

The graph shows that in the year 2015 there were 388,285 settlers, and there were 401,558 settlers in 2016. The year 2017 saw the number of settlers grow to 416,693, while in the year 2018 it was 427,800.

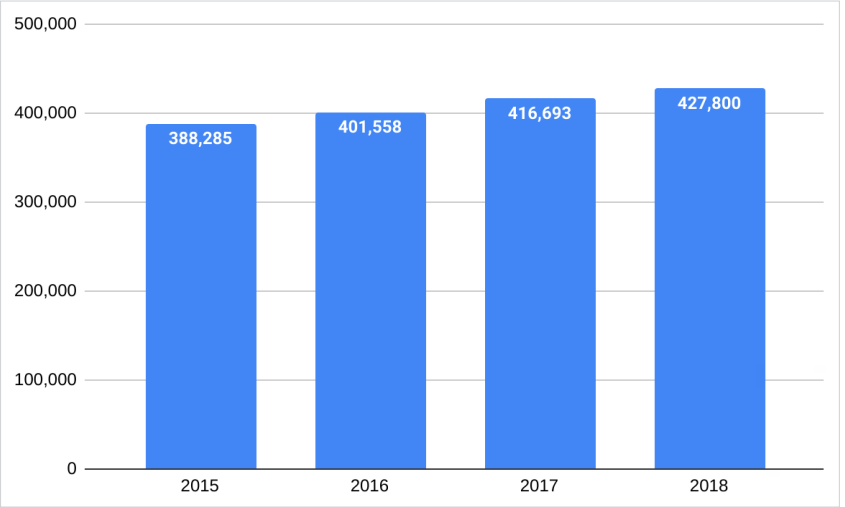

Figure 1: Increase of Israeli Settler Population in the West Bank 2015 to 2018

Source: Computed by the author based on data from the Israeli Central Bureau of Statistics via https://www.statista.com/chart/20001/number-of-israeli-settlers-living-in-the-west-bank-by-year/

The general argument of the Palestinian/Israeli conflict has been about territorial integrity and self-determination. However, these very important issues cannot withstand the existential importance that water brings to the negotiation table. A former Israeli Prime Minister Levi Eshkol confirmed that the total control of the water in the West Bank was critical to the viability of a Jewish state in an Arab dominated Middle East (Lowi, 1993).

Israel continues to encourage its citizens to settle in the West Bank as means of controlling this very important resource, and also make the creation of a territorially contiguous Palestinian state remain in Limbo (Stockmarr, 2012).

Water management in the West Bank is one of the major issues for Israeli security, and despite the agreements on water management, the reality remains that Israel would not want to relinquish its hold on the West Bank unless concrete assurances on the water supply that would benefit them are put in place. The paper opines that water will remain a cause for war in the Israeli–Palestinian conflict.

Conclusion

The access and management of water resources are crucial to the survival of a people, especially in an arid area like the West Bank where climate change continues to deplete water availability. The paper investigated and found that inequalities exist on water issues in the West Bank between the Palestinians and Israelis, and that water availability and

usage is skewed forcefully and intentionally to favor Israel. The paper understands the actions are directed of state survival (they need water to survive) albeit to the detriment of the hopes of a Palestinian state. The increase in settler numbers and water policies that prevent Palestinians access to enough water, slimmer the chances of any peaceful resolution to the Palestinian-Israeli conflict. The paper urges more international concern and effort to be focused on how to ensure that water in the West Bank is managed equitably and in a manner that ensures the sustenance of the lives of people living there, Jews and Arabs. The Palestinian/Israeli conflict cannot be resolved until the issue of water management is given as much priority as the political side of the impasse, the paper recommends that cooperation on the survival of Jews and Palestinians in the West Bank (that is in peril because of decreased water as a consequence of climate change) should be among the first steps in fostering a better working relationship between the Israelis and Palestinians. The paper is very mindful that Israel is in survival mode and therefore does not see the practicability in Israel foregoing its quest for water needed for its continued existence, it is the basis of this that this paper calls for continued dialogue over the issue of water management between the Palestinians and Israel with greater International involvement, that is aimed at urging Israel to make more water available to the Palestinians based on the parameters of need, considering the Palestinian population in the West Bank.

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Grazing Policies Implementation Gaps and the Phenomenon of Pastoralists–Farmers Conflict in Nigeria

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Abstract. In the last few years, Nigeria has witnessed increasing conflict between farmers and pastoralists than any country in the West African sub-region. Climate change, population explosion, terrorism, desertification, regional violence and trafficking have been identified as some of the underlying reasons for the escalation of these pastoralists–farmers conflicts. The paper explored the phenomenon of pastoralists–farmers in Nigeria despite the existence of mechanisms for their prevention and resolution. The study employed a qualitative research design which relied on data sourced from documentary sources such as archival materials, textbooks and journals and adopted management and political models as its conceptual framework. The data were content analyzed. The paper shows that there exists a series of protocols, policies and laws to guide pastoralists–farmers relationship within Nigeria and across the West African sub-region and that despite the enactment of many regulations, including the recent anti-grazing laws by some sub-national governments, pastoralists–farmers conflicts have continued to persist. The study identifies poor policy implementation infrastructure resulting in inadequate government responses, absence of institutional resolve to implement relevant policies/laws and protocols, among others spawned unsuccessful implementation of grazing policies/laws in Nigeria. It, therefore, recommends synthesis of the prescriptions of the management and political models in the context

of the implementation performance framework for effective policy monitoring and implementation strategies of the past and emerging pastoral and grazing policies/ laws to curb the pastoral-farmer conflicts in Nigeria.

Keywords: climate change, conflict, pastoral-farmer conflict, grazing, policy implementation.

Introduction

From time immemorial, herding of animals of pastoralism has been one of the central preoccupations of people in Africa, aside from farming (Alhassan, 2013). For instance, with their dominance in the Sahel region, the Fulanis are the dominating and most copious of all the pastoral groups in Nigeria. Thus, the Fulani are undeniably the largest pastoral nomadic group in the world, herding goats, cattle, camel, horse, sheep and mule (Ezeonwuka & Igwe, 2016). In Nigeria, aside from farming, pastoralism has been the central preoccupation of the people, especially in the Northern part and dominated by the Fulani. It is little wonder then that the Fulani own over 90% of Nigeria's livestock population which accounts for one-third of agricultural Gross Domestic Product (GDP) and 3.2% of the nation's GDP (Alhassan, 2013). In the Southern parts of Nigeria, farming remains a traditional preoccupation of the people, especially in rural and semi-rural areas because of the favorable weather. However, ruminants are small and kept at subsistence level as a source of wealth.

In the past, the transhumance nature the herders and the pressure of fodder survival for their ruminants had often pushed them to other parts of the country, especially the South, where the grass is much greener. Aside this, climate change, desertification among others and more recently, population explosion and terrorism, perennial violence in Northern Nigeria made herders high mobility inevitable (Olugbenga, 2017; Onah *et al*., 2020). As a result of this migration,

> ... other factors, roaming cows, sheep, and goats, scavenging around school playgrounds, golf courses, government residential areas, street shoulders, and railway sidings both at nights and during the day, have become common sights in our cities. They hinder traffic flows, endanger human and vehicular road users, and exacerbate city congestion, and most often, cause fatal road mishaps. In addition to all these, they mess up the ground and bring flies and stench (Chukwuemeka, Aloysius, & Eneh, 2018).

Aside from the disruption of urban activities, the incursion of the migrating Fulani pastoralists into farmlands resulting to damage of crops/farmlands and pollution of the

environment, not excluding village rivers and streams that function as the only fountain of water to the people. There also counter accusations of trespassing on cattle routes for more cultivable land preserved for cattle to eat which usually taken over by farmers. This makes it difficult for herd movement and grazing without changing direction into farmers' crop fields (Odoh & Chilaka, 2012). This has put the pastoralists on the collision course with the villagers in the North Central Nigerian sub-national states of Taraba, Plateau, Benue, Ekiti, Ondo, Osun, Kaduna, Anambra among others which are mostly farmers and where open grazing are prevalent.

Thus, pastoralists–farmers conflicts in Nigeria have sprouted, multiplied and deepened over the past decade resulting in killings, destruction of property and reprisal attacks. Despite the existence of policies, regulations and laws regulating the grazing activities of the pastoralists in Nigeria. To be sure, there exist the Grazing Reserve Law 1965 (applicable only to states in Northern part of Nigeria), the Land Use Act and the National Grazing Reserve (Establishment) Bill 2016 (Olugbenga, 2017). Also, recently, some states such as Benue, Edo, Ekiti and Taraba enacted anti-grazing laws to regulate the veering of pastoralists into cultivated farmlands that usually ends in violent conflicts.

From the foregoing, despite the availability of vast scholarly literature on the pastoralists–farmers conflict, which has attributed the root of the conflict in Nigeria to various trends and development. There has been a dearth of information on the extent to which implementation gaps on grazing policies and other related regulations shaped the phenomenon of pastoralists–farmers conflict in Nigeria.

This paper intends to fill this gap by responding to the following questions: What are these perceived implementation gaps on grazing policies and other related regulations? What can be done to block these gaps to discourage the incessant pastoralists–farmers conflict in Nigeria? The analysis is based on a content review of more than 150 sources in English, comprising scholarly studies and analyses generated by the reliable practitioner and policy organizations. The paper's objective is, therefore, to explore perceived gaps in the implementation of the pastoral and grazing reserve policy, laws and which spawned the phenomenon of pastoralists–farmers conflict in Nigeria.

To achieve the paper's objective, aside from this introductory section, the remaining part of the paper is organized into different sections which focused on an explanatory framework, the phenomenon of pastoralists–farmers conflict in Nigeria, why the phenomenon of pastoralists–farmers conflict, an overview of national, sub-national and regional grazing reserves development and policies/laws responses, analyzing the gaps in the implementation grazing reserves policies in Nigeria, plugging the implementation gaps as well as the conclusion of the study.

Conceptual framework

The paper is anchored on the policy implementation performance framework within the context of the proposed fusion of management and political models. It adopted this model hybridization because of the ensuing gaps in the implementation of grazing reserve policy which needs a multifaceted approach to curb the diverse dimensions of the phenomenon of pastoralists–farmers conflict in Nigeria.

In this paper, a policy is viewed as the general principle(s) chosen by a policymaker to accomplish a longer-term policy objective while implementation as a popular concept in modern-day exposition. This is dated back to the work of Jeffrey Pressman and Aaron Wildasky on public policy in 1973. It is a known fact now that policies do not become unsuccessful or fail on their strengths; instead, their progress is a function of the process of implementation (Hudson *et al*., 2019).

Implementation refers to "the execution of law, in which various stakeholders and organizations work together with the use of procedures and techniques to put policies into effect to help attain goals" (Stewart, Hedge & Lester, 2008 cited in Khan & Khandaker, 2016, p. 540). That is, the whole of the political-administrative processes that arise from parliamentary decision-making and set of processes that are targeted at the concrete attainment of the objectives of a public policy (Knoepfel *et al*., 2012). It is thus regarded as a process, output and outcome, and comprise some actors, organizations and techniques for control; whereby interplays ensue between goals setting and the activities aimed towards accomplishing them (Pressman & Wildasky, 1973). The administrative agencies are the principal actors in public policy implementation. However, an implementation may be carried out by formal as well as by informal actors, including legislators, political executive, courts, bureaucracies, pressure groups, community organizations, and even individuals.

The performance of policy implementation can be categorized into three areas, namely: (i) output and outcome of the policy; (ii) the impact of policy; and (iii) assessment of whether the policy leads to the development of a society or country as a whole (Khan & Khandaker, 2016).

In essence, effective policy output/outcomes, its impact and beneficial importance to society or country are not only contingent on creating effective systems, but also on handling their implementation as expected (Nilsen, 2015). Its application is thus beyond straightforward process and just only putting theory into practice. That is why the consideration and contestation of pathways leading to the application of two or more models are apt for effective implementation in this paper's context. The dual models, management and political models, which are considered necessary to overcome policy deficits in the implementation of grazing reserve policy/laws that have led to the persistent pastoralists–farmers conflict are elucidated in this paper.

Management model

The central assumption of the management model is that the performance of policy implementation is a function of several factors including "organizational structure, personnel and human resources, the activities of front-line implementers, equipment and technology, the level of coordination and cooperation, the exercise of authority, and place/location as implementation infrastructure" (Khan & Khandaker, 2016, p. 543). This model also attempts to consider obstacles to policy implementation occasioned by any deficiencies in resources or delays in resource procurement.

According to Khan & Khandaker (2016), the key independent variables and their effects within the context of implementation performance are on the following assumptions: (i) the success of implementation is dependent upon effective leadership; that is, the more effectual the leader, the more fruitful the implementation of policy; (ii) motivation brings about successful implementation; (iii) people's engagement will ensure implementation success; (iv) the more dedicated and productive the team, the greater the likelihood of successful implementation; and (v) the accuracy of the leaders' decisions will facilitate implementation success of the policy.

Political model

This model assumes that the performance of policy implementation is contingent upon the aftermath of interactions between agent proficiency, whether institutional or representative, negotiating power, conflict resolution, and external environmental factors from a political, economic and social standpoint (Khan & Khandaker, 2016). Thus, the policy implementation performance is an outcome of the intensity of conflict and the competence of conflict management in society. The consequence of this model for policy implementation hangs on the interaction among agencies, actors and interest groups.

Under the political model, the following theoretical template has been developed to take into account the main independent variables and their impacts on policy performance. The major assumptions, according to Khan & Khandaker (2016), are: (i) shunning complexity of joint actions, thus the decrease the complexity of collective actions, the better the chance of successful implementation; (ii) higher negotiating capacity such that the greater the negotiating power, the greater the likelihood of implementation success; (iii) accord among political actors aids successful implementation; (iv) dynamic political motivation, that is implementation undertaken with a constructive political motivation end up in implementation success; and (v) curtailing the sway of pressure politics assists in ensuring successful implementation.

As a corollary from the management and political models viewpoints within the context of policy implementation performance framework, grazing reserves policies/laws in Nigeria appeared to have led to pastoralists–farmers conflicts as a result non-compliance to various assumptions and viewpoints prescribed.

The phenomenon of pastoralists–farmers conflict in Nigeria

There has been an explosion of scholarly literature and empirical studies on the phenomenon of pastoralists-framers conflict in Nigeria. Before the last two decades, some literature indicated that there had been peaceful pastoralists–farmers cohabitation in various communities in Nigeria (Adamu, 1978; Baier, 1980; Oyama, 2002, 2014). However, the dominating views in the available literature maintained, that for a long time, there has been controversy and conflict between the pastoralists (especially Fulani herdsmen) and sedentary farmers over the method of cattle grazing due which usually leads to the destruction of planted crops by the cattle (Okeke, 2014; Abass, 2012; Olugbenga, 2017; Omokhoa & Okuchukwu, 2018).

That as far back as the 1960s, recurrent pastoralists—farmers' clashes prompted the enactment of a Grazing Reserve Law in 1965 in the Northern region and also the creation of the National Livestock Development Project (NLDP) which developed grazing reserves in Nigeria (Ingawa *et al*., 1989; Oladele, n.d.; Ducrotoy *et al*., 2018). However, what is apparent is the fact that the incidents had taken unprecedented dimensions leading to the killings of farmers as well as Fulani herdsmen including their cattle (Osimen *et al*., 2017; Ducrotoy *et al*., 2018; Ogebe *et al*., 2019; Soomiyol & Fadairo, 2020). Though there have been conflicting anecdotal accounts and figures of the causalities on both sides which have led to food shortages due to the desertion of farmlands, damage of crops and conflicts of ethnoreligious coloration among the various segments that constitute the Nigerian State.

However, available reviewed scholarly studies pointed out that killings and destruction of properties had occurred in many parts of the country as a result of the pastoralists–farmers conflict.

In Benue alone, since 2012, over 30 invasions of herdsmen across its rural communities of Agatu, Makurdi, Guma, Logo, Buruku, Tarka, Gwer-West and Otukpo were recorded dated back to 2012 (Gever & Essien, 2019; Ogebe *et al*., 2019; Soomiyol & Fadairo, 2020). Another account stipulated that out of reported 389 occurrences of pastoralists–farmers conflicts from 1997 to 2015, 371 had taken place in the Middle-Belt (the North-Central) which comprise Benue, the Federal Capital Territory, Kogi, Nasarawa, Niger, Kwara and Plateau are the primarily affected areas in the country (Institute for Peace and Conflict Resolution, 2017). The conflict climaxed in early 2016 when over 2000 persons were

murdered in Agatu local government area of Benue state by militant herdsmen and described by the United Nations as genocide (Abugu & Onuba, 2015).

Similar trends keep manifesting with the records of death and maimed persons on the increase in other parts of Nigeria such as Borno, Jigawa, Yobe, Kaduna, Enugu, Taraba, Plateau, Katsina, Edo, Anambra, Ekiti, Ondo, Osun, Ogun, Oyo among other states. In all, it was claimed that over 6,000 people were killed at the beginning of 2018 by the Muslim Fulani group (Clark, 2018; Li, 2018). It was also contended that the pastoralists–farmers conflict led to the killing of at least 1,300 people in the first half of 2018 (International Crisis Group, 2018). What becomes evident from the foregoing is that the pastoralists–farmers' incidents of the last two decades over grazing land shows that if there had been any peace at all, it has been the peace of the graveyard. The primary reasons for the animosity and pastoralists-farmer strained relationship are subject of discussion in the next section.

An overview of national, sub-national and regional grazing reserves development and policies/laws responses

Grazing reserves are areas of land delimited and reserved for sole or semi-sole utilization by pastoralists. There is also conflicting historicity of the development of grazing reserves in Nigeria. However, the developmental periods can be segmented into three, the pre-1960s, the 1960s and post-1960s.

As for pre-1960s, what appears to be prevailing in the extant literature is the version which stipulated that some initial abortive attempts made by the Federal Government and International Agencies, the United States Agency for International Development (USAID) in the 1950s to modify the scope of nomadism in Nigeria which predated the emergence of grazing reserves as a policy tool for modernization of the livestock sector in the 1960s (Abdullahi *et al*., 2015; Ducrotoy *et al*., 2018).

Later in the 1960s, it was reported that the World Bank reviewed the nature of pastoralism in Nigeria and came out with three proposals having noted that the range grazing practices were a serious obstruction to livestock development and modernization while three proposals were put forward for immediate action. Part of the proposals culminated into passing into law becoming Grazing Reserve Law of 1965 which applied only to States in Northern Nigeria.

The post-1960s period witnessed the Federal Government of Nigeria (FGN) taking numerous measures to tackle the escalating situation between pastoralists and farmers in the country. The FGN inaugurated an inter-ministerial committee to suggest measures for the re-establishment of grazing reserves in 2014. Similarly, a committee was established by the Federal Ministry of Agriculture in 2015 to formulate an all-inclusive livestock

development plan recommended, among other things, the development of grazing reserves as a measure of curbing the herders-farmers conflicts.

In 2016, the Government revealed plans to appropriate land across states for the grazing of cattle. However, these plans failed to materialize owing to stiff opposition from some interest groups. In May 2018, as a supplement to security-focused strategies, the FGN announced a support package for rebuilding damaged infrastructures and a ten-year National Livestock Transformation Plan in ten pilot states (United Nations Office for West Africa and the Sahel [UNOWAS] Study, 2018). Presently, Nigeria has a total of 415 grazing reserves all over the country, out of which only about one third are being utilized while the remaining ones have not been gazetted.

Other previous and recently grazing policies/laws created are included the National Environmental (Watershed, Mountainous, Hilly and Catchment Areas) Regulations, 2009; Nigeria's Agriculture Promotion Policy 2016–2020 (The Green Alternative); Ministry of Environment; (Ogboru & Adejonwo-Osho, 2018); Use Act of 1978-the Land Tenure Law of 1962 was repealed and supplanted by the Land Use Decree 6 (now Act) of 1978 as the nation's land policy document to administer and legalize how lands were owned, acquire and use. (Udoekanem *et al*., 2014 cited in Omokhoa & Okuchukwu, 2018); 1999 Constitution of Nigeria, as a facet of agriculture, law-making on pastoralism or animal herding is allowed by the item on the concurrent list of Nigeria stipulating the power of House of Assembly to formulate laws land issues (Federal Government of Nigeria, 1999).

Laws enacted by state governments in Ekiti (Prohibition of Cattle and other Ruminants Grazing in Ekiti State Law, No.4 of 2016; in Taraba (Anti-Open Grazing Prohibition and Ranches Establishment Bill 2017); in Edo (the Edo State Control of Nomadic Cattle Rearing/Grazing Law and for Other Purposes); and Benue State (the Open Grazing Prohibition and Ranches Establishment Law 2017) aimed at regulating the grazing activities in their various states and finding an enduring resolution to the persistent pastoralist–farmer conflict in Nigeria.

Some Africa and West Africa policy documents, and protocols include the African Union's 2010 Policy Framework for Pastoralism in Africa (African Union, 2013); the 2013 Declaration of N'Djamena; (Sahel and West Africa Club Secretariat & Organisation for Economic Co-operation and Development (OECD), n.d.); and Economic Community of West Africa States' (ECOWAS) Transhumance Protocol, 1998 under Decision A/DEC.5/10/98.26 calling for the proper management of transboundary livestock movements between member states and guarantees the free movement of pastoralists or herders across the sub-region (Ogboru & Adejonwo-Osho, 2018). This clarifies presence of foreign pastoralists in Nigeria.

Why the phenomenon of pastoralist-famer conflict?

There exists an extensive and diverse literature on the causes of pastoralists–farmers conflicts. However, scholarly discourse on the causes of pastoralists–farmers conflicts can be generally divided into three. First, frequent violent pastoralists–farmers conflicts have been ascribed to climate change (Homer-Dixon, 2007; Saidu & Omedo, 2010; Aaron, 2011; Onah *et al*., 2020), desertification and environmental security (Herrero, 2006; Nwangwu *et al*., 2020; Chukwuma, 2020).

The debates by the African Union (AU), the United Nations Security Council (UNSC), and the Conference of the Parties to the Kyoto Protocol gave impetus to the security consequences of climate change in Africa which gained currency since 2007. Researchers in the field of environmental security underscored causal links between environmental scarcity and violence (Bennett, 1991; Bachler, 1999). Countering this stance are certain political ecologists such Wolf (1972), Bryant (1998; 2015), Peluso & Watts (2001), Hecht and Cockburn (2010), among others asserting that it is rather simplistic and short of critical reference to multiplex empirical realities that environmental scarcity triggers violent conflicts. Instead of being the source of conflict, they hypothesized the environment as "a theater in which conflicts or claims over property, assets, labor, and the politics of recognition play themselves out" (Peluso & Watts, 2001, p. 25).

The second position, which closely relates to the above, is the Malthusian perspective which pontificates that urbanization and the explosive population growth can be linked to the accessibility of resources in Africa and can explicate the pastoralists–farmers conflicts (Neupert, 1999; Fratkin, 2003; Oyama, 2014, Onuoha & Ezirim, 2010; International Crisis Group, 2018; Soomiyol & Fadairo, 2020). Thus, the expansion of public infrastructure and the propensity for large-scale farmers to procure land and other private business pursuits have been unprecedented. In essence, population growth and growing commodity production have spawned the expansion of farmlands to grazing reserves, thereby amplifying the stress and conflicts between the pastoralists and land users across the globe (Fratkin, 2003).

Lastly, other studies emphasize the influence of insecurity within the Lake Chad Basin (Fabiyi & Otunuga, 2016; International Crisis Group, 2018), terrorism, regional violence (Ndubuisi, 2018; Chukwuma, 2020), and trafficking (Ajala, 2020; Mbih, 2020) as being the causes of pastoralists–farmers conflict. It was reported that over one million cattle and other livestock were lost by the members of Miyetti Allah Cattle Breeders Association of Nigeria (MACBAN) to Boko Haram insurgency and cattle rustling in the North-East (International Crisis Group, 2018; Okoli, 2019; Nwangwu & Enyiazu, 2020). Thus, the frequency of insurgency and cattle rustling in Lake Chad has compulsorily made pastoralists to shift towards the already high populated savannah region where devastating pressure on farmland is amplified. This has led to the increasing the regularity of clashes over the damage of crops, cattle nicking and water pollution.

Despite the avalanche of rich and instructive scholarly exposition on the phenomenon and causes of pastoralists–farmers conflict, little attention has been paid to the perceived gaps in the implementation of grazing policies/laws and regulations in Nigeria. Thus, the loopholes in the extant grazing policies have progressively led to the incessant conflict between pastoralists and farmers. Hence, proper implementation of these grazing policies and laws using appropriate management and political frameworks could be the needed remedy for the strained relationship between the pastoralists and farmers in Nigeria. The next section overviews some selected previous and recent grazing policies/laws in Nigeria.

Analyzing the gaps in the implementation grazing policies in Nigeria

The foregoing section has shown that it is not the case that grazing policies/laws to forestall pastoralists–farmers conflicts are not in existence in Nigeria and so also the regional bodies that the country belongs to. What has eluded those created policies/laws is their proper implementation. As pointed out by many scholars such Makinde (2005) and Khan and Khandaker (2016) among others, the performance of a policy or law and reaching its objectives depend on its proper implementation without which it remains an exercise in futility. Thus, getting ahead with policies does not assure realization on the ground if such policies are not well implemented and such is the case of grazing reserve policies in Nigeria.

As a corollary from the above, some identified gaps in the implementation of grazing policies/laws have been identified. These included the colonial policy of exclusion, corruption, lack of continuity in government policies, inadequate human and material resources, poor national and sub-national governments' response, the politicization of legal regimes, impunity and grazing policies/laws implementation, law enforcement and security agencies operation deficits, corruption and predatory practices of government representatives and the gap in national policies/laws to implement ECOWAS protocol resulting into the broadening of the vacuum between declared policy goals and the realization of such intended goals.

Colonial policy of exclusion. Colonial-era policies/laws failed to take into consideration the peculiar culture and lifestyles of the pastoralists. Hence, many of these laws were hostile to pastoral livelihoods and bereft of implementation infrastructure such as the activities of front-line implementers and consideration of external environmental factors from political, economic and social standpoints as suggested by management and political policy implementation models. This has continued and manifested in contemporary grazing laws. For instance, land tenure rules across Africa including Nigeria excluded them the pastoralists which made many pastoral communities and individuals operate on the margins of the law (Schmid, 2001; Davies *et al*., 2018). This trend persisted through

the 1970s and 1980s, as various political, economic and ecological crises generated the vilification of pastoral populations and the neighborhood regions they inclined to occupy (Roitman, 2005).

Poor national and sub-national governments' response. Since the 1970's successive military and civilian governments have, in effect, neglected the policy of creating and developing grazing reserves. As such, sub-national governments have shown a lackadaisical attitude towards maintaining previous policies and have refused to survey and gazetted most of the specified grazing reserves. It has been demonstrated that just 113 (about 27%) of the 417 proposed grazing reserves have been gazetted (Center for Democracy & Development, 2018). For instance, the Grazing Reserve Act of 1965 was passed by the Ahmadu Bello administration of the Northern Region and the formal gazetting of the Kachia Grazing Reserve (KGR), an exclusively Fulani pastoralist community in Kaduna State; northwest Nigeria did not occur until 1996. This delay in gazetting the KGR and coupled with the absence of legalized land ownership and sluggish government commitment in infrastructure discouraged pastoralists from occupying the reserve. Aside from this, the high levels of land compensation proposed by the Federal Land Use Act of 1978 (now Chapter L5, Laws of the Federation of Nigeria, 2004) (Federal Government of Nigeria, 2004), also deterred many states from establishing grazing reserves (Waters-Bayer and Taylor-Powell, 1986 cited in Ducrotoy *et al*., 2018).

The failure of successive governments to promote the benefits of the grazing reserves and the persisting Fulani traditional dependency on transhumant practice also contributed to the initial reluctance of pastoralists to settle in reserve. So over the years, there have not been concrete grazing policies/laws' implementation pathways as regards workable strategies for conflict management and peacebuilding mechanisms that are institutionalized at the local and state levels in the context of management and political models despite the prescriptions espoused by such policies. Thus, in the foregoing context, Nigeria's response has been unplanned and reactive with the deployment of security or setting up commissions of inquiries. This is rather unfortunate when there are existing policies such as Nigeria's Agriculture Promotion Policy 2016–2020 to tackle such impasse.

The politicization of legal regimes. Under the political model of policy implementation, successful implementation of any policy is among other things dependent upon effective leadership, people's engagement, and accuracy of the leaders' decisions. Many of these variables have been absent in the implementation of grazing policies/laws in Nigeria. What unfolded over the years has been ineffective leadership engagement coupled with inaccurate decisions on the part of implementers, community stakeholders and all levels of governments due to the unnecessary politicization of these regulations. Aside the obstruction to the grazing reserve laws' enactment by natives backed by different interest groups, associations and almost all sub-national governments, the implementation of the

existing ones have been complicated due to undue politicization based many factors such ethnicity, political party affiliation, personal political ambition among others.

To be sure, a bill was proposed at the National Assembly in 2016 for an Act to pave the way for Grazing Reserve in each of the states of the Nigerian federation to enhance agriculture produce from livestock farming and curtail ceaseless pastoralists–farmers conflicts. The bill could not scale through based on the allegation that it sought to favor a particular ethnic group profession, that is, the Fulani at the expense of others. Also, the obsolete Northern Grazing Reserve Law has not been revised while the Land Use Act of 1978 is dysfunctional, incipient state grazing reserve laws have not yielded the expected outcomes. In essence, grazing policies/laws and regulations have not only be bedeviled by fragmented and sketchy policy framework but have also faced implementation dilemma.

Impunity and grazing policies/laws implementation. Poor implementation of the existing grazing policies/laws to curb impunity which intensifies pastoralists–farmers conflicts also remains a serious gap. The infinitesimal number of the perpetrators who escalate these conflicts leading to the wanton destruction property and killings have been indicted or penalized (International Crisis Group, 2018). As espoused by Okoro (2018), failure to amply and neutrally administer justice can escalate sequences of violence. Between 2017 and 2018 in Nigeria, pastoralist associations alleged that security officials refused to make arrests as a result of the killings of 1,000 pastoralists and stealing of 2 million cattle. In one of such cases in Adamawa state, the state investigative panel failed to act in response to an attack by local Bachama youth militias led to a cycle of retaliatory attacks against Bachama village (Brottem & McDonnell, 2020). This lacuna manifesting in widespread impunity has made pastoralists and farmers to lose faith in the legal recourse leading to self-help and taking the law into their hands.

Law enforcement and security agencies operation deficits. As a corollary, impunity prevalence, a poor result implementation of relevant grazing policies/laws, has been aggravated by the inefficiency and ineffectiveness of law enforcement and security agencies. Also, the extra-judicial killings and seizure of properties (including livestock) by vigilante groups are seriously undermining the efforts to curb pastoralists–farmers conflicts. Similarly, given the severity of the conflict, the military and other security agencies have become more active in addressing conflicts involving pastoralists in Nigeria, human rights advocates have shown concern regarding violation people's rights during their operations (Nwangwu & Enyiazu, 2020). The powerfully militarized response in some parts of Nigeria such as Benue, Kaduna and Taraba has been condemned for possibly weakening community trust in the state system, which will further escalate the risks that conflicts.

Corruption and predatory practices of government representatives. The behavior of many government officials on the roads and at border posts amplifies a sense of lawlessness and corruption among customs, immigration, police and others. This corruption has

affected the responsibility of officials eroded the public trust and making a mockery of policy implementation. According to Odigbo (2019), resource control and access issues tend being manipulated by agencies and actors in positions of authority, escalating anti-state sentiments and protests, which in turn undermine internal security. In Nigeria, the collection of cattle tolls, taxes, excessive fines or punishment, and other have been exploited by local government officials because of the prevailing corruption situation which appears to be ubiquitous (International Crisis Group, 2018). Thus, official border points have become nightmares for those pastoralists within or migrating from Nigeria because of "red tape", delays, intimidation and exploitation. The legitimacy of local governments in the eyes of pastoralists has been destabilized because officials are seen to obtain rents from passing livestock via taxation whether legal or otherwise without tangible investment in pastoral infrastructure or resource management (Moutari & Tan, 2008).

Vulnerable narratives of media coverage. Seip-Nuño (2018) has shown in a study the role of media coverage in escalating the pastoralists–farmers conflicts in Nigeria. He explained how easily pastoralists–farmers conflicts contradictory narratives have pre-disposed to the sweeping statement and at times apparent falsification tilt toward the desired perception. This has been made possible by the absence of policy in the coverage such incidents or failure to implement the available policy/laws in this direction.

Aside from the traditional news sources like television, radio and newspapers (which also prove online service), social media such as Facebook, Twitter, WhatsApp, Telegram and numerous private blogs, have fuelled the pastoralists–farmers conflicts via biased reportage. For instance, the coverage of the Numan local government area in Adamawa state attacks which occurred between November and December 2017 becomes handy here. Though, legally, Nigeria has passed the Cybercrime Act (section 24) which carries fines and jail terms for falsification messages posted online, attempt to implement has been hampered by criticisms bothering on freedom of free speech enshrined in the 1999 Constitution. However, there have been no indications that the Nigerian government is censoring social media reports or sifting the internet surrounding the pastoral conflict, but appears that the content is being closely watched (Seip-Nuño, 2018).

The gap in national policies/laws to implement the ECOWAS protocol. It has been observed that where policies/laws have been created based on comprehensive economic and agronomic validations, they have not always been backed by the required investments and political will to work as intended. Even though Nigeria is a party to the ECOWAS transhumance protocol, no national law or framework for implementing the protocol has been put in place or well-implemented, thus creating a serious gap. Even though Chapter 4, Section 41 of the 1999 Nigerian Constitution (as amended) recognizes the free movement of people across any part of the country without any let or hindrance. In defiance of this provision, some sub-national governments such in Ekiti, Edo, Benue and

Taraba have gone ahead to enact anti-grazing laws in 2016 and 2017 respectively which are at variance with the spirit of the ECOWAS protocol and the 1999 Constitution. The enactment of these laws is based on land rights, which are controlled at the state or local council level. Aside from this, the federal government in 2019 launched a ten-year National Livestock Transformation Plan focusing on modernization and growth rather than favoring pastoral production systems. Thus, ECOWAS Transhumance protocol and other related international instruments have to be updated and synchronized.

Plugging the implementation gaps in pastoral and grazing reserve policies in Nigeria: The forward

Based on the preceding sections, it is evident that grazing policies/laws have not yielded the desired results due to poor implementation. One of the available ways to measure the success of a policy is the salutary changes in the behavior of the target inhabitants via the extent of compliance (or non-compliance) with the policy. In the context of this paper, many of the grazing regulations in Nigeria have failed to attain the stated objectives because the concerned authorities have been unable to follow the prescriptions of implementation performance framework within the context of the management and political models. As a synthesis of both models, the following prescriptions are recommended to plug the implementation gaps in pastoral and grazing reserve policies in Nigeria.

i. Effective leadership and accuracy of the leaders' decisions in the implementation drive of grazing policies and laws; this is where putting those that are knowledgeable in the pastoralists and farmers affairs in charge of implementation is very relevant.
ii. To ensure dedication to policy implementation and the attendant productivity, motivation of the implementers such as the official of the concerned ministries and agencies by providing necessary working tools and incentives that can assist implementation are very key.
iii. The pastoralists and the farmers' leaders should be engaged by negotiating with them and carry them along in the implementation process; those to represent government authorities should be the ones that understand the language(s) and peculiar culture including the lifestyles of the pastoralists and farmers.
iv. The involvement of the political actors on both sides of the pastoralists and farmers in the implementation process is very critical. This can be done by involving them in the governance of such communities. However, the sway of constant pressure politics to favor one particular group over the other should be curtailed.
v. Joint actions in terms of collaboration with other agencies such as police and other security agencies should be simplified, documented, well-coordinated to avoid predatory behavior and corrupt tendencies.

Conclusion

It has been established in the paper that there exists a series of protocols, policies and laws to guide pastoralists–farmers relationship within Nigeria and across the West African sub-region. However, that despite the enactment of many regulations, including the recent anti-grazing laws by some sub-national governments in Nigeria, pastoralists–farmers conflicts have continued to persist. Thus, previous attempts at regulating cattle grazing turn up to be ineffective. In contrast, current ones appear to lack the necessary considerations as espoused by management and political models within the implementation performance framework. It is, therefore, essential for the policy and lawmakers to explore the prescriptions of management and political models as synthesized in this paper for the successful implementation of grazing policies and laws to curb persistent pastoralists–farmers conflicts in Nigeria.

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Food Insecurity in Nigeria —A Travesty of Human Right to Life

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Abstract. Of all the items on human rights contained in national constitutions, man's right to food is unalienable and the most fundamental for his existence. This was made clearer in Abraham Maslows hierarchy of needs where food is primary. The International Human Right equally contains portions that emphasises right to food. (Right to food—Wikipedia: https://en.wikipedia.org/wiki/Right_to_food). Unfortunately, studies showed that a large percentage of the ordinary Nigerian citizens live in a state of uncertainty over availability and access to food items. For instance, research result released by the General Household Survey (GHS) showed that over 40% of Nigerian households lack access to healthy diet needed for active and healthy life. This is a threat to man's right to food, to life and globally unacceptable. The situation raises a concern and thus, warrants an investigation into the impact of food insecurity in Nigeria on human right to life. The paper is theoretical and will therefore depend on secondary sources for data. The paper suggested the adoption of Right-to-Food-Approach to food insecurity as strategy for addressing the problem of food insecurity in Nigeria. The basic elements of the approach was highlighted. Findings showed that food insecurity breaks down immunity in children, causes anxiety, aggression, behavioural problems, causes mental health, depression chronic diseases, lack of self-confidence and socio-economic and political exclusion in adults. Among others, the study recommends that government should be more radical in fighting insurgence, farmers should be given equal access to farm inputs irrespective

of sex, government should prioritise food production, subsidies for fossil fuel production and consumption should be eliminated, government should consider climate-risk analysis in designing policies, etc. The paper therefore concludes that since everybody is a stakeholder in the right to food agenda, it should be seen as a collective responsibility of both government and citizens to ensure availability and access to food by all especially the most vulnerable and deprived.

Keywords: food, insecurity, food insecurity, travesty, human right to life.

Introduction

The most central of all the items of human rights as contained in national constitutions is the right to life. The right to live is unalienable for individuals irrespective of status, economic class, race, sex and other classifications necessary to describe humans. Thus, for human life to be sustained, Abraham Maslow identified 3 basic needs which include food, shelter and clothing. Among these needs, food is the most critical because there cannot be live without food. This implies that man must first and foremost eat to the alive and enjoy other numerous rights. Ake (1981) re-echoed man's need for food when he described man as first and foremost a "worker or a producer" He went further to say that it is by man's productive activity that he is able to obtain the economic means needed to sustain life, in short, man must eat to live... "It is true that man does not live by bread alone, but it is a more fundamental truth that man cannot live without bread" (Ake, 1981, p. 1). It was on that basis that Ake (1981) enjoined students to pay attention to the mode of production and distribution of goods in the society as a point of departure for the understanding of the other structures of the society—its culture, laws, religion, political system and even its thoughts. This analogy underscores the relevance of food in a man's life. However, when there is lack of reliable access to sufficient quantity of affordable and nutritious food, a condition of food insecurity occurs. A continuous existence of food insecurity could constitute a threat to man's fundamental right to live since no man lives without food. Against this backdrop, this paper seeks to examine the impact of food insecurity in Nigeria on the right to life of Nigerian citizens.

Clarification of relevant terms

Food

Food means any substance taken in by plants and animals to enable them live and grow; anything that nourishes (Webster's 2010).

Insecurity

Insecurity refers to lack of confidence or assurance, self-doubt, the quality of being unsecured (Dictionary.com).

Food insecurity

The United Stated Department of health and human services (2020) defines food insecurity as the disruption of food intake or eating pattern as a result of lack of money or other resources.

Travesty

Travesty means false, absurd, misrepresentation of something.

Human right to life

The phrase 'human right to life' is used to describe a condition in which every human being has the inherent right to live; this right is protected by law, implying that no one shall be arbitrarily deprived of his life (Claiming Human Rughts, n.d.).

Literature review—food insecurity

Wunderlich and Norwood (2006) have observed that food insufficiency, with its threats to survival and serious physical and psychological distress, has been part of human experience and human culture from the very beginning of man's existence. They pointed out that food insecurity has been explained from various perceptions describing its aspects and consequences.

An expert panel (1989) constituted by the Life Sciences Research Office (LSRO) noted that food insecurity occurs when the availability of nutritionally suitable and safe foods or the ability to acquire adequate foods in socially suitable ways is restricted or uncertain. Thus, food insecurity arises from the following conditions: (a) uncertainty over availability of the next meal; (b) shortage of good food; and (c) it becomes vital to find food through socially unwelcome manner.

Food insecurity can happen at varied levels ranging from individual, household, community and national levels. The phenomenon of food security come down with several health consequences ranging from protein and micronutrient deficiency to poor cognitive development especially in children.

Chilton & Donald (2009) have attributed food insecurity to some socio-economic processes that can result in lack of access to food such as poor education, inadequate income, lack of access to healthcare and health information and exposure to some unfavourable health conditions such as unsafe water, poor housing and unhealthy neighbourhood. Poverty is however the underlying factor behind these conditions they said. The poverty factor was re-echoed by Egboboh (2019) when she reported the finding of the Nigerian General Households Survey (GHS) that over 40% of Nigerian households lack access to healthy diet due to poverty.

Food insecurity in Nigeria

The USA Food and Agricultural Organisation (FAO) (2020) reported an acute level of displacement and food insecurity in the Northeastern states of Nigeria. This was attributed to the Boko Haram insurgency. While humanitarian access is improving, most displaced families still rely on vulnerable host communities for basic needs, including food. This has put more pressure on the hitherto penurious host communities, making them more vulnerable to hunger and starvation. The fear of lootings and attacks have discouraged many farmers from working in their fields, resulting to loss of harvests and productive assets, and extremely affecting purchasing power. Thus, report recently released by Cadre Harmonise on Nigeria indicates an alarming deterioration of food security. About 4.3 million people are critically food insecure across the 16 states and the federal capital territory, an increase of 75% from last year. More than 6.2 million are expected to be food insecure between June and August 2020.

The investigation was particularly made in respect of Northeast Nigeria, where close to 3 million people are in a critical food insecurity situation, representing a 72% increase from last year, while more than 3.8 million people are expected to be food insecure during next lean season (Echo Daily Flash, 2019).

However, in response to the plight of the immediate affected population, FAO has launched a full-scale corporate surge response. A dedicated team of experts is based in Maiduguri and works closely with partners on the ground. FAO's priority is to provide immediate livelihood support to vulnerable pastoralists and agropastoral, including returnees, IDPs and host communities. This action is in line with the provision of the right to food framework explained above.

Lamenting over Nigeria's food crises, Falodun (2019) observed a rising food insecurity in Nigeria, however expressed hope as small-scale farmers are resorting to new technologies to combat food insecurity. He noted that the global population is projected to grow by

2 billion by 2050 and it is expected that half of that growth will come from Sub-Saharan Africa, addressing food shortage has therefore become very expedient.

Literature review—Right to life (food security)

Donald & Chilton (2009) pointed out that the right to food and freedom from hunger (which guarantee right to life) are contained in Article 25 of the Universal Declaration of Human Rights (1948) in which the right to a minimum standard of living is specified. Moreso, the right to food encapsulated into the overall standard of living which include right to housing, clothing, healthcare and social services. In the same note, Chilton and Donald (2009) re-echoed that the right to food is comprehensively defined in General comment number 12 written by a special rapporteur on the right to food, which was recognised by the committee on international covenant on economic, social and cultural rights (CESCR, Article 11) which ensures proper accountability and judicious application of the covenant.

The General Comment no. 12, the CESCR explained the state obligation to promoting the individual right to food to involve the following dimensions:

Respect; implying that states must not arbitrarily prevent people from having access to food.

Protect; implies that states should set structures to prohibit enterprises or individuals from depriving persons access to adequate food.

Fulfil: suggests that government should adopt proactive measures to facilitate people's access to and utilisation of resources, and other strategies to sustain their existence. This includes ensuring food security especially in times of war, victimisation by natural disaster such that individuals become incapacitated from enjoying their right to food, government becomes obliged to directly provide that right (Ziegler, 2001).

In the same vein, the Universal Declaration of Human Rights (1966) pointed out national strategies towards the realisation of the right to food. These includes four functions:

—defining the obligations corresponding to the right to adequate food, whether these are the obligations of government or those of private actors;
—improve the coordination between the different branches of government whose activities and programs may affect the realization of the right to food;
—set targets, ideally associated with measurable indicators, defining the timeframe within which particular objectives should be achieved; and
—provide for a mechanism ensuring that the effect of new legislative initiatives or policies on the right to food is positive.

Dimensions to the rights of food

The former Special Rapporteur on the Right to Food, Ziegler (2001) identified three dimensions to the right to food as follows:

Availability refers to the possibilities either for feeding oneself directly from productive land or other natural resources, or for well-functioning distribution, processing and market systems that can move food from the site of production to where it is needed in accordance with demand.

Accessibility implies that economic and physical access to food is to be guaranteed. On the one hand, economic access means that food should be affordable for an adequate diet without compromising other basic needs. On the other hand, physically vulnerable, such as sick, children, disabled or elderly should also have access to food.

Adequacy implies that the food must satisfy the nutritional needs of every individual, taking into account age, living conditions, health, occupation, sex, culture and religion, for example. The food must be safe and adequate, protective measures by both public and private means must be taken to prevent contamination of foodstuffs through adulteration and/or through bad environmental hygiene or inappropriate handling at different stages throughout the food chain; care must also be taken to identify and avoid or destroy naturally occurring toxins (Ziegler, 2001).

Besides, any repudiation from having food or access to it resulting from race, colour, gender, language, age, belief, political or other philosophical reasons, national or social context, possessions, genetic or other situations (VvCRight to food—Wikipedia: https://en.wikipedia.org/wiki/Right_to_food) constitutes a violation of the right to food.

Besides that, several international conferences and summits have been held to promote the right to food. For instance, at a declaration on world food security held in Rome in 1966, it was observed that all countries except the USA and Australia accepted to adopt the idea that food is a basic human right, and promised to work towards reducing world by year 2015 (Eide, 2020).

Drawing a relationship between the right to food and food security, Chilton & Donald (2009) defined the right to food as follows:

> *The right to have regular, permanent and unrestricted access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensure a physical and mental, individual and collective, fulfilling and dignified life free of fear.*

In a similar manner, the United Nations Food and Agricultural Organisation (1996) conceptualise food security as:

> *Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life.*

In a preliminary report of the Special Rapporteur of the Commission on Human Rights resolution on the right to food, paragraph 14, Ziegler (2001) defines right to food as follows:

> *The right to food is the right to have regular, permanent and unobstructed access, either directly or by means of financial purchases, to quantitatively and qualitatively adequate and sufficient food corresponding to the cultural traditions of the people to which the consumer belongs, and which ensures a physical and mental, individual and collective, fulfilling and dignified life free from anxiety.*

An expert panel convened by the Life Sciences Research Office (1989, cited in Wunderlich & Norwood, 2006) provided what was described as the standardized operational definitions used for estimating food security in the United States. Food security according to the LSRO definition means access to enough food for an active, healthy life. It implies (a) the ready availability of nutritionally adequate and safe foods; and (b) an assured ability to acquire acceptable foods in socially acceptable ways (e.g., without resorting to emergency food supplies, scavenging, stealing, or other coping strategies).

Theoretical framework

This study is anchored on the right-to-food-approach to food insecurity as a strategy to addressing the problem of food insecurity in Nigeria. This approach is a human right framework endorsed by the Universal Declaration of Human Right adopted by the United Nations in 1948, in order to respect, protect and fulfil human rights. The right is derived from the International Covenant on Economic, Social and Cultural Rights which has 170 state parties as of April 2020. States that sign the covenant agree to take steps to the maximum use of their available resources to achieve progressively the full realization of the right to adequate food, both nationally and internationally. In a total of 106 countries the right to food is applicable either via constitutional arrangements of various forms or via direct applicability in law of various international treaties in which the right to food is protected (Ziegler, 2001).

The approach presupposes that to protect the right to food implies ensuring that others do not interfere with access to food for other persons. The right to food approach is

premised on the fact that solving the problem of world hunger requires improving not only availability of food but access to food for the vulnerable.

The fulfilment of right-to-food-approach requires certain components. First is to facilitate socio-economic conditions that foster development, second is to make food available to people in times of emergency, or situations where individuals cannot provide for themselves due to circumstances beyond their control.

Key elements of the theory

Chilton and Donald (2009) pointed out the following as key elements of the human right to food framework:

Promote Government Accountability

The human rights framework is premised on the concept of accountability. Accountability in this sense involves setting clearly defined targeted action plans to reduce food insecurity. Such targets should be set and pursued by government actors within stated timeframe for implementation. Accountability also implies that, there is an existing legal framework which victims can resort to for redress in case of government inaction or inappropriate action.

Increase Public Participation by Clarifying Terminology

A human rights approach is predicated on the idea that people have the right and the duty to participate in civic life, including the development, implementation, and evaluation of policies and programs. To facilitate and ensure participation, the administration must be committed to the establish and maintenance of right channels through which people can take active part (irrespective of background) in the policy process. Information sharing and encouraging education through direct, easy-to-communication channel, promoting transparency, clear mechanism for feedback, and reference to clear benchmarks and targets for food security would enhance participation.

Address vulnerability and discrimination

The less privileged class of people already discriminated by their socio-economic conditions are more vulnerable to food insecurity than others. A human rights approach entails focusing on those who are most vulnerable, understanding what causes this vulnerability or susceptibility to adverse outcomes, and changing conditions to improve their situation.

Link policies to outcomes

A human right framework applied to the right to food advocates linking food policies with outcome to ensure that some persons are not made vulnerable to food or health insecurity by food policies. Thus, this framework posits that food policies that do not produce desired outcome or limit access to food to some people should be reviewed.

Gap in the literature

This study has raised the consciousness that access to food is a matter of right and not a privilege. It is true that there is hunger in the land and Nigerians are aware; but majority of the most vulnerable do not know that right to food is fundamental to them because food is life. People should therefore feel free to demand for this right from government if government has failed to give them access to that right.

Causes of food insecurity in Nigeria.

Nigerian government has floated several programs such as Operation Feed the Nation; Green Revolution; Lower River Basin Development Authorities; National Agricultural and Land Development Authority (NALDA); and the Directorate of Foods, Roads and Rural Infrastructure (DFFRI) to end food insecurity. Unfortunately, Agostini (2018) observed with concern the inability of these programs to meet their critical objective, and thus attributed the failure to the following problems among others:

i. Violence and conflicts

The ethnic or religious conflicts have devastating effects on the economic activities especially food production in the areas that they occur. Conflicts goes beyond physical fight to include disarticulated country with prevailing structural violence without necessarily proclaiming wars. This can occur in form of persistent poverty, oppression of the poor by the rich, police brutality, intimidation of ordinary people by those in power, subjugation women and children and expropriation of resources and power by a small section of the society. This condition is heightened by the activities of Boko Haram sect and herdsmen which has cause alarming degree of mayhem, loss and displacement of millions of people from their domains. Nigeria under such a condition cannot be described as a peaceful country (Ibeanu, 2009).

ii. Regime change and policy inconsistencies

Frequent change of power and its associated policy changes, coupled with abysmal performance of agencies like the Lower River Basin Development Authorities, National

Agricultural and land development Authority, Green Revolution, DFRRI, etc.) assigned to implement food and agriculture policies have negatively affected the production and distribution of food in Nigeria. Each leadership that comes in abandons existing agricultural policies and introduce new ones to give credence to that particular regime. This creates lack of policy continuity and does not encourage agricultural production.

iii. Gender inequality

It is generally felt that men have more propensity for higher agricultural activities than women. Consequently, men are provided more agricultural inputs and land than the women. This cannot be true at all times especially where mechanised agriculture is practiced. Besides, women make up the majority of farmers in Nigeria, such that if given the opportunity and the required access are likely to achieve higher breakthrough in agricultural production than their male counterparts. Thus, women are given limited opportunity to diversify their sources of income and suffer continued food scarcity, especially rural women.

Poverty and hunger. Poverty and hunger prevent people from working hard to increase productivity. Food and agricultural productivity are both capital and labour intensive. Regrettably, it is the peasant farmers that produce the majority of food requirement in Nigeria. They are impaired by their poverty level from producing for themselves and their dependants, let alone producing for others. This case is worsened by policy changes and neoliberal policies which rarely encourage domestic production. For instance, the devaluation of the naira and its associated rise in the cost of things limit poor farmers' access to agricultural inputs. This can inflict hunger both on the farmers and the public that depend on them for food.

Natural disaster and frequent climate change. Natural Phenomenon such as draught, shortage of rainfall and dissertation especially in the northern part of Nigeria have also affected food production; while excessive rainfall and flood in southern and middle belt regions of the country can adversely affect food production.

Low level of technology, low agricultural financing and rural-urban migration pose serious threat to food production in Nigeria.

It is imperative to note that most of the factors responsible for food shortage in Nigeria are caused by man. Nigeria cannot be regarded as a poor country though, but the ability to realise her full potentials is undermined by poor management of development programs. However, these difficulties can be individually and effectively managed especially with the aid of international organisation such as Foreign Trade Policy (FTP). With that, apparently solutions to these problems will emerge and the issue of food insecurity in Nigeria will swiftly be addresses (Agostini, 2018).

Impacts of food insecurity on human rights to life

Food insecurity, and poor nutrition have serious health, psychological and social consequences on victims ranging from children to adults and older adult victims.

In a review of research literature conducted in the United States on the impact of food insecurity on health, Gunderson and Ziliak (2015) categorized health impact of food insecurity into three groups: children, young adults and senior adults.

Children

The majority of investigation into the general effects on health outcomes focused on children. This research found that food insecurity is associated with high risks of some birth defects, anemia, lower nutrient intakes, cognitive problems, aggression and anxiety in children. It can also lead to asthma, behavioral problems, depression, suicide ideation, etc. It affects mental development in children and learning difficulties. Winicki and Jemison (2003) reported that data from the Early Child Longitudinal Study-Kindergarten Class show that one indicator of food insecurity was significantly associated with impaired learning in mathematics from fall to spring of the kindergarten year and with impaired learning in reading from kindergarten to third grade

Young adults

Some studied in this area showed that food insecurity is associated with diminished nutrient intakes; increased rates of mental health problems and depression, chronic diseases such as diabetes, hypertension, and hyperlipidemia; insomnia, etc.

Older adults

Studies conducted on adult who are victims of food insecurity revealed lower intake of nutrients, depression, diminished activities of daily life, etc. Other psychological effects include aggression, lack of self—confidence and feeling of irrelevance.

Socially, a hunger person is alienated from the socio-economic activities of the society including political participation, and thus makes no contribution to the growth of the society. Besides, lack of what to eat can compel victims to resort to other forms of antisocial behaviours such as armed banditry, prostitution, child trafficking, cybercrime, etc.) as a means of survival.

All the above effect put together constitute serious threat to human existence.

Strategies for tackling food insecurity in Nigeria

In line with the cause of food insecurity identified above, the paper suggests the following as strategies to begin the process of ensuring availability and access to food by everybody:

—To tackle violent conflict will require more committed government effort. Government can demonstrate this by improving military effort through adequate funding, provision of safety gadgets, training, better insurance and remuneration for military officers; initiation of comprehensive program to address radicalism, enthrone good governance, set the structure to tackle corruption; and provide better welfare packages and development assistance. Use of appeal and conciliation is also suggested.

—Food production should be the priority of every leadership to uphold the saying that a healthy people is a wealthy nation. As a matter of obligation, government must show commitment to ensuring a nutritious diet for its citizens. Politicising should end at the level of campaigning and election. As soon as a new leadership comes in, there should be continuity in governance. Sound agricultural policies enacted by previous administration should continue unless if considered inimical to the progress of the nation.

—On natural disaster and climate change: the paper suggests an expansion in civil and construction activities to reclaim land from flood and erosion and make the land available for farmers; it also recommends that subsidies for fossil fuel production and consumption; should consider climate risk-analysis in designing public infrastructure, as well as redirect government subsidies for climate-risk behaviour,

—Government can improve agricultural production by providing farm inputs such as fertilizer, high yielding crops and seedlings, pest control and insecticides, provision of land and soft loan to farmers. These should be distributed proportionately among farmers irrespective of gender.

—The problem of low level of technology can be addressed by improving infrastructural provision such as modern farming machines and tools, storage facilities, road network, crop processing machines, etc.

Conclusion

The relevance of food to man has been exhaustibly delt with above. The first measure considered in assessing the success or failure of any administration both locally and internationally is the economic condition of its citizens. Ensuring the health of citizens should therefore be paramount as a step on the path to development of any nation. No wonder the developed countries of Europe and North America have continued to take serious measures to ensure that the citizens' right to food is established and sustained. Access to food is a right not a privilege, government must therefore prioritise food production and accessibility, and the citizens have the freedom to demand for this right

through any legitimate means. It is important to state here that since food is the spice of every life, it is necessary that all hands should be on deck to ensure adequate food supply and distribution.

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Comparison of Attitudes, Behaviors and Context Regarding Household Waste Sorting, Between Romanians who Have Lived Abroad and who Have Not

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Abstract. The size of the Romanian diaspora is comparable to a quarter of the country's population. A percentage of these people return home. Among educated individuals, the preferred destinations are the more prosperous countries, where there are embedded customs of climate change tackling, through household waste sorting and other such behaviors. Changing behaviors is not easy, and in this case this might be beneficial, if the former-migrants continue to practice this habit upon return. On the other hand, most educated individuals have access to information and can have their opinions shaped by it. The questions are, do the persons who have lived abroad adopt a more eco-friendly behavior than those who have not? Do they practice household waste sorting more or less than when they used to live abroad? Is there a conflict of attitudes, behaviors, or contradictions between the two categories and the public authorities? The results show that even though the behaviors of the two groups do not show discrepancy, their attitudes and level of contradiction with the authorities are different.

Keywords: attitudes, behaviors, waste sorting, return migration, climate change action.

Introduction

The originality of this paper stands in the fact that it concomitantly compares the post-migration habits in pro-environmental behaviors (PEB), as well as the difference in how people who have lived abroad and people who have not perceive the same environment, especially in regards to the contextual factors that influence household waste sorting.

Thus, by looking at a type of behavior through the lenses of attitudes, behaviors, and context or contradiction, we manage to simultaneously gage how impactful living in a different country is on recycling, as well as how the difference in context—the one where the person previously lived and is living now—plays a role in their perception.

Previous research has looked at household waste sorting after migration (Hellwig, Haggblom-Kronlof, Bolton, & Rousta, 2019), how supportive Romanian consumers are of the circular economy concept (Lakatos *et al.*, 2016) and evaluating attitudes and behavior towards selective collection of waste in Cluj-Napoca, Romania (Pop *et al*., 2015).

Definitions

Johan Galtung's theory on conflict, with its famous ABC triangle of Attitudes, Behaviors, and Context or Contradiction (Galtung, 1990) is a practical method to assess a conflict situation and its possible impact. In it, the Attitude includes emotion, beliefs, and perceptions. Behavior encompasses the acts that the parties take in order to achieve their goals. The contradiction or the context is the incompatibility of their goals and how it can be found in and around the parties.

Stern (2002) and Guagnano, Stern and Dietz (1995) developed the integrated Attitude-Behavior-Context model of environmentally significant behavior. This assumes that behavior is "an interactive product of personal sphere attitudinal variables (A) and contextual factors (C)".

A key dimension of this ABC model is the structural dynamic between attitudes (internal factors) and contextual factors. Attitude-behavior link is believed to be strongest when the (C) Contextual factors are weak or non-existent. If they are strong and negative or strong and positive, there apparently is no link between attitudes and behaviors. If, for example, recycling facilities were non-existent, it would not matter if people held pro- or anti- ecological attitudes. But if it would be possible to recycle, although not very easy, there could be a strong correlation between pro-environmental attitudes and recycling behavior (Center for Renewable Energy Sources & Saving, 2020).

The innovative element in Stern's ABC theory is that attitudes influence behavior directly, rather than intentions, which in turn influence behavior, as presented by other models.

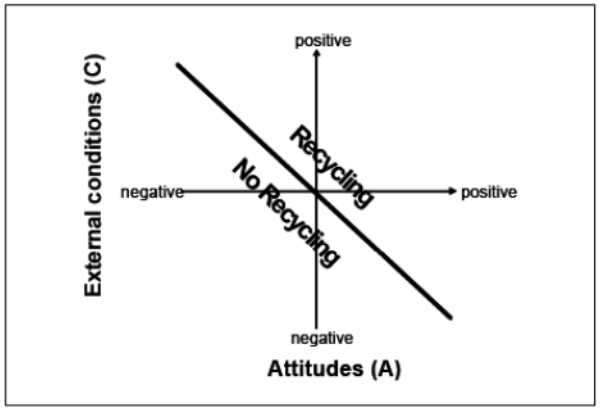

Image 1. Stern (2002) Attitude-Behavior-Context model

Empirical studies back this supposition, providing evidence for a direct and positive relationship between them, in the domain of environmental behavior (Ertza *et al.*, 2016).

The definition of "Pro-environmental behavior (PEB) is "behavior that harms the environment as little as possible, or even benefits the environment" (Steg & Vlek, 2009, p. 309 apud Ertza *et al.*, 2016)). It has been proven that there is a large discrepancy between claiming recycling attitudes and actual behavior (Omran & Schiopu, 2015 apud Pop *et al.*, 2015).

Methodology

The methodology encompasses the research design, the sampling method, the data collection method, the presentation of data, and the research instrument. In the following section we will present the steps undertaken for designing the research, establishing the objectives, of the sampling method and of the research instruments used.

The research objectives

At the basis of the research lays Galtung's conflict triangle and Stern's ABC model, indicating the three forces which must be studied in order to map down a conflict and PEB: attitudes, behaviors and context. We aim to find out whether there is a contradiction between the people who have lived abroad and those who have not, as well as the public authorities, when it comes to tackling climate change through selective waste collection.

The main objective is to determine what are the differences between people who have lived abroad and those who have not in regards to how they perceive selective waste collection,

if they practice it, what their attitude about this behavior is, what they perceive to be the context and contradiction about it.

The hypotheses

H1: People who have lived for a period of 6 or more months abroad (returnees) recycle more than those who have not.
H2: People who have lived for a period of 6 or more months abroad have different attitudes towards tackling climate change than those who have not.
H3: There is a conflicting view between how people who have lived abroad perceive the context in which they live than the people who have not, in regards to household waste sorting.

The research instrument

We chose the online survey as our research instrument, performing a brief quantitative data collection, due to multiple reasons. First, the accessibility and spreading potential of this instrument makes it a very cost-efficient tool. Second, the communication errors between communicators are avoided, and the respondents can provide answers at their most convenient time. We used the snowball technique for sampling, starting from our social media network and asking participants to send the survey further.

We used factual questions, opinion questions, and motivation questions with closed and semi-open questions, some of which used a 1 to 5 likert scale, others which allowed the selection of multiple answers, where participants could write down their answers only where their answer was "Other".

The survey questions were modeled after Pop *et al*. (2015) and Lakatos *et al.* (2016) and were organized it into three sections: (1) introductive questions referring to the place of residence and the selection criteria of having lived abroad or not, (2) questions on sustainable consumption practices and circular economy, and (3) "questions referring to the awareness degree regarding the selective collection of waste aspects regarding the infrastructure for selective collection of waste and questions on personal behavior regarding selective collection of waste and the factors that affect it" (Pop *et al*., 2015, p. 91).

Results and discussions

The number of respondents of the survey was 53. They were surveyed during one week, between November 20 and 27, 2020. The proportion between those who had lived in

another country for at least 6 months and those who have not was 61% returnees and 39% undeparted. However, out of the total number, only 35% of the returnees had returned between 1 month and 3 years ago. The remaining of the total number of respondents had returned over 3 years ago.

Their current city of residence was Cluj-Napoca (62%) Bucharest (9%) and the remaining are currently living in other Romanian cities (Suceava, Bistrița, Timișoara, Roman, Satu Mare, Sibiu, Brașov, Galați, Toplița, Tg. Mures, Craiova, and Iași), all of them being medium-size towns and above.

The proportion between male and female respondents has been almost equal with 27 female, and 23 male. Only 12% of the participants had High School as their last graduated school, the rest of them being graduates of Bachelors (43%), Masters (26%), or Doctorate studies (19%), thus falling into the category of highly educated people. The number of high school graduates could also imply that they are currently University students, based on their geographic location and social circle, but we did not collect this information.

To the question: **How important is it for you to show concern for the environment?,** on a scale from 1 (not at all important) to 5 (very important) 84% of the returnees chose 4 and above, while as 95% of the undeparted chose the same level.

The questions assessing the importance given to the selective waste collection showed that more returnees show the highest level of concern than those who have not lived abroad, with "avoiding exhaustion of natural resources" being the most popular among returnees and „achieving savings through creating energy from waste" being the least popular among those who have not lived abroad.

Table 1. Survey results How important is it for you to show concern for the environment?

Response of 4 or 5 (important and very important)		
	Returnees	Undeparted
In order to avoid exhaustion of natural resources, do you consider that selective waste collection is important?	94%	86%
Is it desirable to have a "zero waste" economy, in which all materials and products are reused / recycled?	87%	81%
Savings on electricity, oil, natural gas and coal can be achieved through energy from waste. How important do you consider this issue?	87%	71%

The two comparing questions, showed the following results.

When it comes to going to work using public transport, the returnees have decreased their frequency while the "not-departed" manifest this behavior even lesser than them. The returnees have also decreased the frequency in: going to work by bike, car-sharing and recycling clothes. When it comes to the other 7 behaviors, they have however increased or maintained the frequency of the behavior: collecting paper waste separately has increased,

Table 2. Survey results—Comparison of attitudes

"Please indicate your frequency of adopting an eco-friendly activity, from the following options" and "When you lived OUTSIDE Romania, please indicate the frequency of adopting an eco-friendly activity, from the following options: * Always, Sometimes, Neither often nor rarely, Rarely, Never", showed the following results.

	In Romania		Abroad
	Those who have not lived abroad	Those who have lived abroad	When they were living abroad
I go to work with a public transport vehicle	62%	72%	81%
I go to work by bike	43%	25%	37%
I go to work sharing a personal car with colleagues	38%	25%	44%
I collect paper waste separately	86%	87%	78%
I collect plastic waste separately	90%	87%	81%
I take used cooking oil to collection centers	28%	28%	28%
I take batteries to collection centers	52%	62%	53%
I take light bulbs to collection centers	43%	47%	43%
I take a non-plastic bottle with me	62%	69%	59%
I recycle my clothes	71%	56%	59%

so did collecting plastic waste separately, taking batteries and light bulbs to collection centers, and carrying a plastic bottle, while recycling cooking oil maintained the same. The difference comes when those who have not lived abroad recycle their clothes more, take a plastic bottle with them more, and manifest almost identical frequencies when it comes to taking cooking oil, batteries, and light bulbs to collection centers as well as collecting paper and plastic waste separately.

From this point of view it would seem that the respondents who have and have not lived abroad have the same household waste sorting and recycling behaviors. This could indicate that the other characteristics constitute stronger determinants of eco-friendly behaviors: the level of education, the internal geography, their age, and the national laws in this regard.

A few additional things were noted: 52% of the respondents who have lived abroad gave the same response to Q11 and 12, which signifies that they maintained their behavior.

The repetition of some percentages (*) suggests that these behaviors might be going together, i.e. a person who selected one of them, selected all of them, and practiced them consequently.

It is interesting that only 3–13% of respondents have significantly decreased their eco-friendly habits, as well as that 3–10% of them significantly increased them upon their return to Romania. This might also mean, in some cases, that their country of destination had less options for eco-friendly behaviors (e.g. lack of recycling facilities), but the survey did not specifically inquire about this aspect.

Table 4. Survey results—change in behavior

	Respondents who lived abroad		
	Gave the same answer to both questions	Decreased by over 3 points (e.g., from always to never)	Increased by over 3 points (e.g., from never to always)
I go to work with a public transport vehicle	52%*	10%	3%
I go to work by bike	36%	13%*	6%
I go to work sharing a personal car with colleagues	52%*	13%*	N/A
I collect paper waste separately	65%	N/A	10%*
I collect plastic waste separately	61%	3%*	10%*
I take used cooking oil to collection centers	42%	6%	10%*
I take batteries to collection centers	48%	3%*	10%*
I take light bulbs to collection centers	52%*	N/A	3%*
I take a non-plastic bottle with me	55%	N/A	3%*
I recycle my clothes	52%*	N/A	3%*

To the question: **Do you collect your waste selectively?** 46% of the returnees said "Yes, all the waste" and 38% of the undeparted. 34% of the returnees chose "only plastic" with 28% of the undeparted. "Only paper" was chosen by exactly the same percentage of people 41% in both categories of people.

Their **motivation for collecting the waste selectively** is extremely similar in some cases, while the motivation to save money is not very strong, with more of the returnees considering it than the 5% of the undeparted. Additional reasons added by the respondents were "the law" and "old habits".

Table 5. Survey results—motivation for collecting the waste selectively

	Returnees	Undeparted
It is the right thing to do	66%	67%
Contribution to environmental protection	78%	81%
Saving money	15%	5%

Although almost no one said that they did not collect selectively, most of them had an answer to the question: **What is your motivation for not collecting the waste selectively?**

Table 6. Survey results—motivation for not collecting the waste selectively

	Returnees	Undeparted
Lack of facilities	59%	33%
Not having enough information	18%	5%
Not having space for storing	31%	23%
Too much trouble	18%	5%

It is notable how the returnees are a lot more aware of their negative motivations and that the undeparted are very reserved when it comes to pointing to a cause for their demotivation, although in the section where we surveyed their intention to increase, decrease, or maintain their selective waste collection efforts, the latter showed a considerable lower intention to increase them, and even responded with the intention to decrease.

This could mean that the awareness of their behavior and the analysis of what motivates them in one direction or another is not as present as it is amid the returnees, and that they are largely unconscious of this.

To the question: **You think that the population's behavior in this domain is most influenced by... ?** the returnees chose public authorities (62%), mass media (65%) and legal issues (43%) while as the undeparted chose the 3 options in exactly the same percentage (57%) which could signify that they do not know what, in fact, influences the population's behavior. One significant difference is that 62% of the returnees say that the public authorities have the most influence, with only 37% of the undeparted responding this way.

This would seem to establish a trend, that the returnees are a lot more critical and aware of the actions of the public authorities, expecting more positive impact from their way in this regard.

To the question: **In the future you intend to: Increase efforts for collective waste selectively, Maintain efforts for collective waste selectively or Decrease efforts for collecting waste selectively?** 72% of the returnees responded that they intend to increase their efforts, with 33% of the undeparted selecting the same option. Most of the latter chose to maintain their efforts, with 62% choosing this option, and even 5% who chose that they intend to reduce their efforts.

This significant difference could show a greater concern and a higher standard of reference for the returnees, who have otherwise adopted a framework where one must do more to collect waste selectively than what they are currently doing, as well as a greater preoccupation of what they, themselves can do., with an underlying dissatisfaction with that is currently being done and is not sufficient. This could also mean that they are more aware of the general trend, and with this answer they forecast what is being prepared now, i.e. policies, infrastructure, technologies that will stimulate the population to practice selecting waste more than now. This might on the other hand show that the "undeparted" are quite demotivated to increase their efforts and even in some cases, feel overburdened, needing to decrease their efforts in this regard.

To the question: **What are the reasons that you have to reduce your efforts regarding selective collection of waste?** the responses were as follows.

Table 7. Survey results—What are the reasons that you have to reduce your efforts regarding selective collection of waste

Option	Returnees	Undeparted
Mixing selected waste and not recycling it by the sanitation companies	56%	42%
Lack of bins for recyclable waste	50%	24%
Long distance to the bins for recyclable waste	15%	19%
Lack of interest on behalf of the public authorities and sanitation companies	31%	33%
Not collecting recyclable waste by sanitation companies	12%	28%
Other reasons	5%	0
It is not the case/I have no reasons to do that	19%	14%

The question: **What are the areas in which the public authorities should improve selective collection of waste at the local level?** rendered a few notable aspects. Firstly, the percentage of the returnees choosing some of the options is double or even triple that of the "un-departed". This indicates a greater concern for eco-friendly solutions, more information on this topic, and higher expectations from the infrastructure, amid the returnees. For instance, returnees are determined to decrease their effort by: the fact that sanitation companies mix the waste and that there is a lack of bins, which the others are barely noticing, with only 24% of them selecting it, compared to 56% of the returnees.

Interestingly, the returnees chose penalties, material rewards, transparency of waste management system, buried containers for selective collection of waste at a very high discrepancy from those who have not lived abroad, who did not show interest in those options.

Over three quarters of the returnees show a clear demand from the public authorities to: increase the number of containers, to improve the collection system, to establish penalties for lack of compliance and even more, to give out material rewards for compliance. Less than half of the others select these options and the trend continues with considerable differences of percentages of about 30% between the number of respondents who propose a solution or another, amid the returnees and the undeparted.

This signifies that returnees can be a powerful engine for change and that they are more preoccupied by what the authorities are doing, expecting more from them and being more outspoken. Also, despite the fact that all the respondents are highly educated, the returnees appear more literate when it comes to recycling solutions, such as facilities for organic waste and selective collection of biodegradable waste.

This could build up into a conflict of attitudes and contradictions between one part of the electorate (and of the general population), the other, and the public authorities.

Table 8. Survey results—What are the areas in which the public authorities should improve selective collection of waste at the local level?

Option	Returnees	Undeparted
Increasing the number of containers for recyclable waste	59%	28%
Information, education and raising awareness on selective collection of waste	87%	33%
Improvement of the collection system	75%	42%
Penalties for not complying with the selective collection of waste	75%	42%
Material rewards for compliance with selective collection of waste	91%	38%
Ecological landfill & waste treatment facilities	46%	14%
Increasing the collection frequency	34%	14%
Waste sorting facility	65%	28%
Campaigns for selective collection of waste	62%	28%
I do not know/I am not interested	3%	0
Coercion measures for selective collection of waste	21%	9%
Exclusion of informal recycling system	9%	5%
Transparency of waste management system	43%	9%
Buy back system for recyclable packaging waste	53%	33%
Buried containers for selective collection of waste	16%	0
Facility for organic waste treatment	40%	19%
Selective collection of biodegradable waste	25%	9%

Table 9. Survey results (1 to 5 where 1– not at all, 5 by a lot)

	Returnees	Undeparted
How much do you think that the interest of the authorities for the selective collection of waste has grown in the last years?	22% chose 4 or 5 50% chose 3	19% chose 4 or 5 42% chose "3"
How do you evaluate the actions of the authorities regarding selective collection of waste in your residence area?	50% chose 2 or 1 18% chose 4 or 5	57% chose 2 or 1 24% chose 4 or 5

This question reveals that the people who have not lived abroad have a lower perception of the increase of the interest of the authorities and of the actions of the authorities regarding selective collection of waste in your residence area. And about half of both groups of respondents chose that the interest of the authorities "neither increased, nor decreased in the last years" (3) which could indicate that the actions of the authorities have gone largely unnoticed, that the respondents do not know what to say on the topic due to lack of visibility or noticeability of the authorities' activity on the matter.

Compared to the study done in 2016 by Lakatos *et al.* (2016), the percentage of adopting the pro-environment behaviors have risen.

We noted that there is a similarity between the returnees who collect household waste selectively and the undeparted who do the same, but returnees have a greater awareness and knowledge on the topic, with more specificity and greater critical thought being

given to the issue. The extremely high number of undeparted who chose this level of importance, correlated with their latter responses manifesting lack of intention to increase, and even intention to decrease their efforts for the collection of waste, could be a sign of low awareness and lack of an adequate standard and serious thought given to this notion.

The returnees however show intent to increase their efforts by an overwhelming number, as well as greater notion of what needs to be done, how these behaviors are produced, and how the infrastructure and the public institutions need to play a greater role in it.

Conclusion

H1: People who have lived for a period of 6 or more months abroad (returnees) recycle more than those who have not.

The first hypothesis was disproven. People who have lived abroad and those who have not, have extremely similar behaviors in regards to recycling. Most returnees gave the same response to what their practices were when they were living abroad and what they are now.

This might be explained in part by the fact that, as stated above, respondents tend to declare that they recycle when in fact they do not.

H3: There is a conflicting view between how people who have lived abroad perceive the context in which they live than the people who have not, in regards to household waste sorting.

This hypothesis was proven by the fact that people who have lived for a period of 6 or more months abroad are:

—Significantly more motivated than those who have not, to increase their efforts to collect household waste selectively.
—Significantly more aware of the factors that decrease their motivation to collect household waste selectively, than those who have not lived abroad.
—Significantly more critical of the authorities, with specific feedback of what they should be doing differently, than those who have not lived abroad.
—Significantly more demanding of infrastructure enhancements needed, in order for progress to be achieved.
—They are a lot more literate and savvy when it comes to solutions for increasing the efforts to collect household waste selectively, suggesting facilities for biodegradable waste, and others, which have gone by unselected by those who have not lived abroad.
—Significantly more self-aware on this topic, with those who have not lived abroad giving exaggerated or inconsistent answers, with scarce details.

A few important additional facts are that both groups of people stated that showing concern for the environment is important to them, almost all of them practice one or more types of household waste selection, and the perceived level of importance of achieving a "zero waste" economy and of savings on resources achieved through energy from waste was between 70–87% in both groups.

Many returnees gave the same response to the practices were when they were living abroad and what they are now, signifying that their behaviors remained the same.

H3: There is a significant difference between howpeople who have lived abroad perceive the context in which they live than the people who have not, in regards to household waste sorting.

This hypothesis was proven in part by the fact that returnees are more aware and critical of what the public authorities need to do, selecting a lot more detailed answers and citing the public authorities as reasons to decrease their efforts in household waste sorting, whenever they had the occasion. On the other hand, the people who have not lived abroad are a lot less consistent and convinced by this fact. The 43% of returnees citing the need for a more transparent waste management system is mirrored by only 9% of those who have not lived abroad who selected this option.

There are high demands from returnees for transparency of the waste management system, which the persons who have not lived abroad are not asking for. Also, the returnees would ask for penalties for those not complying with the regulations, which those who have not lived abroad would not opt for. The first would even support coercion measures, whilst the latter group would not.

Final remarks

This article proposed that returnees manifest more of the pro-environment behaviors, mainly household waste sorting, because of habit acquisition when they were living abroad. Due to context being very impactful on behavior and attitudes, we assumed that the return migrants could impact the recycling proportion significantly. We also thought that due to having spent over 6 months abroad, the returnees might have different attitudes towards PEB and household waste sorting than those who had not. Thirdly, we presumed that there would be a conflicting view of the context due to the different expectations and experiences that the returnees would have.

From the ABC Triangle point of view, there is a difference in how context is perceived and how the attitudes and experiences shape the view of the different people. The conflict could appear when one part of the population supports coercive measures and penalties, while the other does not.

Although we have disproven H1 that the returnees have maintained habits of recycling and thus they recycle more, we still have found a difference in opinion and how they perceive the context, as when they looking more critically at what the authorities are doing or demanding specific technologies from the infrastructure.

The percentage of the returnees choosing some of the options is double or even triples that of those "not-departed". This indicates a greater concern for eco-friendly solutions, more information on this topic, and higher expectations from the infrastructure, amid the returnees. For instance, returnees are determined to decrease their effort by: the fact that sanitation companies mix the waste and that there is a lack of bins, which the others are barely noticing, with only 24% of them selecting it, compared to 56% of the returnees.

Attitude-behavior link is believed to be strongest when the (C) Contextual factors are weak or non-existent. If they are strong and negative or strong and positive, there apparently is no link between attitudes and behaviors.

Due to contextual factors being medium-strong, we can assume that the link between attitudes and behaviors is weaker amid the returnees and stronger with the people who have not lived abroad. This could mean that paradoxically, it is the returnees—who declare that they wish to do more, that they in fact do less to recycle and that the people who have not yet been abroad recycle more. This assumption should be checked in further research.

The limited number of respondents, homogeneity of their demographics, and the limited comparison with other studies done in the EU are acknowledged limitations of our paper. Also, the proven fact that people declare that they recycle when in fact they do not, could prove an important bias when it comes to assessing behaviors in the ABC triangle. The lack of qualitative research leads to a lack of nuance to our answers, which could lead to misinterpreting the results. The small sample, could mean that the results are not significant for the larger population.

However, comparing our results with the two similar studies that inspired them—How supportive Romanian consumers are of the circular economy concept (Lakatos *et al.*, 2016) and Evaluating attitudes and behavior towards selective collection of waste in Cluj-Napoca, Romania (Pop *et al*., 2015) which were a lot more extensive, we found great similarity and credibility of our findings, with the added benefit that we managed to segment the respondents into 2 categories—of returnees and those who had not left.

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Language Polarization in the Climate Change and COVID-19 Crises. An Application of the Social Energy Circumplex

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Abstract. After the outbreak of the COVID-19 epidemic in China in early 2020, and the subsequent quick, exponential spread throughout the country and abroad, attention was diverted from other urgent issues, such as climate emergency. Interest turned toward the coverage of the novel coronavirus. The relationship between climate change and the novel coronavirus became a topic of discussion in the news approximately one month after the outbreak in China. As industrial activity and travel in China were halted at the end of January, a reduction in the air pollution over the territory was observed the following month. Similar effects were reported in Europe a short while after Italy was put under lockdown. This elicited our attention, as the two phenomena are both critical, but their perception is quite different, due to the apparent immediacy or lack thereof. We start from the assumption that language is the DNA of social moods. The way it is used has a causal role in collective attitudes and group emotional dynamics. Both climate change and COVID-19 are systemic crises, but what differentiates them is the time

span in which effects are acknowledged and even suffered by their subjects. We explore the polarization of language in news and opinion articles that compare the climate change crisis to the coronavirus crisis. Descriptive linguistic analysis with the Social Energy Circumplex—our flagship technology that detects and measures social moods in text—and a qualitative observation of language in news from our databases that mentioned both coronavirus and climate change, during the time span between 25 February and 20 March 2020, shows that there is a causal chain that connects the two crises. Still, unlike initially expected, polarization of language does not happen at the ends of the chain or of the connection, but in between, shedding light on indirect causalities that have a cascading effect.

***Keywords*:** climate change, polarization, language, circumplex of affect, COVID.

Introduction

After the outbreak of the COVID-19 epidemic in China in early 2020, and the subsequent quick, exponential spread throughout the country and abroad, attention was temporarily diverted from other urgent issues humanity is facing, such as climate emergency. Interest turned toward the coverage of the novel coronavirus. A potential relationship between climate change and the novel coronavirus became a topic of discussion in the news approximately one month after the outbreak in China. As industrial activity and travel in China were halted at the end of January, a reduction in air pollution over the territory was observed the following month. Similar effects were noticed and reported in Europe a short while after Italy was put under lockdown. This elicited our attention, as the two phenomena are both critical, but their perception is quite different, due to apparent immediacy or lack thereof.

In our global news feeds, the relationship between the novel coronavirus and climate change is mutually causal, but it is represented in several different ways. First, halting travel within, to, and from China and closing production factories to minimize the spread of the virus led to a decrease in the emissions of carbon dioxide, which might be accidentally slowing climate change (the same for Italy). Second, climate emergency might and should not be neglected despite the virus being considered the actual emergency for the time being. While being two different things, they can both be stopped or slowed down by taking action. Political and community action for the management of the novel coronavirus is a lesson for how climate change can be addressed. Third, although economies contract globally as the virus brings the world to a halt, and thus carbon emissions decrease, hopes for a climate aware future and for a Green Deal are not very high. Global economies that are obligated to slow down, such as China, will only increase their activity and desire for

growth once the health crisis is overcome, and greenhouse gas emissions will sky-rocket. This is called retaliatory pollution.

Both climate change and COVID-19 are systemic crises, but what differentiates them is the time span in which effects are acknowledged and even suffered by their subjects. Language is the cultural DNA of social moods and the way it is used has a causal role in collective attitudes and group emotional dynamics. In the next pages, we explore the polarization of language in news and opinion articles that compare the climate change crisis to the coronavirus crisis.

Methodology

Descriptive linguistic analysis with the Social Energy Circumplex and a qualitative observation of language on news from our databases that mentioned both coronavirus and climate change, during the time span between 25 February and 20 March 2020, shows that there is a causal chain that connects the two crises. Still, unlike initially expected, polarization of language does not happen at the ends of the chain or of the connection, but in between, shedding light on indirect causalities that have a cascading effect.

The Social Energy Circumplex is a proprietary technology that observes and assesses affect and emotion in text. It does so on the basis of a glossary approach, in which more than 9.000 words from the English corpus are plotted on a geometric space, using angle and radius coordinates. The technology is based on the circumplex of affect developed in the 70s by Russell (Russell, 1980; Feldman, 1995). The original research in psychology was based on a self-assessment task in which participants were asked to position 28 affect words on a cartesian system, according to their general understanding of the terms. Regression analysis showed that the 28 words followed a circular path around the origin 0 of the cartesian axes. This has proven to be groundbreaking in the study of human emotion, as prior to this, the main trend in psychology was that emotions are linear (Sjoberg *et al*., 1979). Russell, using circular statistics, has proven that emotions are rather part of a continuum. We use this technology to explore language dynamics that contextualize the two crises of choice, climate change and COVID-19.

The analysis is performed on a near-real time feed of news (25 February–20 March 2020) on the central server of our company. We collect and process approximately 45.000 news sources worldwide. The circumplex data is the result of a data base query with the search terms COVID-19, coronavirus, SARS-CoV-2, climate change, global warming, climate emergency.

Results and discussion

The Social Energy Circumplex

The most active social energies on the circumplex are Escalation, Power, and Hope. This is the first indicator that the co-mention of climate change and coronavirus holds a key to how humanity responds to obvious crises. The dominant energies in reporting on COVID-19 are Fear and Escalation, which have profoundly affected the stock market during December 2019–March 2020. A Prisma Analytics report on this issue is available by request.

	Conflict	Action	Escalation	Fear	Frustration	Motivation	Inaction	Power	Agreement	Debate	Neg. Expectations	Ideals	Hope	Anxiety	Hot Action	Cool Action
02-26-20	10	28	44	10	14	19	27	42	24	19	25	33	37	9	245	315
03-01-20	0	0	8	0	0	0	2	4	0	4	1	1	4	3	16	23
03-02-20	3	9	10	1	1	4	1	16	10	4	3	11	17	1	64	98
03-04-20	1	5	5	0	0	0	1	3	0	1	1	1	1	0	29	8
03-05-20	0	2	11	1	1	0	1	2	1	0	3	4	4	2	29	24
03-06-20	8	11	34	12	4	11	11	25	7	3	13	9	27	6	148	114
03-07-20	3	14	12	10	4	4	5	15	2	8	2	6	27	0	86	75
03-09-20	0	1	8	2	15	4	9	13	4	16	5	6	23	1	38	110
03-10-20	9	10	20	6	7	6	11	21	5	8	6	9	15	1	119	90
03-11-20	3	6	8	3	5	1	3	5	1	0	0	1	5	1	52	12
03-13-20	0	11	29	5	2	6	5	10	3	10	5	6	14	8	99	86
03-15-20	4	8	10	0	2	6	2	9	10	3	6	4	17	2	68	88
03-18-20	0	6	6	2	1	3	6	8	3	0	1	5	6	1	34	31
03-19-20	0	1	16	0	0	3	4	6	3	6	1	7	5	1	38	52

Social Energy Circumplex, COVID-19, coronavirus, SARS-CoV-2, climate change, global warming, climate emergency query, 25 February–20 March 2020

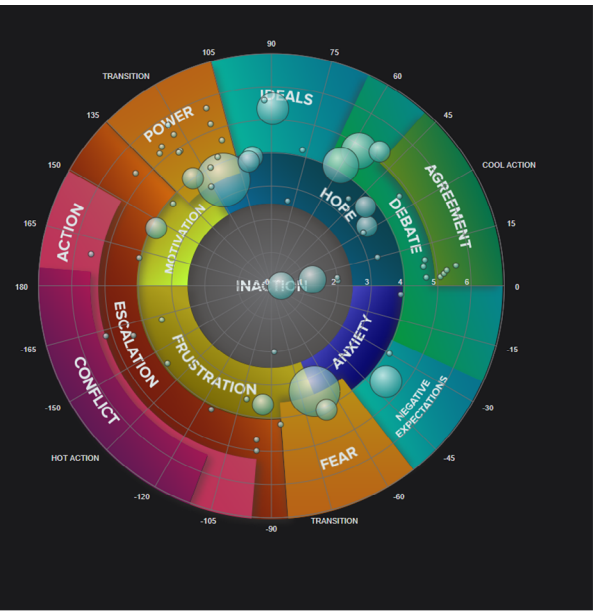
Escalation language: disruptions, ripple through, severe, sobering, dramatic, extinction, trauma, threatening, suffer, unfortunate, concern, worried, turmoil, ever-worsening, grim, disaster, vanish, aggressive, lost, hit, emergency, sacrifice, deadly, misery, suffering, lethal, deaths, shutdowns, crash, inevitably, terrifyingly, unavoidable, catastrophes, climate brutality, eco-fascism, degradation, exclusion, death, dying, panic, radical ideology, poverty, eliminate, damage

Hope language: celebrate, ambitious, significant, protection, safeguarding, fight, optimism, motivates, cooperating, pace, coordination, preparations, reduce, growth, stability, hope, livable, blessing, benefits, innovative, support

Segment Breakdown		
Conflict	3	3.3%
Action	9	9.89%
Escalation	10	10.99%
Fear	1	1.1%
Frustration	1	1.1%
Motivation	4	4.4%
Inaction	1	1.1%
Power	16	17.58%
Agreement	10	10.99%
Debate	4	4.4%
Negative Expectations	3	3.3%
Ideals	11	12.09%
Hope	17	18.68%
Anxiety	1	1.1%
Cumulative Base Energy	91	100%
Weighted Behavioural Energies		
Hot Action	64	39.51%
Cool Action	98	60.49%
Statistical Data		
Overall Angle AVG		111.1088
Overall Radius AVG		4.6111
Circular VAR		0.5402
Circular StD		1.2466
Radius VAR		0.7350
Radius StD		0.8573
Mean Resultant Length		2.0333

Social Energy Circumplex, COVID-19, coronavirus, SARS-CoV-2, climate change, global warming, climate emergency query, 2 March 2020

Segment Breakdown		
Conflict		
Action	1	0.93%
Escalation	8	7.48%
Fear	2	1.87%
Frustration	15	14.02%
Motivation	4	3.74%
Inaction	9	8.41%
Power	13	12.15%
Agreement	4	3.74%
Debate	16	14.95%
Negative Expectations	5	4.67%
Ideals	6	5.61%
Hope	23	21.5%
Anxiety	1	0.93%
Cumulative Base Energy	107	100%
Weighted Behavioural Energies		
Hot Action	38	25.68%
Cool Action	110	74.32%
Statistical Data		
Overall Angle AVG		59.8843
Overall Radius AVG		3.9759
Circular VAR		0.7016
Circular StD		1.5552
Radius VAR		1.2586
Radius StD		1.1219
Mean Resultant Length		1.2723



Social Energy Circumplex, COVID-19, coronavirus, SARS-CoV-2, climate change, global warming, climate emergency query, 9 March 2020

Lexical polarity

Our initial expectation for how climate change and coronavirus are mentioned together was that they would be polar opposites, with coronavirus being urgent, disastrous, immediate, and climate change being slow, long term, secondary. But language analysis reveals a causal relationship between the two, described in terms of "fall", "drop", "dip", or "reductions" in China's "sky-high" carbon emissions observed since the outbreak of the virus, as certain activities saw a "decline" meant to contain the spread. Such phenomena were previously noticed in China around the New Year holiday, but in the past pollution levels were observed to "increase", or "rise (again)", when the economy would also normally "spring back to life", unlike this time. However, although such dips caused by disruptions are depicted as "significant" or "dramatic", given the levels of pollution in China, they are not considered as reasons "to celebrate". The COVID-19 pandemic is actually described as a "bad" thing, along with other crises that have led to a temporary reduction of carbon emissions in the past, such as the 2007–2009 global recession. They could still "hinder" the country's battle with climate change and make it "harder", rather than "easier" to "tackle". Thus, while the crisis generated by the virus is presented as having an accidental, somewhat positive effect for the climate, its effects on the economy are thought to worsen the situation in the longer term. While the virus is presented as a "threat", it is even considered to be "threatening" to the actions taken regarding climate change.

The media portrays the outbreak as China's "top priority" as it affects China's economic "growth", while the climate related issues are thought to have been moved to "a back seat". Moreover, the governments are portrayed as being "distracted" from the environmental issues, as their "attention" is turned towards the pandemic and its economic consequences.

However, the COVID-19 outbreak is also depicted as some kind of a wake-up call that legislators need in order to take action in regard to climate change. While calling both of them "crises", the example of EU officials seeing the need of a climate law due to the coronavirus outbreak is discussed. Response to the crisis generated by the novel coronavirus is described as "rapid" and "immediate", as countries worked on it "together" and at first was met with "confidence" and "optimism" by Western countries, although it disappeared when it was not that far away from them anymore. However, the climate situation has rather encountered more "skepticism" and "opposition" from policy makers, who kept "delaying" to take "action". This "inaction" is presented in contrast to the "response" to the outbreak. While they are presented as two different problems, the effects of the COVID outbreak are depicted as more "quick" and "clear", whereas those generated by climate change are not yet perceived as such a "direct hit". In the news stories, the "emergency" is more often associated with the pandemic rather than the climate.

Given these discursive developments, it is now clear that climate change and coronavirus are perceived as opposing ends of a causal chain (see image above), but they are not polar.

Coronavirus	Industrial activity	Fossil fuels	Economic growth	Carbon emissions	Green Deal	Climate change
outbreak	shut down	dip	panic	drop	hinder	danger
horrifying	decline	fall	drop	plummet	take a back seat	lethal
spreading	recession	worse hit	disruption	slow		stress
tragedy	idle	dampened	slowdown	restrict		devastating
misery	negative impact	slashing	downturn	decarbonize		unchecked
upheaval	threatening		rattled	dramatic fall		slow moving
sharp	bad		threatened	decline		imperceptibly tolerated
fears	ground			drop off		ignored
challenge	halt			decrease		delaying
threatening	decreased			drive down		skepticism
emergency	shuttered			cutting		oposition
scare	stop			linked		
immediate threat	restrict			reduction		
suffering	contraction			slashing		
discomfort	canceled					
	suspending					
	halted					
	slow					
peocupation						
strength						
controlling						
vigilance						
plateau						
limit						
contain						
minimise						
stop					blessing	
focus					need	
lesson					long-awaited	tackle
immediate attention					discipline	mitigate
concern					revolutionary	awareness
Coronavirus	Industrial activity	Fossil fuels	Economic growth	Carbon emissions	Green Deal	Climate change

Language polarity in a causal chain, COVID-19, coronavirus, SARS-CoV-2, climate change, global warming, climate emergency query, 25 February–20 March 2020

On the contrary, the language that describes their properties is polar in itself—coronavirus is equally a disaster and a lesson, while climate change is equally ignored and raising awareness. What is valuable in these media discourses that we analyzed is that moving the compass in the polar language that describes these two crises is only possible through a very aggravated language that describes the global context. In other words, climate change and coronavirus can be operationalized as equal parts of a feedback loop because they affect and are affected by underlying, but globally relevant, systemic variables, such as economic growth, fossil fuel-based industries, carbon emissions, and a timid idea of a Green Deal. The criticality of coronavirus presents itself as an endurance test for the global mechanisms of our societies, maybe even civilizations, and might as well hold the key to how humanity can integrate climate change into its present and its future.

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Natural Resource Conflict and the Real Cause of the Resource Curse in Africa: A Political Economy Approach

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Abstract. In recent decades, the resource curse debate has dominated much of the theoretical arguments on the paradox of poverty among natural resource rich countries of the global South. This article attempts to clarify the "real causes" of the resource curse and considers if such analysis can provide alternative theoretical perspective that could debunk mainstream perspectives and help to explain and describe how, where, and why resource curse occurs. In attempting to explore this contending challenge, the paper builds on the Marxian political economy approach and discusses the African context to provide idyllic linkages of African traditional ecological system to resource preservation, which contrasts the notion of resource conflict that forms the basis of theoretical argument of the resource curse debate. In so doing, the paper considers the relative merits of understanding 'nature capitalism' and 'colonial plunder' as central to understanding the real causes of the

curse. It argues that in pristine contexts, Africans venerate nature, thus, indirect and underlying sources of conflict are significant to the understanding of specific incidents of capitalist resource exploitation and certain perceptible categories of asymmetrical resource appropriation. The paper concludes that the "real causes" are inherently nature capitalism which could be helpful in describing and explaining resource curse as a capitalist phenomenon.

***Keywords*:** resource curse**,** capitalism, political economy, resource conflict, development, Africa.

Introduction

Most post-colonial societies of the global South are confronted with complex development challenges. Recent interest in natural resource conflict in relation to the political economy of underdevelopment of Africa has brought resource curse issues to the centre of current academic debates. The emergence of resource curse is connected to a rise of interest in poverty among the resource rich countries of the South, combined with increasing issues of resource conflicts, insecurity, resource scarcity (Collier & Hoeffler, 1998) as well as development dilemmas, and the notion that natural resource transformation needs ecological modernization solutions (Mol, 1996).

The expansion of the resource curse debate in the global South has further developed into what has come to be termed in post- Cold War debates, as 'new wars and local conflicts', as well as issues of 'rent seeking', 'petrostate', 'rentier capitalism', 'petroviolence', 'rentier state' (Kaldor, 1999; Klare, 2002; Le Billon, 2006; Basedau & Lay, 2009). It is evident that the distinction between these fields of inquiry is blurred and their existence as independent disciplines can be questioned. Many of the issues discussed with regard to natural resource conflicts, resource volatility, fragility, etc., are clearly issues that cannot be resolved without a distinct sphere of argument—as evidenced by the growing body of scholarship that seeks to address resurgent natural resource conflicts and dilemmas (Omeje, 2006; Obi, 2010; Watts, 2009).

Recent experience regarding natural resource and violent conflicts in places like Angola, Nigeria, South Africa, Angola, Equatorial Guinea, Gabon, Sudan, Tanzania, Zambia, Botswana, the Republic of Congo—has captured the attention of both international organizations and the media (Ross, 2004). It is the interrelatedness of the natural resources and violent conflict that has called for a study of 'real cause of the resource curse', and such study has to be related to the political economy' of development debate and issues of ecological justice in the marginalized societies of the South.

In this paper, we critique the prevailing resource curse debate, firstly, we argue that existing studies have been naïve and uncritical, while there is a need for a debate on the possibility of finding international consensus on the real cause of the curse, this debate cannot be separated from the historical and political debates on the issues of nature capitalism, imperialism, neo-colonialism and distributive justice. When we discuss resource curse issues, we cannot set capitalist resource exploitation and natural resource commodification aside, even when we are looking for the possibility of finding some universal normative claims for resource curse, we cannot sidestep issues of resource access, global power asymmetry and distributive justice. We, further argue that when we try to find answers to the nature and scope of resource curse, we need to make a distinction between the following issues: a)post-colonial/post modernity influence and post-structuralist natural resource distortion; b) nature capitalism and natural resource commodification as a dominant modality of resource access and control by the global capitalists; c) resource curse as a globally expanding discourse with superficial cogitation to indigenous ecological knowledge system – or the globalization of resource capitalism; and d) resource curse in general marginalizes traditional ecological relevance of Africa and universalize a particular set of Western centric resource principles as a globally acceptable notion.

In relation to the various understandings of the dominant perspectives on, "resource curse' (Sachs & Warner, 1995; Reno, 1995; Keen, 1998, Collier & Hoeffler, 1998; Berdal & Malone, 2000), we want to provide a critical historical account and consider a rethinking of the resource curse argument, the prospects of alternative perspective, as well as problems, involved in the study and understanding of resource curse. On the one hand, we shall discuss 'nature capitalism and natural resource commodification and the need for 'indigenous ecological knowledge system' as a distinct field of inquiry that expands the field of both resource curse and traditional ecological system to include ecological questions that need global policy response.

On the other hand, we examine further where the prevailing debates on 'resource curse' runs counter to normative African ecological system and veneration of nature in relation to contradictions of capitalist resource exploitation debate, and how this affects resource inequality, access, power relations between the developed capitalist societies and less developed resource rich societies of the South.

To further make an original contribution and to identify the real cause of the curse in Africa, we situate our arguments within post-colonial contexts linked to natural resource imperialism linked to augments on political economy of resource curse and broader critique and elucidation of the increasingly superficial mainstream perspectives.

Resource curse as argued in relation to the low income societies explores development contrast among resource abundant but poor society Since the 1990s, resource cure scholarship has grown in prominence and has become part of wider debates in development studies in many countries particularly in the developing economies of the global south. Resource curse as Collier (2007) argued has been primarily concerned with countries at the other end of the spectrum, with failed states. Collier (2007) observed that these are countries either trapped in a vicious cycle of low incomes, weak states, non-consensual politics, low and inefficient investment, and low growth in incomes, or have slid back towards this state, principally through conflict, invariably civil conflict. In large measure these are the low-income countries of Africa. Thus, the key issues have been how to manage resource abundance to translate to economic growth and development (Venables, 2016*)*. The theoretical assumption of the resource curse is that the curse is prevalent in resource rich low in low income countries of the South. This well-established position among western scholars—is widely criticized, particularly in the context of uncritical evaluation of historical viewpoints on the origins and causes of the curse.

Ross (1999) examined the political economy of the resource curse and found that there are linkages between political and economic outcomes in natural resource extraction. One reason why capitalism has been seemingly successful in the late 21st century is its notion of value augmentation, which appears to provide a social dynamic built on competition and frameworks of market led economy-as 'everything in nature becomes a commodity'. This also attracts questions regarding the inherent contradictions of 'nature capitalism' and commodification as well as exploitation and unequal exchange inherent in a capitalist mode of production. It also coincides with the Western lifestyle and consumption patterns that seem to have some applicability throughout time and in different contexts. However, while capitalist resource extraction appears to have applicability at various times and in various contexts, it is often criticized for being exploitative, disregarding equality, ethical norms and morally relevant perspectives and approaches. Not being sensitive to different cultural, ecological and social contexts, and for ignoring information that makes the applicability of traditional ecological knowledge relevant. In addition, the plausibility of the principle of capitalist resource extraction and inequality is particularly questioned by political economists and development experts from non-Western cultures and even by some Western development economists (see Basedau & Lay, 2009; Stiglitz, 2013).

Against this backdrop, and with regard to theoretically inclusive framework, the starting point for resource equality and de-activation of capitalist resource extraction is partly the foci of the Marxian political economy approach. In many developing societies of Asia, Latin America and Africa, the resource curse argument has not transcended beyond

poverty and conflict among the resource abundant countries. A more critical evaluation of this argument in an explicit approach is required.

We demonstrate that the resource curse argument is rather based on the values of capitalist exploitation, in a sense that blurs fuller comprehension of the complex triggers of the curse. The ideals of resource transparency, responsibility and accountability, which are central to natural resource equality, are less captured. The role of capitalist multi nationals, the African compradors who are agents, accomplices and loyalists of Western capitalists, not only in terms of material resource exploitation, but also in helping as conduits of unequal resource expropriation are at the margins of the resource curse arguments. On the other hand, the wider good of the people, economic emancipation in a sense of inclusive development, are largely excluded in resource curse analysis.

A plausible theoretical argument could be found in the Marxian political economy debate, which provides historical account of capitalist exploitation. Further explores the class character of the natural resource exploitation in the liberal international order. Marxian political economy critiques the prevalent form of liberal democracy because 'it harbors the capitalist system in which the majority of the people comprising workers is deprived of power' (Gauba, 2007, p. 449). Thus, by fostering capitalist system, liberal democracy exclusively serves the interests of the bourgeoisie or the capitalist class. Marxists therefore dubbed liberal democracy the "bourgeois democracy".

From the Marxian point of view, since the capitalist mode of production is designed to serve the economic interests of the bourgeoisies, its political superstructure cannot be made to serve the people. In the economic sphere, society is divided into 'dominant' and 'dependent' classes, the 'haves' and 'have-nots', the 'bourgeoisie and the 'proletariat', their interests are diametrically opposed to each other. Political power is only a handmaid of economic power. It is therefore quite natural that the political institutions of such a system-whatever their outer form-are bound to serve the interests of the capitalist economic system, pays lip-service to 'sovereignty of the people' in order to derive its legitimacy" (Gauba, 2007, p. 450).

Within the political economy debate, the emphasis is on capital-intensive nature of resource exploitation and the pattern of economic and political structures that emerges in the cause of such exploitation. As oil resource extraction involves capital intensive technology among the Western multinational corporations and African elites, revenue proceeds, in the form of royalties or taxes, tend to circulate in the coffers of the elites. Majority of the citizens are alienated or denied access to the resource proceeds. Thus, resource-abundant countries tend to experience asymmetrical distribution of resource rents (Auty, 2001; Ross, 2012; Amadi & Alapiki, 2014).

The political economy of resource curse thus, examines complex turn natural resource extraction has taken including rent seeking state, corruption to incentivize the political

elite among resource-abundant countries and resurgent violent crisis as natural resource rents are non-equitably allocated.

This is evident in most African countries such Nigeria, Mozambique, South Africa, Congo DR, etc. where the elite bargain against inclusive needs of the citizens. In this argument, the national elite monopolizes decision-making and redirects external generosity to the service of their self-interests (Gould, 2007).

This underscores the complex dynamics of production, distribution and exchange of the natural resource wealth as well as the relationship that emerges. Deeper critical reflection on the very nature of resource curse suggests such asymmetrical relationship increasingly account for violent struggle and resource related conflicts. This theoretical perspective will guide the line of argument in this paper.

The resource curse debate

The notion that natural resources might be more of an economic curse than a blessing gain recent scholarly attention in the 1990s following the end of the Cold War. Auty (1993) popularized the term resource curse in a study to explore how mineral resource rich countries have been unable to leverage on their resource wealth to enhance their economic growth unlike non resource rich countries. Venables (2016) argued that common characteristics of countries experiencing resource curse include: (i) extreme dependence on resource wealth for fiscal revenues, export sales, or both; (ii) low saving rates; (iii) poor growth performance; and (iv) highly volatile resource revenues.

Related arguments put forward by the resource curse thesis is that oil wealth lowers levels of democracy and strengthens autocratic rule (Ross, 2001; Wright *et al.*, 2015; Jensen & Wantchekon, 2004; Ulfelder, 2007; Basedau & Jann, 2009).

However, Ross (2015) has a contrary view emphasizing that, "only one type of resource has been consistently correlated with less democracy and worse institutions: namely petroleum, which he argued has been a major variable identified by mainstream studies as a major resource that causes the curse Despite the views by Ross(2015) a number of studies posit that there is negative impact of oil wealth on democratization (Ahmadov, 2014) as well as the relationship between oil and authoritarianism (Brooks & Kurtz, 2016). " Related account highlights that other than oil, other natural resource wealth strengthens autocratic rule (Krishnarajan, 2019). Relatedly, Caselli (2015) argued that resource windfalls have no political impact on democracies rather exacerbate autocratic nature of fairly authoritarian regimes. Amadi and Alapiki (2014) captured divergent perspectives on the resource curse debate and argued that multinational oil companies in the resource abundant poor countries such as the Niger Delta increasingly contribute to environmental degradation and state repression.

In the particular case of Sub-Saharan Africa, Wegenast and Schneider (2017) emphasized that resource ownership matters. Hendrix (2018) contends that the resource curse debate is a Cold War phenomenon stressing that at the end of the Cold war non resource abundant countries willingly democratized while resource rich authoritarian regimes resisted democratic pressure. Such position could be true of most authoritarian one party African countries.

Kurtz and Brooks (2011) suggest that "natural resource wealth can be either a "curse" or a "blessing" and that the distinction is conditioned by domestic and international factors, both amenable to change through public policy, namely, human capital formation and economic openness

A number of studies have offered divergent explanations on the various outcome of the resource curse (Frankel, 2012; Venables, 2016). Over all, the common assumptions of the resource are: (i) Strong correlation between natural resource abundance and poor economic growth (Sachs and Warner,1995); (ii) These countries are predominantly low- and lower-middle-income which derive at least 20% of exports or 20% of fiscal revenue from nonrenewable natural resources (Venables, 2016) common feature of these countries include: (i) extreme dependence on resource wealth for fiscal revenues, export sales, or both; (ii) low saving rates; (iii) poor growth performance; and (iv) highly volatile resource revenues (Venables, 2016). Based on these assumptions we demonstrate the superficial focus of the mainstream resource curse debate.

Resource curse: the African context

Across Africa, a central theme in debates on poor economic performance of resource abundant countries is the natural resource curse which seems to suffer an increasingly negative reputation in development discourse (Amadi & Alapiki, 2014). African countries like Angola, Nigeria, Zimbabwe, Congo DR,South Africa are key examples of the resource curse ideology; they have natural resources in abundance but have not been able to use the resource abundance for the economical emancipation of their people. In fact, poverty levels are increasing while their resources are extracted and exported to western countries (Ross, 2004).

In the Niger Delta, Nigeria Watts (2009) argues that the resource curse debate does not capture the ways in which oil is often an 'idiom for doing politics...inserted into an already existing political landscape of forces, identities, and forms of power' (p. 76). Knutsen, Kotsadam, Olsen, and Wig (2016) found that mining in Africa substantially increases corruption; an individual within 50 kilometers (31 miles) of a recently opened mine is 33% more likely to have paid a bribe the past year than a person living within 50 kilometers of mines that will open in the future. Watts (2009) posits that, 'oil has always been vested

with enormous, often magical, powers. Sometimes I think we are too easily seduced by these deceits' (p. 84). When used to predict socio-economic patterns within African societies, ideas about the causal relations between extraction and conflict can reinforce patterns and practices of imperial domination. For example, ideas about the inevitability of extraction to provoke conflict were at the centre of projects to militarize the continent as a form of securitization. Such trends occurred within the framework of the so-called 'conflict trap' in Africa (Collier, 2007). Obi (2012) writes that 'Global attention has been focused on the linkage between oil and violent conflict in Africa, particularly the threats it poses to strategic, security and economic interests of established and emerging powers in an oil-dependent world. Such concerns have [only] grown against the background of an intensified international scramble for oil as well as the intensification of transnational counterterrorism efforts in Africa' (p. 147).

The resource curse debate, like all others, is not a neutral category isolated from geographies of power. Its deployment in the worlds of academia, policy-making, corporate schemas, international relations and diplomacy can have significant effects for and upon people. On the contrary, o'Brochta (2019) found "that there is no aggregate relationship between natural resources and conflict. Similarly, Koubi and Spilker (2017) explored possible linkages between natural resources, climate change, and conflict and found that while some studies such as Homer-Dixon, 1999) support the link between resource scarcity/abundance and armed conflict, that a number of other studies find no such relationship or at most a weak linkage existed (Ross, 2015). For instance, de Soyza (2005) argued that while the resource scarcity debate argued that such scarcity accounted for resource conflict, capitalist resource extraction is responsible for resource wars. de Soyza posits that as the Economist magazine put it several decades ago, 'to refer to a vast, valuable energy resource as the source of a "disease" sounds rather ungrateful' (van Wijnbergen,1984; de Soyze, 2005). The argument advanced in this paper is in line with this school of thought, it seeks to critique the mainstream debates on resource curse and provides counter arguments that demonstrate that prevailing perspectives lose touch with the foundational causes of the curse namely colonial capitalism that distorted institutional capacity of postcolonial states leading to persistent resource conflicts and wars.

In multi-ethnic societies such as Nigeria, there is argument that such ethnic diversity could trigger resource violence. Bannon and Collier (2003) argued that ethno-political groups are more likely to resort to rebellion rather than using nonviolent means or becoming terrorists when representing regions rich in oil.

Ross (2015) identified several factors that account for the relationship between natural resources and armed conflicts. For instance, Norman (2008) found that resource wealth could undermine the quality of governance and in effect intensify the vulnerability of countries to conflicts and poor economic performance. Similarly resource conflicts as

argued can as a result of contention over the control, exploitation of resources and the allocation of revenues. This has been a common feature of resource conflict in Nigeria as the country's 13% revenue allocation formula marginalizes the oil-bearing communities. A number of studies have argued that the access to resource avenues and control of same by belligerents and prolong resource conflict (Le Billon, 2006; Adhvaryu *et al*., 2018). This was the case of Jonas Savimbi in Angola, Joseph Konny of the Lord's Resistant Army of Uganda and post amnesty militancy in the oil rich Niger Delta, Nigeria.

Conrad, Greene, Walsh and Whitaker (2018) made similar finding that rebels were particularly likely to be able to prolong their participation in civil wars when they had access to natural resources that they could smuggle Ross (2004) demonstrates that in times of civil wars access to oil resource will more likely prolong existing conflicts. Beyond arguments on access to oil resource and it's looting in times of war, Bell and Wolford (2015) highlight that mere oil discoveries can trigger violence and influence the shifting power.

The term 'petro-aggression' has been used by Colgan (2013) to describe situations where oil related aggression could trigger dissonance that leads to war. The term suggests that oil-rich states have a tendency to instigate international conflicts as well as being the targets of petro-aggression; Colgan demonstrates that such aggression in most cases accounts for wars.

The petrostate thesis suggests the persistence of oil violence and non-intervention of the powerful nations as a result of the latter's vested interest. Kim and Woods (2016) point out that that petrostates may be emboldened to act more aggressively due to the inability of allied great powers to punish the petrostate. The great powers have strong incentives not to upset the relationship with its client petrostate ally for both strategic and economic reasons.

Sachs and Wanner (1995) have provided illuminating examples of the dilemmas of resource curse amounting to the paradox of poverty among resource rich countries. Such dilemmas are related to the contradictions of poverty and resource abundance and the promotion of the multinational corporations and resource capitalism which systemically constitute the overall vulnerability and fragility of the resource bearing communities in relation to their natural environment and livelihood.

Understanding the real causes of the curse

The resource curse thesis has been challenged by its inadequacy to provide suitable framework and explanation to understand the cause of resource curse and complex dynamics of natural resource management and extraction. The dominant argument of the

resource curse thesis either from empirical or theoretical approach is largely concerned with issues of resource conflict, poverty, resource wars, scarcity, shock, vulnerability, fragility or economic growth indices, etc. without providing cutting edge account regarding the origins and causes of the curse. For instance the results of the Collier-Hoeffler model and their findings on the links between natural resources and conflict after testing a number of factors Collier and Hoeffler (2003) suggest that three are significant—the level of income per capita, rate of economic growth, and structure of the economy, namely, dependence on primary commodity exports.

Previous related studies have identified shortcomings of the assumptions of dominant debates on the resource curse. For instance, Cavalcanti *et al.* (2011) argue that previous assumptions that oil abundance is a curse were based on methodologies which failed to take into account cross-country differences and dependencies arising from global shocks, such as changes in technology and the price of oil. Leong and Mohaddes (2011) highlight that institutions and volatility account for resource curse.

Haber and Menaldo (2011) attempted to rectify biases of previous studies that hold that increases in natural resource reliance induce authoritarianism, alternatively demonstrate that it promotes democratization. Haber and Menaldo (2011) argue that numerous sources of bias may be driving the results of earlier studies on the resource curse, the most serious of which is omitted variable bias induced by unobserved country-specific and time-invariant heterogeneity.

To understand the real cause of the cause, it is only proper to situate our argument within historical and comparative contexts. These would be further illuminated in what follows.

Colonialism and neo-colonialism: Africa is a colonial invention. To begin with, the resource curse has a parochial focus. It treats natural resource as encompassing only mineral resources such as oil or diamond leaving other important resources such as land, water, food, humanity. The central focus of resource curse ought to have started with the loss of human resources to slavery and slave trade as Rodney (1972) argued that colonial trade was not trade in any sense rather it was outright banditry. Amin (1970) reinforced this argument with his treatise on 'patterns of colonial penetration' in which economic resource exploitation was the motive force. In Nigeria as in most British colonies in Africa, James Coleman(1958) provides example of the cause of the curse which comes from colonial natural resource policies such as the Minerals Act and the land use Acts which arrogated all lands and its resources to the colonial state. Much of the resource curse argument is evidenced in the Luggardian Dual Mandate which justified the quest for material resource exploitation as the basis of colonialism. Ake (1996) argued that the colonialism in Africa is markedly different from colonialism in America, first it was repressive and coercive and in particular, appropriated all resource from the Africa, thus the colonial origins of the resource curse are overlooked.

The term 'colonial plunder', as Rodney (1972) demonstrated, provides a clear understanding of crude resource expropriation from slavery, slave trade to cash crop production and natural resource extraction. This was evidence across the imperial Europe. An example was the Spanish Empire that appropriated massive resource wealth from its resource-rich colonies in South America in the sixteenth century. The large cash inflows from silver reduced incentives for industrial development in Spain (Baten, 2016). Also, Britain looted natural resources and minerals from its erstwhile colonies. For instance, in 2013, Indian government made an entreaty to former British Prime Minister Donald Cameroon for a return of gold Britain stole during the colonial era (Chaudhury, 2019). Obi (2010) explains that the notion of resource curse lacks depth of history-including the role of colonial history and coloniality in fostering certain extractive relations and regimes.

Corruption and elite conspiracy: Corruption and elite conspiracy are other factors, there are salient c examples in this regard across Africa such as the Halliburton bribery scandal in Nigeria during the Obasanjo administration. Another example shows the problems of applying ethical values in capitalist resource extraction by Western oil multinationals operating in the global South. These multinationals represent capitalist interest of their home countries expanding their economic frontiers in the developing societies of the South such as elf France, Saipem Italy, Shell Dutch, Total, Halliburton USA, Mobil, etc. Development ethicists point out the growing contradictions of imperialism and capitalist resource exploitation. This is evident in most resource rich and poor countries of Africa such as the Niger Delta, Nigeria where Western oil multinationals have increasingly tainted the natural environment. In 2011, the United Nations Environment Programme (UNEP), in its report, stated for instance that it will take 25 to 30 years for effective clean-up of Ogoni a polluted community in the Niger Delta (UNEP, 2011). Dominant theorizations of the resource curse sidestep such critical development concern. The moral value that the Western capitalists give to ecological concerns of the global South—based not only on the fact that sustainability and natural resource efficiency matters and that the environment is consistently threatened with lethal feedbacks in addition to vulnerability of the poor societies—is hardly challenged by the ecologists.

To this effect, local communities, women, the girl child and rural livelihoods are not only distorted rather wellbeing and decent socio-ecological standards are undermined. The promotion of the concept of ecological justice globally, or across cultural borders, in a situation of scarcity and violence is essential.

Nature capitalism and rise of multinational corporations: Nature capitalism and resource commodification *are* critical dimensions of resource curse that is overlooked by the mainstream debate. The term denotes the commodification of nature and its resources. In capitalist parlance 'everything is a commodity'—the history of capitalism hitherto is the history of exploitation.

While some new resource dilemmas created by ecological modernization fall within the remit of nature capitalism, such as capitalist agriculture and land grabbing, the emergent ploretarization of the working poor as well as the ecological consequences on sustainable and inclusive land use is less captured in resource curse analysis. Blackie (1986) captured this essence when he argued that ecological concerns linked to land appropriation are essential for inclusive economic growth. In a related account, Timothy Wise (2019) argued that unsustainable food system in the capitalist order vitiates food security. Thus, themes such as capitalist land alienation are marginalized in debates on resource curse. Other related perspectives have a much narrow ecological and ethical scope. In the alternative capitalist resource accumulation and use of genetically modified seeds advanced by ecological modernization theorists (Mol, 1996; Paalberg, 2013), in general, affect the global food system and sustainability including unequal power relations between global food giants of the West and poor countries of the South (Amadi, 2020).

Thus, one of the reasons why political ecologists challenge the prevailing resource curse proposition as uncritical is the increasing food insecurity in the late 21st century. The curse of capitalist food system is rarely revisited such as the rise of genetically modified foods (GMFs) which reveals new forms of knowledge on increasing diseases and similar health challenges which have carcinogenic effects on both humanity and the food ecology. The threat of GMOs, as Wise (2020) argued, continues to be a potential food security threat, thereby undermining the mainstay of indigenous food system.

According to current global food report, the number of food insecure persons soars globally (FAO, 2017). Such potential food security threat suggests that a debate is necessary as to whether the capitalist food system and consumption pattern is eco-friendly or otherwise and whether the resource curse debate should be enlarged to encompass the broader rise in food resource insecurity and other potential ecological responsibilities of the capitalist food system. In a related account, Daniel Tanuro (2013) posits that green capitalism can never be attainable his argument is largely informed by the increasing destruction of the natural economy often informed by capitalist resource exploitation Thus ethical practice, is inadequate in the capitalist resource exploitation, if it is projected by stakeholders to protect the food system and guarantee eco-friendly consumption there is need to revisit the resource curse trajectories. Such questions are far from academic as policy makers, ecologists and political theorists are keen to redirect the remit of the resource curse debate.

Environmental security concern also raises issues that are outside the traditional scope of resource curse, which tend to endanger human, plant, animal species and the natural ecosystem such as climate change, greenhouse effects, rising sea level, arising from capitalist drive for resource exploitation not only has the non-Western societies been increasingly vulnerable but also the activities of the powerful societies acerbate increasing climate vulnerability. For example, President Trump of America withdrew from the global climate

dialogue on account of America's social realities. Thus, discussions regarding the potential threat of environment security and its complex implications for humanity and the natural environment raise questions about redirecting the scope of the cause of the resource curse debate.

These questions simply cannot be adequately addressed from the Western perspective of resource curse. Moreover, and perhaps more fundamentally, nature capitalism influences our understandings of human beings' interaction with his immediate environment and fellow humans in a wider perspective. There is the increasing concern regarding the misconceptions of the assumptions of the resource curse that the superficial understanding the causal factors will constrict adequate policy response, as well as persistent the vulnerabilities of the low income society to capitalist resource exploitation. Such assumptions have led to theories of ecological justice, eco-efficiency and de-materialism (Amadi *et al*., 2014), which are alternative trajectories to natural resource conservation and renewal, as well as potentials for sustainability.

Globalization and the expanding challenge of natural resource insecurity are essential. This includes technological advancement and environmental degradation linked to natural resource extraction. Thus, different cultural values and notion of the natural resources and their uses may be conflicting in wholly applying the resource curse across the globe. Even related concepts central to resource curse, such as unsustainable resource use, capitalist resource extraction, natural resource alienation, tend to be largely social and cultural constructs. Their meaning may vary from one specific geographical area to the other and in accordance with various worldviews, norms, values, belief systems and ethics. However, in the Western context, resource curse is commonly adopted in ecological modernization sense based on capitalist assumptions of nature capitalism. This implicitly suggests the globalization of knowledge on resource curse and claims that there is a universal or universalistic knowledge of resource curse.

As a consequence, 'the cause of the resource curse' debate raises questions that challenge mainstream resource curse arguments in distinct ways: first, colonial resource plunder further disarticulated traditional ecological system, such as those of natural resource reserve practices including forests, game and plant species; and second, colonial resource plunder raises more fundamental questions about indigenous natural resource conservation such as exploitation of natural resources, imposition of cash crops which served vested economic interests of the colonial state, which are also outside the remit of mainstream resource curse debate.

All in all, resource curse can be seen very much as a product of its history and, therefore, part of the Western capitalist context, privileging capitalists over locals of the South and taking a very contradictory view of ecological justice—one that essentially ignores capitalist origins of resource curse, ecological rights, rather than underlying structural

issues or the impact of wider socio-political factors. Political ecologists, as well as non-Western capitalists, have criticized the prevailing arguments by pointing out the problem of the mainstream resource curse thesis and non-revisionist assumptions. Thus, while resource curse has remained the dominant approach to resource failure among states of the South—particularly in the context of increasing resource wars and crisis—presently, there have rarely been alternative perspectives or critique, and new approaches to resource curse study, that can bring wider and more critical arguments to natural resource issues both in local and global contexts.

Resource curse and the African Traditional Ecological Knowledge (TEK)

In addition to broadening the scope of resource curse critique, traditional ecological knowledge (TEK) includes perspectives and critiques that are very different from the dominant capitalist perspective. They reinforce the basis for ethical balance in resource extraction and in particular, emphasize indigenous ecological practices. The wider discipline of indigenous ecological system was a response to dramatic advances in ecological modernization in which technology is argued to provide all ecological solution. In the alternative, Schor (2005) argued that relying solely on technology would fail.

Traditional ecological knowledge offers humans a chance to understand the complex relevance and uses of the natural environment, such as natural resources, plant and animal species. This, has led to a need to reconsider and analyze the meaning of such concepts as ' ecological justice', 'eco-efficiency', 'ecological balance', 'life support system' as well as resource curse within indigenous ecological knowledge system and practice.

As Michel Foucault pointed out, even before colonial contacts Africa had well developed traditional ecological system and practice. With the term 'ingenious ecological system', Foucault refers to the social power relations that define the concepts of 'natural resources' and 'human interaction', or 'normality' and 'abnormality', in terms of access, control or use of natural resources with regards to various human needs in relation to those in positions of social or economic and power. Foucault's analysis is useful when we think about how political power tends to influence ecological choices in post-colonial societies hand in hand with capitalism and commodification of nature, whether we think about the natural resources or other aspects of natural environment issues locally or globally.

TEK works both in global and local levels. There are a number of practices that are justified in the context of conservation or preservation of the natural environment, including human and nonhuman species—according to various ecological expectations—to strengthen balanced ecological power relations. For example, in traditional ecological system nature is both venerated and replenished, there are traditional forest reserve practices, indigenous

land tenure system, natural resource conservation including plants and animal species. In traditional natural resource mining systems there are key practices of sustainability for instance among the *Igorots* in Philippines traditional mining is aimed at preserving and protecting the natural environment against such environmental threatening practices as pollution, which are inherent in capitalist natural resource extraction. This is considered for general well-being', as certain ecological and social hierarchies and power structures are enforced. Traditional ecological practices, may vary from one society to the other or in other culture and the other generally destruction of the natural environment is considered an abomination, harmful or dangerous to both the natural environment and the generality of humanity; there is traditional ecological rights and obligations build on taboos and sacrileges such local hierarchies privileges who has the final say in resource use in what is known as 'resource rights', built on the 'desirable and sustainable ecological resource use' which is 'inclusive and akin to general well-being'.

For capitalist ecological reflection, it would be important to explore historical origins of capitalist resource exploitation traced back to the evolution of European penetration into Africa. Amin (1972) provides such useful arguments with three broad classifications of patterns of colonial penetration. Thus, colonial resource plunder as Rodney (1972) emphasized, has both facts and value in the debates on resource curse today.

If we take cash crop production introduced by the colonial state and the colonial minerals and mining Acts in which all minerals and similar natural resources were arrogated to the colonial state, it is evident that a wider perspective to the incipient natural resource exploitation becomes discernible. Thus, arguments against colonial resource plunder demonstrate the evidence and prevalence of coercion and outright force in resource appropriation (Ake, 1996).

Often, debates on resource curse ignore such historical depictions, thus we can find a contradiction between local ecological values and vested capitalist interests. This undermines resource justice and the actual reasons for the preservation and maintenance of the ecological system itself. When we critically reflect on the fact and value relationship of nature capitalism in relation to ecological resource values and various cultural values and norms such as local resource solidarity and egalitarianism in Africa, it is discernible that capitalist natural resource practices such as crude oil resource extraction in Nigeria do not promote either local or global ecological values.

In global contexts, capitalist resource exploitation have been quite universally practiced—in one form or another. Development ethicists however argue that 'many traditions, that the Western individualists may now consider as 'non-Western', primitive ways of life of yet 'uncivilized' cultures, may also have been practiced (or still exist) in slightly different forms within Western culture, though they are supported by a different justification' (Hellsten, 2008).

Therefore, in 'resource curse analysis', local ecological injustices are often ignored. For instance, in the Niger Delta Niger, how has the resource curse analysis critiqued deep-rooted deleterious capitalist oil resource extraction and provide a model of ecological efficiency? On the contrary, the mainstream resource curse arguments are based on the particular uncritical trajectories such as poverty. Thus, the focus, interpretations and outcome of dominant resource curse debate is far from being objective.

Traditional ecological system debate needs to be able to move far beyond the indigenous concerns regarding resource extraction and the focus on human-nature relationship in capitalist resource extraction rather should be set in a wider ecological-political context. It must analyze existing power relations and potential consequences of nature capitalism, exploitation, ecological efficiency, sustainability, ethical principles and guidelines. It also needs to address deep normative, economic, and religious questions regarding resource use in relation to the 'ecological' needs of stakeholders, and related development concerns. This suggests that while traditional ecological practices of resource use can still be broadened as a general strategy to overcome resource curse, they must be adopted in a distinct manner, and their understandings and applicability in different ecological contexts should be further elaborated and reassessed.

Conclusion

The point this paper has been emphasizing intermittently is for a more revised notion of the resource curse perspective. Thus, can we adopt an alternative theoretical perspective that could debunk parochial mainstream viewpoints and help to broaden resource curse discourse by explaining and describing how, where, and why resource curse occurs largely among resource rich post-colonial societies of the global South? Do we need to rethink the prevailing resource curse argument? Can the mainstream resource curse thesis provide any normative justification regarding issues of the role of transnational corporations in resource wars in the developing societies? Can dominant debates justify resource inequality, nature capitalism, resource exploitation and lethal feedbacks such as pollution arising from capitalist oil resource extraction among the low-income countries? There is need for a revisionist argument to review the study of resource curse locally and internationally and in particular, to capture various ecological, cultural, economic and social contexts often ignored in order to buttress key issues in resource curse and to have an understanding of the key issues involved in the understanding of various contexts resource curse exists. Second, Eurocentric/Western centric analysis of resource curse in relation to development issues in the south and, Africa in particular, should be reviewed. The geography of resource curse thesis that posits that resource curse is peculiar to the

tropics is naïve because there are studies pointing out the evidence of resource curse in the developed societies (Douglas & Walker, 2017).

Another key concern that calls for a broader scope of the resource curse debate is its narrow understanding of natural resources with emphasis on mineral resources and excluding human, food, land and water resources thus the challenge of including the ethical resource framework of a country pervades. Thus caution towards universalizing the cause of the curse is important as various factors trigger resource curse in various countries with varying historical, cultural and economic background and values.

Resource curse is not only an ecological, political or economic factor but an ethical issue—a central concern in defining capitalist resource exploitation power, access, and control of such resources is how morally good or bad are such inclinations in the context of environmental degradation and contexts linked to decimation of human and non-human species. Sometimes human rights are equally violated, ecological rights are undermined, sources of livelihoods are destroyed, plunging the vulnerable population into systemic poverty. In light of such developments, the need for global action on ecological justice and resource transformation matters.

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The Green Growth Agenda: A Critical Analysis in Rwanda Situation

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Abstract. While Rwanda has remarkably enjoyed a resilient socio-economic growth in two recent decades, this growth model has relied on strategic decisions to pursue a green growth approach to development. Despite the strong desire to be competent in a globalized world and different efforts that are in place to ensure green growth, unluckily, agriculture stills the engine of socio-economic growth for numerous Rwandan households. Environmental degradation and climate change issues in Rwanda pose a significant challenge for economic growth and sustainable development. Moreover, within scientific literature on climate change focused to Rwanda, little is known. Using Rwanda as a case study, this article adopted a critical analysis approach to explore and shed light on the climate change phenomenon in post-genocide Rwanda. In the environmentalist, sociologist, and electrician

scholars' lenses, we aim to examine and analyze this little-studied phenomenon better. The main results point towards natural resources uses mismanagement, miscommunication in transferring environment and climate change information, scarce corporate social responsibility, and all hinder green growth in Rwanda. In line with this, global competitiveness requires a green growth approach that does not mostly fit the Rwanda context due to Rwanda's characteristics, size, population growth, and geo-location. With this article, numerous recommendations are provided to enhance the green growth agenda and sustainable Rwanda development.

Keywords: climate change, environment, green growth, Rwanda.

Introduction

Countries are enduring economic development competition in the globalized world that simultaneously has positive and negative impacts on all their economic, political, and social levels. Though globalization has economic opportunities and benefits; it brings substantial socio-economic costs that often appear to affect developing countries excessively, given their fragile growth status and rapidly evolving global context (Prasad *et al*., 2003; Pinelopi & Pavcnik, 2007; Pavcnik, 2017; Lee & Vivarelli, 2006; Meschi *et al*., 2008; Twesige *et al*. 2020; Yusuf, 2001).

Rwanda is one of the East African countries with a surface area of 26,338 square kilometers dominated by highlands, giving it the name "Land of A Thousand Hills". With an altitude ranging from 900–4,500 meters above sea levels. Rwanda has a tropical climate where the average annual temperature is between 16–20°c. The rainfall in Rwanda varies depending on the four seasons. A short rainy season ranges from September to November. A more extended rainy season runs from March to May, and the dry seasons are divided into two periods: the short dry season from December to February as well long dry season starting from June to August. The rainfall is about 900 mm to 1,500 mm on average annually. The rain is generally well distributed throughout the year, with some spatial and temporal variability (REMA, 2018; GoR, 2015; World Bank, 2020).

The United Nations Food and Agriculture Organization [FAO] indicated that Rwanda stands at 46th spot among 54 African countries in terms of surface size. Rwanda, a small country, was the second-highest populated considering density in Africa as of 2015, with 441 dwellers per square kilometer. The population reached an estimated 11.61 million inhabitants in 2015 (FAO, 2020). The Rwandan population was projected to increase from 10.5 million in 2012 to 16.9 million (high scenario) to 16.3 million (medium scenario) or 15.4 million (low plan) by 2032. A short-term consequence of this growth is the unprecedented increase in population density, as high as 645 inhabitants per square

kilometer according to the medium scenario (National Institute of Statistics of Rwanda [NISR], 2014). In 2020, the resident population's size is 12,663,116, grew at 2.33 from the year 2019 (NISR, 2020; World Bank, 2020).

Despite being densely populated, agriculture is the essential economic activity in Rwanda, with 70% of the population are engaged in the agriculture sector and around 72% of the working population employed in agriculture (FAO, 2020). With the land scarcity, the Government of Rwanda (GoR) promotes intensification as a strategy to increase production and farmers' incomes. In the long term, the goal is to move Rwandan agriculture from a largely subsistence sector to a more knowledge-intensive, market-oriented sector, sustaining growth, and adding value to products.

The GoR considers agriculture a catalyst sector and intensely promote value chains with stronger links with the private sector. The crops of interest include coffee, tea, dairy, horticulture, flowers and cereals, among others (Government of Rwanda [GoR], 2013). Even though the utilization of illicit drugs is one of the significant challenges for Rwandan youth (Isirabahenda, 2018), the GoR expects to generate substantial export revenues and employment opportunities in high-value agriculture and agro-processing for cannabis. Rwanda on October 12, 2020 cabinet meeting approved regulatory guidelines on cultivating, processing and export of therapeutic crops, mainly cannabis (Bizimungu, 2020). However, there is a growing number of young people who are into different rehabilitation centers in Rwanda.

Rwanda targets to be a middle-income country by 2035 and a high-income nation by 2050. This vision will be attained through the newly implemented seven-year National Strategies for Transformation (NST1) 2017–2024. The NST1 replaced the second Economic Development and Poverty Reduction Strategies EDPRS-2 (2013–18). NST1 provides the platform and pillars to reach Vision 2050 (GoR, 2017). Rwanda, like the rest of the world, embraced the green growth agenda. It is the preferred and needed approach towards promoting economic growth and development while ensuring that natural resources continue to provide the assets and environmental services on which our wellbeing depends (OECD, 2011).

In recent years, the former Minister of Natural resources in GoR, Biruta (2016), highlighted the GoR's practical approach to tackle environmental and climate change issues. Those approaches are in most of Rwanda's policies (e.g., National Environment and Climate Change Policy, GoR 2018a) and programs such as the conservation of the environment by protecting and restoring degraded ecosystems such as wetlands, lakes, and natural forests. The ban of plastic bags use and planted millions of trees, lowering-carbon economy by 2050. Rwanda initiated the Green Fund known as National Fund for Environment and climate change (FONERWA, Fond National de l' Environnement au Rwanda). The fund delivers financial and technical support to projects, either public or privates, in line with

Rwanda's ambition to a green growth agenda. Among various green initiatives include, e.g., the project of developing Rwandan secondary cities as Green Model Cities with Green Economic Opportunities, which consists of four pillars for green growth: i) Climate-resilient and low carbon city; ii) urban planning integration; iii) Local green economy, and iv) City governance and wellbeing (GoR, 2015).

Different ministries and affiliated agencies are working together for the betterment of environmental and climate change in Rwanda. Generally, the Ministry of Environment with affiliated agencies such as Rwanda Environmental Management Authority (REMA), Rwanda Natural Resource Authority (RNRA); Rwanda Meteorology Agency (Rwanda METEO), Rwanda Land Management and Use Authority(RLMA), FONERWA (GoR, 2016) and Rwanda Mines, petroleum and Gas Board (RMB) as well as the Ministry of Disaster Management and Refugee Affairs (MIDIMAR), the Ministry of Agriculture and Animal Resources (MINAGRI); the Ministry of Finance and Economic Planning (MINECOFIN) and the Ministry of Local Government (MINALOC); the Ministry of Infrastructure (MININFRA) and the Ministry of Health (MoH). The Ministry of Education (MINEDUC), Rwanda Transportation Development Authority (RTDA), the Rwanda Housing Authority (RHA), the Rwanda Institute of Statistics (NISR), and the Center for Geographical information system and remote sensing (CGIS/UR) to name but a few.

While environmental issues are rapidly becoming more complex, Rwandans continue facing many challenges in dealing with matters related to ecological and climate change. In recent years, the rate and gravity of natural disasters, mainly caused by floods and droughts, have significantly increased, with the increasing toll of human casualties and economic and environmental losses (GoR, 2015a; GoR, 2018). Droughts, floods, earthquakes, landslides and various storms (i.e., windstorms, rainstorms, and thunderstorms) are among these issues. Moreover, forest fires, traffic accidents, diseases, and epidemics are common disasters that disrupt people's lives and livelihoods, destroy infrastructure, interrupt economic activities, and retard development (GoR, 2013).

The center for environmental law & policy from Yale University gave the 2020 environmental performance index (EPI). Rwanda ranks 121 out of 180 countries in the air quality when measuring air pollution's direct impact on human health. Moreover, Rwanda ranks 138 out of 180 countries in the climate change issue category, measures to combat global climate change. This study aims to critically assess and analyze the environment and climate change in Rwanda with a specific focus on green growth agenda.

Methods

After a preliminary literature review, three Rwandan scholars currently studying in Romania show interested in environmental-related issues such as quality air, electricity, and sociology of work and employment. We examined the environment and climate change phenomena in Rwanda. The critical question focused on was, what is going on in Rwanda in terms of green growth agenda? While on the other hand, we question significant constraints that impinge on the success and effectiveness of the green growth plan and the best possible solutions to developing the green growth agenda in Rwanda.

Analysis and discussions

Climate change and electrical energy

We discuss the special effects of climate change on electrical energy in Rwanda on this part. The climate and weather affect the main components of electrical power in generating, transmitting, distributing, and end-users (customers). While human beings need different types of energy to perform their daily activities, at home, workplace, or in industries, electrical energies are used. In Rwanda, it does not require to look far to experience how electrical energy is used in residential, transportation, in the commercial sector, in communication, and industries. Rwandans mostly use biomass and petroleum. Electricity is increasingly used, but currently, it accounts for only 2% of all energy consumed. Recent data shows that electrical power capacity is now 218 MW (U.S. Agency for International Development [USAID], 2020).

In Rwanda, electricity, biomass and petroleum are the prominent energy people are using. Households are the largest category of energy consumption, at 82%, with transport at 8%, industries at 6% and others at 4%. The generation capacity increased from 160 MW to 218 MW since 2010. The EDPRS II target of 563 MW and therefore has not been met, but capacity is sufficient to meet all household and industrial demand. Rwanda's economy is growing at an average rate of 7.2% over the past five years. As an effect, the Rwanda Ministry of Infrastructure argued that electricity demand is increasing at a rate of almost 8% per year (GoR, 2018).

Most households, hotels, restaurants in Rwanda use fuelwood and charcoal (from wood) to prepare their foods or to boil the water; the survey showed that the energy from wood covers approximately 80% of all energies in the whole country. It causes deforestation, which causes erosions, floods, and dryness. Rwanda's government is mobilizing the investors and the people to adapt the other types of energy to prevent the impacts of climate change in the country. However, the mobilization strategy does not provide a beneficial impact due to ignorance and mismanagement of natural resources.

Climate change issues affect the quantity of electrical energy positively or negatively. For example, the increase in precipitation helps the hydropower plant to produce electricity efficiently. However, the adequate use of available water generated from the rain in Rwanda remains problematic. Nevertheless, the heavy rainfall (floods, thunderstorms) causes the damaged infrastructure from generation to end-users. It is the case of Rwanda, mostly in the northern part (GoR, 2015b). The decreasing precipitation affects the hydropower plant to produce the maximum quantity of electricity due to insufficient water in dams. Otherwise, for solar energy, the dryness (increasing in temperature) allows the photovoltaics to produce electricity at maximum wherever the decrease in temperature results in the photovoltaic is making the lowest quantity of electricity in the plant (Burillo, 2018).

In line with the green growth agenda, renewable energy is suitable to protect the environment, reducing greenhouse gases that destroy the environment. While Rwanda mostly targets to increase electricity, biomass and petroleum consumption which require many funds, they neglect the solar energy that Rwanda has in abundance, and it is cost-effective. Meanwhile, adopting wind energy could be environment friendly; it is a matter of prioritizing the innovative strategies and embraces a new source of energy, for instance, wind and solar. Moreover, in rainfall, the GoR should make efficient use of water as a source of energy as Rwanda dispose of a large quantity of water in its rivers and lakes. Renewable energies such as geothermal (*amashyuza*), hydropower, solar, biomass, and wind energies are available in Rwanda (Safari, 2010) and if efficiently managed and adopted, there are diverse effects on the environment. The available energy resources can be used to generate electricity by avoiding the emissions of harmful gases on the environment. Rwanda is rich in different energy sources, mostly renewable energy: water, sun, biomass, and wind. Renewable energy protects the environment than non-renewable energy (Hakizimana *et al*., 2019).

As climate change affects the energy sector, we can shift from one source to another; solar energy is vital during the dry season. In the rainy season, hydropower energy is suitable. It is necessary to minimize the use of fuelwood and charcoal at home or in the commercial sector. However, the government and private companies have to invest in generating more electrical energy and stabilize the tariffs to customers.

Climate change and environment: air quality analysis

Environmental degradation and climate change issues in Rwanda pose a significant challenge for economic growth and sustainable development. Due to its location, size and physical state of the country, Rwanda is facing multiple environmental challenges including but not limited to soil degradation and soil erosion**.**

According to NISR (2019), soils of Rwanda are almost fragile and also erosive. It is due to the hills and mountains composing Rwanda. The level of erosion is high from

a recent survey based on 25,144 plots countrywide it was shown that 88% of the plots were subject to a low degree of soil erosion (splash erosion, wind erosion), followed by moderate (diffuse overland flow erosion) and severe soil loss (rill erosion, gully erosion, mass movement of soils and landslides. Moreover, large shares of Rwanda's soils are exhausted due to continuous farming, soil degradation and soil erosion, and little use of fertilizers that can compensate for the loss of nutrients caused by soil loss. Despite the available efforts used by GoR to protect and cherish poor soils, such as land use management, the high population growth, survival agriculture, and poverty impede efforts to preserve land use. There is a strong need to consult experts and educated Rwandans people for disseminating and mobilizing people, especially in the rural area where land mismanagement is apparent.

In line with soil degradation, deforestation also is a big issue to mention when considering the environment and climate change as forest play great importance in our everyday life including in taking water, carbon storage, climate regulation, hosting and maintaining biodiversity and direct provisioning of subsistence resources for surrounding communities. Rwanda's deforestation is principally due to the cutting down of trees for fuel, need for additional agricultural lands, or lands for cattle grazing, or new infrastructure (NISR, 2019).

Despite having numerous laws, regulations and policies on environmental protection and restoration, majority of Rwandans main activity remain old farming, and subsistence agriculture, the use of trees for cooking and construction purposes remain dilemma to GoR as the efforts to use other sources of energy (methane gas and electricity) still not near to reach. There is a long way to go. While a significant number of Rwandan populations are in the middle- and low-class level, the GoR may focus on the affordability of energy by lowering the price of alternative energies principally focusing on solar, wind, biogas will be a good step towards ensuring deforestation is stopped at all costs.

When forests are endangered, soils are eroded and degraded, rivers and lakes are polluted due to waste mismanagement and rapid urbanization and development in Rwanda in recent years, the air pollution issues appear. So far, there is a small number of publications on indoor and outdoor to air quality, and personal exposure assessment studies. Primarily few present studies are related to traffic emissions and ambient air quality for specific areas, including industries and commercial spaces. Failure to consider air quality as an essential issue, it is deceitfully. Air pollutants do not have only implications on human health (Irankunda, 2020; Nduwayezu *et al*. 2015), it also affects the environment because of the rising of greenhouse gases emitted into the atmosphere and then pollute the air quality which results to the global warming and climate change.

Since 2014, about 92 per cent of world inhabitants were living in regions where World Health Organization (WHO) guidelines on air quality standards were not well met, around

88% of the premature deaths were recorded in low middle-income countries (WHO, 2016). Few studies conducted in Rwanda on air quality indicated that human-activities and natural phenomena are significant sources of air pollutants, where pollutants levels continue to increase according to the rapid development of the country.

To Henninger (2013), Kigali, the capital city of Rwanda shows rapid traffic and industries development which make pollutants to be at a high level. Rwanda Environment Management Authority (REMA) is in charge of controlling, investigating and making a decision based on the future of the air quality in Kigali and an entire country (REMA, 2018). However, the strong ambition that GoR has to reach an intermediate state in the nearest future and strategies used to attain GoR goals is uncertain.

At one the one hand, information related to air quality are not adequately transmitted among different layers of management coupled with illiteracy and ignorance of numerous Rwandans, to the other hand, industries owners' primary purposes are profit at the expense of Rwandans wellbeing. As essential proofs, there are two industries located in the middle of habitation zone STEEL RWA in east and CIMERWA, see the paper of Irankunda (2020) in the western province of Rwanda. Many industries daily generate thousands of tons of hazardous and solid wastes in a country where waste management system remain volatile.

Environmental and climate change: a sociological lens

When climate change issues happen, Rwanda, like any other country in the rest of the world, bears the socio-economic consequences at the macro, mezzo, and micro levels. Nsengiyumva and Habiyaremye (2014) stated that periodic natural disasters are a long-term concern to Rwanda. While all environment degradation and climate change issues are not preventable, but alleviation is always feasible. Through comprehensive risk supervision, some disaster risks reduction is possible. Nevertheless, Rwandans are not adequately involved in such circumstances.

Rwandans suffer socially, physically and psychologically during and after natural disasters such as drought, flood, landslide, windstorm, earthquake and due to human-made disasters such as poor development management (urbanism, roads building, wastes, mining, water contamination). The macro and long-term impact of the damage caused by environmental issues hinder the fulfilment of the green growth agenda (GoR, 2015).

It is observed that Rwanda adopted neoliberal policies where business owners have big decisional powers and valid points than Rwandans. In line with this, occupational hazards in industries often pose a danger to the lives of health workers and workers in the diverse domain (Munyaneza *et al*., 2020; Nwanko *et al*., 2018). Rwanda, as any other developing country faces a high number of occupational health accidents, i.e., 80% of

global occupational injuries (Ahmad *et al*., 2017). Poor working conditions are to blame, coupled with lacking precautionary measures.

Data on inequalities in Rwanda are purposively ignored and limited to the public (Dawson, 2018). However, it is also noted that there is social inequality as well as poverty enlargement in the Rwandan working class due to insufficient income, high unemployment rate, underemployment (SID, 2016). Pay differential between the highest and lowest worker, the figure stands at 72%, and this wage gaps impede workforce morale and could be encouraging corruption (SID, 2016). Social and income inequalities generate family conflicts in which results in family disruption. However, the family is the backbone of Rwanda's socio-economic development. When the family system is not working well, family members risk separation and go far in searching for better life opportunities in the perceived wealthier cities or countries; there is the risk of orphanhood, street children, catching sexually transmissible diseases such as the HIV/AIDS pandemic to name but a few.

Waste management contributes to the growth of a nation in the most effective manner. This tool can be channelized for building the country and for sustaining its growth. Although somewhat fun but highly relevant, among most serious problem that Kigali city dwellers face (after poverty and unemployment) is insufficient solid waste disposal. The efficient managing of wastes has become one of the most significant problems facing Rwanda today despite having a lot of legislations and regulations, but their enforcement is weak (Akimanizanye *et al*.,2020). Since the colonial era, Kigali city as well other cities in Rwanda missed any clear Master plan to reorganize the planning and settlement (AGL PDO, 2017), despite the rapid and ever-increasing numbers of the inhabitants. It has exerted severe pressure on the infrastructure, which has resulted in many complex problems regarding settlement, notably waste management (Kabera, 2020).

Conclusion

The present critical analysis paper concludes that being competent in a globalized world is not enough; instead, different efforts are needed to ensure green growth agenda in Rwanda. While agriculture is taken as the engine of socio-economic growth for Rwanda, numerous Rwandan households rely on subsistence agriculture in which has a significant impact on environmental degradation and climate change. The Rwanda geographical status poses a considerable challenge for its economic growth and sustainable development.

From this critical study, we recommend that lowering the price of alternative energies, primarily focusing on solar, wind, biogas will be a good step towards ensuring deforestation is stopped at all costs. Whereas removing industries in people's living zone together with the proper way of information dissemination among Rwandans through clubs, seminars,

evening programs in each village concerning climate change, air pollution, soil degradation and deforestation problem should contribute to positive green growth impact in Rwandans community.

Rwanda Government has ambition and transparent policies and regulations to ensure a green growth agenda. However, many need to be done mostly involving the local population in order to minimize the disaster risks, close collaboration with workers by establishing formal reporting system in workplace as workers are exposed to workplace hazards that can lead to occupational accidents and diseases. Numerous companies are responsible for collecting and managing wastes which employ several people. However, the working conditions and salaries remain questionable. The involvement of Rwanda authorities is highly recommended.

Bad waste collection practices and improper solid waste disposal contribute to local episodes of disease, regional water resource pollution, and global greenhouse gases. Inadequate, inaccessible, and marginal urban areas suffer most from deficiencies in service and infrastructure, thus worsening poverty, ill health, and social marginalization. Letting people suffer from waste mismanagement affects the socio-economic development of numerous families and Rwanda as a whole.

Specific socio-economic conditions prevail in many economically developing countries including Rwanda, that also include rapid population growth, migration to urban areas, lack of sufficient funds and affordable services. In such circumstances, many cities in Rwanda are now facing severe problems of high volumes of waste, characterized by inadequate disposal technologies/methodologies, raising costs of management, and the adverse impact of debris on the environment.

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Climate Change, Terrorism and Food Insecurity in Nigeria

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Abstract. The debate about the changing climate has gained significance globally as the argument tends to have shifted towards its impacts and coping strategies. That notwithstanding, the impact of climate change affects virtually every aspect of human life, and these impacts differ from state to state across the world. In Nigeria, climate change has accentuated terrorist activities as it has contributed to the proliferation of small arms and light weapons, as well as the migration of herders from their ancestral homes to other parts of the country in search of pasture for their herds, among others. Thus, climate change affects agricultural activities directly through desertification, flooding, unpredictable rainfall among other things and indirectly from terror activities, because food security is threatened by the continuous attack on indigenous farmers by herders and the continuous abandonment of farms in some parts of the country due to displacement or the fear of being taken hostage by terrorists within those parts. The study examined how climate change contributes

to terrorism, therefore putting the Nigerian in the fear of food insecurity. Data for this study would be generated from secondary sources. The quantitative data would be retrieved from several data bases that measure climate change, terrorism and food security. The study showed clearly how climate change links to the continuous terrorist activities in the country and how these have posed a threat to the security of food in the country. Among other things, the study recommended that indigenous coping strategies be adopted by the State in tackling the issue of climate change, particularly as it affects security and food security.

Keywords: climate change, terrorism, food insecurity and Nigeria.

Introduction

Scientists insist that the climate is changing and these changes have shown potential of affecting virtually every aspect of human life. The changes in the climate are a result of either biogeography (natural causes) or anthropogenic (man induced) factors. Whereas the climate changes biogeographically as a result of some forces that could be astronomical or extraterrestrial, the anthropogenic factors on the other hand, are as a result of man's activities arising from industrialization, urbanization, burning of fossil fuel, gas flaring, agriculture, etc. which leads to the emission of large amount of greenhouse gases into the atmosphere (Manbe & Ebonyi, 2019).

In relation to the global climate, Nigeria's climate has been changing and it been indicated in "increased temperature; variable rainfall; rise in sea level and flooding; drought and desertification; land degradation; more frequent extreme weather events; affected freshwater resources and loss of biodiversity" (Haider, 2019, p. 2). As a result, flooding has become an annual constant as rainfalls have remained increasingly unpredictable (especially in the Southern parts) and sea levels rise is continuous, while drought has remained prevalent in the North (Haider, 2019).

Owing to the manifestations of climate change in Nigeria, scholars have linked the prevalence of the continuous acts of terrorism in various parts of the country to it (Skah & Lyammouri, 2020; Nett & Ruttinger, 2016; Onyia, 2015). For instance, the desertification in the North tend to have opened the region to terrorist activities as the insurgence by the Boko Haram sect has lingered for over a decade. To that extent, small arms and light weapons had found their way into the nation through neighboring states as climate change has furthered the unfortunate state of the borders and this reality has also affected the production of and access to food in the nation, thus exposing the Nigerian State to a state insecurity in food. It is this reality that necessitates this study.

Brief review of related literature and theoretical framework

The Intergovernmental Panel on Climate Change (IPCC) sees climate change as "statistically significant variations that persists for an extended period, typically decades or longer. It includes shift in frequency and magnitude of sporadic weather events as well as the slow continuous rise in global mean surface temperature" (Ifeanyi-obi, Etuk, & Jike-wai, 2012, p. 54). The position above focuses on the incidence of persistent changes in the environment within a period of not less than a decade, irrespective of if such a change happened from biogeography or anthropogenic factors. Relatedly, United Nation Framework Convention on Climate Change (UNFCCC) (1992, p. 7) observes that it is "a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time period". The position of the UNFCCC tend to bring to the fore the fact that man's actions and inactions contribute more to climate change than natural causes. On the other hand, Efe (2011, quoted in Abraye, 2014, p. 37) stated that climate change is "a long term significant change in the average weather that is being experienced by any given region of the world. The average weather condition includes average temperature, precipitation and wind patterns, and it involves changes in the variability in the state of the atmosphere over durations ranging from to millions of years".

Best & Nocella (2004) points out that "terrorism is the intentional use of physical violence directed against innocent persons—human or nonhuman to advance the religious, ideological, political or economic purposes of the individual, organization, corporation, or state government" (p. 10). From the above, 'intentionality' stands firm as it is the intention that backs the action. Also, almost always, an idea desired to be advance ted to necessitate a people or group of people to employ the use of violence and attack innocent people. To corroborate the above position, Laquer simplistically referred to terrorism as "the illegitimate use of force to achieve a political objective when targeting innocent people (cited by Bruce, 2013, p. 27). From the foregoing, therefore, it is clear that not all acts of violence can be classified as terrorism, because the victims of any such act, ought to be innocent. I relation to the study therefore, the activities of Boko Haram and violent herdsmen in Nigeria has focused on innocent people and the sect (Boko Haram) claimed to be pushing an ideology, thus they are clearly to be seen as terrorist, irrespective of their recognition or not by the Nigerian State. Suffice to state that terrorism can occur either at the domestic or international fronts and according to Pillar (2014) cited in Lebari (2018) there are four main features of terrorism: (1) it is premeditated, (2) it is usually politically driven, (3) it is aimed at seeking publicity, and (4) it lays claim to some ideological and religious validations

Zibokere (2008) submits that "food insecurity happens when the majority of the people do not have economic access to domestically produced food that is adequate for living at

all times" (p. 29). Implicit from the above position is the fact that although food available is critical, but, without the economic ability of the majority of the people to access domestically produced food, then such a people could be said to leaped into a state of food security. Food insecurity is the opposite of food security.

This paper adopts the theory of securitization as its theory of choice. Views on the subject of security had metamorphosed over time, as it meant protection of states from external aggression during the cold war era, but had since transited from the above narrow perspective, as in the post-cold war world, it had since grown in recognizing "the need to address global threats with uncertain impacts that affect not only nation states, but also the livelihoods and health of communities and individuals" (Heffron, 2015 cited in Skah & Lyammouri, 2020). As a result, issues of security now include economic and environmental concerns. In the view of the Copenhagen School of International Relations several issues can be converted into matters of security. In the light of the above, issues of climate change can be duly viewed as security concerns owing to its "threat multiplier" potentials and the severe negative impacts it has shown on food (in)security directly and indirectly through acts of terrorism.

Climate change and terrorism in Nigeria

Climate change has been isolated as "a threat to global peace", a threat multiplier", "a driver of conflict" and "an accelerator of fragility" (Skah & Lyammouri, 2020, p. 7). Similarly, a 2014 report of the United States of America's department of Defense opined that climate change is a "threat multiplier" (Lyttle, 2017). So, whereas climate change may not directly cause social conflicts, it might have played or is playing a very significant role in accentuating social and violent conflicts anywhere in the world.

Interestingly, Nigeria like most parts of the world have had her experiences on the issue of terrorism, however, not every terror activity that has ravaged the Nigerian State can be linked to climate change. It is noteworthy that one of the negative effects of climate change is shrinking resources, as a result, resources tend to become scarce for the people thereby making it a survivalist in nature and only accessible for the "strong".

In Nigeria, climate change can be linked to have exacerbated the terror activities of the Boko Haram Sect and the herdsmen who are predominantly of the Hausa/Fulani ethnic nationalities. According to the 2020 Global Terrorism Index, 9% of the global death arising from terrorism happened in Nigeria, as the country ranked second to Afghanistan among countries with the highest mortality rate from terrorism in 2019 (Institute of Economics and Peace, 2020). Similarly, Boko Haram continues to maintain a high place in global terrorism as the organization is ranked second among the four deadliest terrorist group in the world.

Boko Haram was founded in the early 2000s with the idea of opposing western education; however, it has since drift into full blown terrorism. And whereas, environmental concerns might not be associated with the purpose for which it was formed, the group has however prospered because of the reality of climate change in Northern region, particularly around the Lake Chad region has exacerbated its operations and continuous existence. Onyia (2015) argues that much of the population in Northern Nigeria depend on agriculture for their survival, and owing to the ravaging impact of climate change, crop yield has been greatly jeopardized and similar negative report of high mortality rate for animals has threatened to livelihood of the local people and further entrench the people in severe poverty, thus making them susceptible to the advances, deception and forced recruitment into the sect. Furthermore, the Lake Chad region having shriveled in water also experienced significant decline in natural resources around the Basin as fishes became relatively scarce and loss of vegetation and land for grazing became the reality (Nett & Ruttinger, 2016).

Despite the long history of violent clashes between herders and farmers, climate change has worsened the unrest between these two important sets of people in the Nigerian State. This is because of the migration which herders are forced into owing to the insufficiency of resources and struggle for water and land in the Sahel; therefore, herders in a bid to seek alternative location for pasture for their herds migrate from the Lake Chad Basin towards the Middle Belt and opens up further competition between the herders and the indigenous farmers. In relation to the above, President Muhammadu Buhari had in 2016 pointed out the seriousness of the terror activities of the herders when he asserted that "disputes have arisen over use of essential resources, farmlands and grazing areas and water, with farmers complaining of invasion of their farms and destruction of their crops by cattle. Climate change and continuous decrease in grazing land have led to even greater complications and the dire needs that have continually presented this particular problem. More recently, the disputes have turned more violent with the arming of herdsmen with guns" (National Institute for Policy and Strategic Studies, 2016). The 2016 Global Terrorism Index submits that in 2016, herdsmen were responsible for more deaths than Boko Haram. The big question begging for answer is how the herders are able to have access to small arms and light weapons? In response, outside issues of state failures, climate change has exacerbated both issues of human and food security.

Climate change and terrorism: The place of food insecurity

As the issue of terrorism in Nigeria, particularly Northern Nigeria is enhanced by climate change, rural communities and the nation is affected in a negative light. George, Weatherspoon & Adelaja (2019) observed that as a result of the insurgency by the Boko

Haram, households in the ravaged region of Nigeria do the following "(a) rely on less preferred foods, (b) limit the variety of foods eaten, and (c) limit the portion size of meals consumed" (p. 27). The above therefore reveals that the choices of those within the ravaged region have been attacked and as such their security of food is exposed negatively.

There are reports of farmers in Northern Nigeria abandoning their farms and livelihood in a bid to survive from the terrorist activities of the Boko Haram sect. The Guardian Newspaper (30th August, 2020) reported that "no fewer than 78,000 farmers in Borno, Kastina, Taraba, Plateau, and other states in the North have abandoned their farmlands as a result of attacks by Boko Haram terrorists, bandits and herdsmen". The reports further shows that over 504,000 metric tons of food had been lost since 2015 and the farmers now produce less than their previous turnovers. In related manner, at the time of compiling this paper the national news has been focused on the victims of terror who were slaughtered at their rice farms in Borno State by suspected Boko Haram members. Of course, the position above is the reflection of life today in several parts of Nigeria and terrorism has posed a great threat to farming, aside the direct impact of climate change on the crops.

Nett & Ruttinger (2016) argues that climate change has shown potentials and capacity of lowering harvests of agrarian produces, animal husbandry and expected fish catches, thereby creating a near-conducive environment for recruitment into terror groups like Boko Haram. So, as climate change reduces the farming space and provide howbeit tacit support for terrorism, there is also the challenge of threat posed to farming in the region as the acts of terror do not support the required enabling environment expected for farming in the region, particularly since the farming system of the local people haven't quite transited from the traditional pattern towards modern farming models,

In relation to the view of Nett and Ruttinger (2016) above, local farmers are faced with severe competition amongst themselves for scarce land as traditional methods of nourishing the lands are being jettisoned because of the relatively scarce nature of farmlands in the rural communities. The quality of harvests had since retrogressed as the nutrients in the soil are not what they used to be or what they ought to be, owing to the climate change ravaging the world.

Whereas climate change is affecting the production of and access to food gradually, but consistently, the impact of terrorism on food availability and access is in no way gradual as one act of terrorism has potentials for causing the scarcity of a commodity, with a very high-cost response from the market. Just recently, onion which is usually supplied to every part of Nigeria from the North became a very scarce and expensive commodity, and, because most families couldn't afford it, they had to do their cooking without the use of onion, which I not the usual at a time when there are no such scarcity (artificial or genuine).

Conclusion

Although climate change manifests globally, the local or regional manifestations differs from place to place. In the light of this, climate change has significantly fueled terrorism in Nigeria and the Lake Chad Basin, as that zone has risen to become the hotspot of terrorism in the West African sub-region. Food availability and access have been put to a place of vulnerability, as crop production has reduced significantly and the local farmers are now exposed to recipes they would never deal with were it not for their condition. Furthermore, terrorism goes with violence, and violence forces people to live in fear, therefore, several farmers in fear have abandoned their farms and the livelihood and are seeking alternatives because of their desire to preserve their lives.

In essence, climate change enhances terrorism and negatively impacts agricultural cultivation, thereby multiplying the threat posed by terrorism, however, terrorism might have contributed directly to food insecurity in Nigeria than climate change, although there is a linkage between the three subjects.

Recommendations

The paper recommends that:

1. The challenge around the Lake Chad Basin be given more serious attention by the Nigerian State, particularly in relations to collaboration and cooperation with neighboring States in terms of both military attacks providing the people around the Basin with alternative livelihood options.
2. The state gives focus to the issue of food production and accessibility in order to guarantee availability and accessibility of food for the ordinary Nigerian.
3. The state puts in the adequate security measures required in the crisis prone region to bring this decade-long insurgency to an end.
4. Indigenous coping strategies be adopted by the State in tackling the issue of climate change, particularly as it affects security and food security.

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Public Policy, Climate Change and Farmers —Herders Conflict in Nigeria

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Abstract. Climate change challenges and its negative consequences on livelihoods have posed serious challenges to societal development, hence efforts to address these challenges through programmes and policies. The Nigerian scenario is not an exception as the ubiquitous nature of climate change related conflicts have taken a dangerous dimension. In this paper, attempt is made to examine how natural disasters occasioned by climate change have necessitated conflict between herdsmen and farmers in Nigeria and the various policy response of government in mitigating the problem. The theoretical underpinning of this research is anchored on the systems theory as developed by David Easton. It is used to explain how internal and external environmental factors shape public policy. The study adopts both primary and secondary data for analysis. The study observes that although there have been some efforts by successive governments to address the problem, tribal and religious considerations affect certain public policy initiatives and as such efforts were haphazardly implemented. The study, amongst others, recommends that government should develop the political will of address herdsmen-farmers clashes, which is occasioned by the environmental disorders due to climate change by introducing a modern ranching system in line global best practices.

***Keywords*:** climate change, public policy, farmers-herders conflict, livelihoods, Nigeria.

Introduction

Human and natural activities have impacted tremendously on the environment, thus altering natural courses globally as a result of climate change. Ebenezar and Ugwu (2019) argue that the global community is the victim of climate change perpetuated by human (anthropogenic) and natural (astronomical) causes. Human beings, animals, aquatic habitats, the forestry and natural vegetation are the direct victims of climate change and social conflicts in the society. They further assert that in Nigeria, both man and nature contribute to social conflicts arising from climate change. The activities of farmers in Nigeria contribute to climate change through bush burning and deforestation. Also, the conversion of land for agriculture purposes, construction activities, industrialization, transportation, etc. have changed the land surface and emit various substances to the atmosphere (Lohman, 2006). Worldwide concern regarding climate change and global warming has provoked global debates and stimulated thinking among political leaders and civil rights and environmental activists. This is, no doubt, due to the negative effects of climate changes, which has resulted in successive governments, the world over, adopt programs and policies aimed at addressing the challenges. One of such attendant effects of climate change, particularly in developing countries like Nigeria is the incessant clashes between farmers and herders. This is occasioned by the struggle for economic survival by both groups. The movement of herdsmen in search for grazing land for their cattle has seen them move from one place to the other. Such activities have had some negative impacts on the farmers whose livelihood depend on the produce from their farms. Frequently, there have been reported cases of herdsmen clashing with farmers, thereby resulting in the loss of lives and property. This has caused immense socio-economic challenges that have impeded national development as livelihoods are lost in the circumstances. With occurrence of herdsmen-farmers conflict in Nigeria, successive governments have taken some measures to address the problem through various policies and programs.

It is in this light that this paper examines the nature of climate change policies that have been initiated by successive Nigerian governments and the attendant consequences of the conflict on livelihood of the affected persons. To achieve this, the paper will begin with an introduction into the subject of discussion and then a cursory conceptual clarification. We shall also explain the theoretical underpinning of this study and highlight the method of study. The paper shall also take of review of literature, and thereafter discuss and analyze data obtained for the study. It will make concluding remarks and finally make recommendations.

Conceptual clarifications

Climate change: The issue of climate change has become a global problem considering the reality that its negative impacts transcend territorial boundaries. Climate change is occasioned by both human and non-human activities, which alter the earth's climate through the emission of carbon dioxide and other gasses into the atmosphere, thereby destroying the ozone layer, which naturally shields the earth from the harmful rays of the sun. The Intergovernmental Panel on Climate Change (IPCC, 2007) defined climate change as " a change in climate which is attributed directly or indirectly to human activities that alter the composition of the global atmosphere and which are in addition to natural variability observed over comparable time period". The impact of climate change is felt on agriculture, water resources, human health, depletion of the Ozone layer, vegetation, soil and doubling carbon dioxide in the atmosphere (Ebenezar & Ugwu, 2019). To stem the tide, a global coalition under the auspices of the United Nations has initiated strategies under various frameworks known internationally as frameworks to address the issue of climate change. The campaign is aimed at saving the earth from the harmful and destructive effects of the scourge of climate change.

Public policy: Herein refers to what government decides to do or not to do. Put other words, a decision of government towards a public concern. It is directed towards addressing challenges faced by the state in meeting the needs of the citizens. Public policy is a major feature in any governmental activity. This is due to the reality that it provides the platform in which government achieves its plans and objectives. This assertion makes its crucial for not only the success of any government, but for the welfare and improved standard of living of the citizens of the state. This assertion is corroborated by Torjman (2005) when he argued that:

> Public policy determines the quality of the air we breathe and the water we drink. It affects the food we eat, how it is harvested, where it is distributed and sold and how much we pay... Public policy sets limits on air emissions—though of late, governments seem to be issuing warnings of poor air quality more than doing anything significantly to clean it up (p. 112).

That public policy is an essential feature of government activities cannot be over emphasized, even as the literature on public policy clearly shows that there is a marked difference between the policy making in developed and developing countries. The resultant effect is the policy outcome and the level of socio-economic development of both states. The nature and outcome of public policy is a determinant factor on the state of development of such a state.

Livelihoods: The subject matter relates to the activities embarked upon by individuals for their sustenance and well-being. Livelihoods are important and essential part of the

society as they determine the stability of a society. Most conflicts that result in society are as a result of the scramble for means of livelihood and the struggle for survival. The quest for food comprise the major livelihood of man and as a result farming, fishing, livestock rearing and pastoralism, craft making and weaving form the primary livelihoods of most Nigerian local people. These livelihoods are largely undeveloped and so are carried out at subsistence level. It is obvious that any destruction or distraction of the livelihoods of the local people inevitably will affect their well-being and ultimately impact on their socio-economic conditions.

Farmers-herders conflict: Over time, incidents of clashes between farmers and herdsmen have become ubiquitous and of utmost concern to governments, scholars, development practitioners and policy makers. This has impacted negatively on the socio-economic activities of the citizens as a result of the destruction of the livelihood of the people. Both farming and livestock rearing are major occupations that provide the basic necessity of life-food. The conflict between farmers and herdsmen is occasioned by the grazing activities of herdsmen who through their grazing navigate the landscape in search of food for their cattle. This activity has proven detrimental to the local farmers as the animals feed on the farm crops of the farmers, thereby resulting in outrage by the farmers who resist them. The resultant effect is a conflict between the two groups as the herdsmen claim to act in self-defence from attack by the farmers. The reason for the persistent herdsmen-farmers clashes in Nigeria and in most parts of the Sahel Region include phenomenal increase in population, which put pressure on land and water resources used both by farmers and pastoralists; the blockage of trans-human routes and encroachment on cultivatable land meant for agricultural activities, mass movement of pastoralist towards the southern parts which has in many ways led to violent clashes between herdsmen and farmers in local communities due to destruction of farm crops by cattle (Olakunle, 2019). The resistance of farmers to indiscriminate encroachment on, and the destruction of their farmlands and crops by herdsmen in the course of searching for grazing lands for their herds has often triggered violent clashes between the two sides, resulting in the loss of lives of many innocent people in the local communities (Olakunle, 2019).

Nigeria: Is a state in the West African sub region. According to the 1991 National Population Census, Nigeria has a population of 160 million people. The country is a multi-ethnic plural state that comprises 36 sub units and a Federal Capital Territory (FCT). It has over 200 ethnic entities and over 400 language groups. Nigeria currently practices a democratic form of government which was ushered in 1999 after almost three decades of military rule. The Constitution of the Federal Republic of Nigeria provides for a federal system of government, with three layers of government—Federal, State and Local Governments. It operates a bicameral legislative system at both the federal and state levels of government, as well as a presidential system of governments that makes the three

arms, Executive, Legislative and Judicial arms independent of each other but yet work cooperatively to achieve a single purpose as provided by the Constitution.

The problem

Desertification, droughts, erosion and floods which are negative impacts on the environment caused by change in the climate have created environmental hazards of global dimension. Both developing and developed countries of the world have had fair shares of these impacts. Ayodele (2009) avers that In Nigeria**,** a country of rich natural resources, the exploitation of gifts of nature has brought multiple curses on the people and the environment. In the Niger Delta area in particular, the natural resources' curse syndrome has left the environment depleted and degraded. Gas flaring, oil and water pollution bush burning and the emission of carbon dioxide, all as a result of oil exploration; have left people dehumanized and subservient to poverty. The quest for survival has seen two major economic groups—farmers and herdsmen engage in violence struggles over each group's right for economic survival. While the herdsmen lay right to freedom of movement And the right to appropriate natural resources for their economic well-being anywhere in the country, the farmers hinge on their economic rights to protect their farmlands and crops. In their preservation of their various rights, the two groups have engaged in clashes that have resulted in the losses of numerous lives. Government has the responsibility to adopt policies and programmes aimed at addressing the challenges in the state, thereby protecting the lives of the citizens as well as enhancing their welfare.

This paper addresses the problem by attempting to answer the following questions;

i. What are the policies of government in addressing climate change problems that affect the environment?
ii. To what extent have these policies being able to address these problems?
iii. What are the challenges faced by the policies?

Methodology

The paper is qualitative and as such the method of data collection adopted for this study is mainly secondary, from sources such as historical and archival records, internet materials, academic journals, newspaper reports, news magazines, special reports and documents from relevant government agencies. Relevant information were elicited from these sources from which discussion and analysis were based.

Theoretical framework

The literature on public policy is viewed from a variety of approaches *viz*: rational approach, incremental approach, mixed scanning approach, group theory, elitist theory, pluralist theory and the political system model (Osman, 2012).

The theoretical underpinning of this study is the systems theory as developed by David Easton developed in 1963. Easton's behavioral approach to politics proposed that a political system could be seen as a delimited and fluid system of steps in decision making and that changes in the social or physical environment surrounding a political system produce "demands" and "supports" for actions or the *status quo* directed as inputs towards the political system through political behavior. These demands and supporting groups stimulate competition in a political system leading to decisions or 'output" directed at some aspects of the surrounding social or physical environment. After decision or output is made, it interacts with its environment and if it produces change in the environment, there are outcomes.

In relation to this study, conflicts as a result of climate change-related environmental challenges create the "input", while the public policy response to the conflict is the 'output". The intervention of the government through policy implementation which is the "support" needed to mitigate the harsh effects of conflict arising from the farmers–herdsmen crises on the citizenry. Since, the focus of this study is on Nigeria, which is placed in the league of developing countries; it is then plausible to state that the political systems approach is more appropriate for the study. Furthermore, Burton, Kate and White (1978) applied the systems Approach to explain how humans responded to hazards and focused on the interactions of humans with the environment, as well as the natural event that occur within the environment (Mmom & Aifesehi, 2013).

Review on literature

Climate change policies

The review of the theoretical literature on climate change-related natural disaster risk management has yielded two international policy frameworks: The Hyogo Framework for Action 2005–2015 and the Sendai Framework 2015–2030. These are efforts aimed at building the resilience of countries and communities to disasters. The Hyogo Framework was the outcome of the decision of the World Conference on Disaster Reduction held from January 18–22, 2005 in Kobe, Hyogo, Japan. The Conference provided a unique opportunity to promote a strategic and systematic approach to reducing vulnerabilities and risks to hazards. It underscored the need for and identified ways of building the resilience of nations and communities to disasters. The Framework observes that disaster

loss is on the rise with grave consequences for the survival, dignity and livelihoods of individuals, particularly the poor and hard-won development gains. The Framework also acknowledges international efforts to reduce climate change-related disaster risks and that it must be systematically integrated into policies, plans and programs for sustainable development and poverty reduction and supported through bilateral regional and international cooperation including partnership.

On the other hand, the Sendai Framework which was adopted at the Third United Nations World Conference on Disaster Risk Reduction held from March 14–18, 2015 in Sendai, Miyagi, Japan, presented opportunities for countries: to complete the assessment and review of the implementation of the Hyogo Framework for Action 2005–2015: Building Resilience of Nations and Communities to Disaster; to consider the experience gained through the regional and national strategies, institutions and plans for disaster risk reduction and their recommendations, as well as relevant regional agreements for the implementation of the Hyogo Framework for Action; to identify modalities of cooperation based on commitments to implement a post 2015 Framework for disaster reduction; to determine modalities for the periodic review of the implementation of a post 2015 framework for disaster reduction (WDCR Report, 2015).

The expected outcome of the Framework is the substantial reduction of disaster risk losses in lives, livelihoods and health and in the economic, physical, social, cultural and environmental assets of persons, businesses, communities and countries. It stipulates that to attain the expected outcome, it must preview new and reduce existing disaster risk through the implementation of integrated and inclusive economic, structural, legal, social, health, cultural, educational, environmental, technological, political and institutional measures that prevent and reduce hazard exposure and vulnerability to disaster, increase preparedness for response and recovery and thus strengthen resilience. It is obvious that the Frameworks provide the roadmap to developing programs and policies by relevant governments in the implementation of strategies that are aimed at reducing the vulnerabilities of climate change related natural disasters on citizens through disaster risk management strategy. They enunciate the principles to engender actions and programs that would promote policies which would enhance and improve the living standards of the citizens, with regards to the negative consequences of climate change-related disasters as already identified.

Recognizing the harsh impacts of climate change related natural disasters the Inter-governmental Panel on Climate Change (IPCC, 2007) identified Nigeria as one of the seventeen most vulnerable countries in Africa to climate change variability and at a high risk to social conflict, (Ebenezar & Ugwu, 2019; IPCC, 2007). Specifically, Thurlow (2009) avers that in Northern Nigeria, climate change affects the distribution of rainfall and temperature during the year and this determines the growing season of annual crops and also influences crop yields and productivity of these crops cultivated under rain—fed

conditions. These situations has no doubt affected economic activities of the citizens and altered their livelihood. To address these challenges governments have adopted strategies through policies, regulations and frameworks. Such are achieved by policy implementation.

Public policy

The literature on public policy has shown that its importance in the activities of the state cannot be over-emphasized. Dye (1972) avers that government has the major responsibility in driving the citizenry to achieve what it wants. This simple assertion encapsulate the essence of public policy and highlights the fact that it is an essential tool that enables government carry out its activities, which should be directed towards the promotion of the welfare of the citizens. Dye (1972, p. 1) went further to explain that:

> Governments do many things. They regulate conflict within the society. They organize society to carry on conflict with other societies. They distribute a variety of symbolic rewards and material services to members of the society and they extract money from the society, most often in form of taxes. These public policies may regulate behavior, organize bureaucracies, distribute benefits and extract taxes of all these at once...
> Public policies may deal with a wide variety of substantive areas: defence, energy, environment, foreign affairs, education, welfare, police, highway, taxation, housing, social security, health, economic opportunity, urban development, inflation and recession and so on. They may range from the vital to the trivial, from the allocation of tens of millions of dollars for a mobile missile system to the designation of an official natural bird.

According to Osman (2000, p. 38) policy making is not merely a technical function of government, rather it is a complex interactive process influenced by the diverse nature of socio-political and other environmental forces. For him, these environmental forces that form the policy context lead to various policies and outcomes. This position seems to agree with the view that public policies are tailored to conform to environmental needs that arise in the society. He further argues that public policies in developing countries possess certain peculiarities of their own by virtue of being influenced by an unstable socio-political environment and face various problems and challenges. Poverty, mal nutrition, ill-health, illiteracy, low standard of living, unemployment, conflicts, amongst others are challenges of developing countries. For Allen, Bond and Sharife (2012), "the social conditions in which citizens find themselves during natural disasters can tell whether or not government holds sacrosanct their responsibility towards citizens with regards to recognizing, protecting and promoting human rights" (p. 12). Their attempt to examine the policy response of government on environmental issues from a human right perspective

is instructive. It highlights the perspective that denial of an individual access to the basic necessities of life amounts to gross violation of his fundamental human rights.

Farmers-herders conflict

In their study of the prevalence of herdsmen-farmers conflict in Nigeria *et al.* (2018) identified damaging or grazing on crops; changing climate conditions, long standing disagreements, scarcity of fresh water as major factors influencing herdsmen –farmer's conflict in Nigeria. Obviously 75% of the factors identified are climate change related. They also argue that climate change and desert encroachment have made south wards movements even more inevitable and confrontations with southern farming communities more frequent. As regard the socio-economic impact of the conflict, they further identify: loss of human and animal lives, destruction of crops, reprisal attacks, displacement of persons and animals, as well as distrust between herdsmen and farmers. On his part, Okoro (2018) identifies revenge or reprisal attacks, disputes over destruction of farmlands, grazing rights disputes, decades long history of violence, competition for land and resources, reactions to anti grazing law in Benue State, cattle rustling, as well as violent habits. He further identifies loss of human lives, displacement of persons, destruction of houses, destruction of farmlands and crops, distrust, unemployment, threat to national security, threat to food security as major impacts of farmers-herdsmen clashes. In their assessment of the National Grazing Law, Mrabure & Awhefeada (2020) argued that the Grazing Reserve Law of 1965 applicable only to states in northern parts of Nigeria have not adequately curbed the incessant clashes between pastoralists and farmers and that some provisions of the National Grazing Reserve (Establishment) Bill 2016 conflict with Farmers' inalienable right to property as enshrined in the 1999 Constitution of the Federal Republic of Nigeria (as amended) and protection of property rights in land under the Land Use Act. It is imperative to point here that the Bill provides for a compulsory acquisition of land in the 36 states of the Federation for the purposes of livestock rearing. According to Sayne (2011), a basic causal mechanism links climate change with violence in Nigeria. Under it poor responses to climatic shifts create shortages of response such as land and water. Shortages are followed by negative secondary impacts such as more sickness, hunger and joblessness. Poorer responses to these, in turn open the does to conflict. This can be attributed to the incessant clashes between the pastoralist and farmers in Nigeria. Incidents of Farmer-Herdsmen clashes have become a frequent occurrence in Nigeria. This has resulted to an increase in the loss of lives, property as well as the displacement of people from their homes. Between 2016 and 2018, over 500 persons have lost their lives as a result of the conflict between farmers and herdsmen. For instance Okoro (2018) reports that between January 2016 and Jun 2018 a total of 2,272 lives were lost as a result of farmers-

herders conflict in Nigeria. According to him, most of the clashes between herdsmen and farmers have resulted in humanitarian catastrophe precipitating human loss. Highlighting the impacts of conflicts in Nigeria, Elegbede (2018) asserts that the farmers herders clashes claimed more than 1,300 lives in six months in 2018, in Benue, Adamawa, Nassarawa, Plateau and Taraba States The inability of government to adequately address the challenges posed by the conflict runs against the Constitution of the Federal Republic of Nigeria which prioritizes the protection of lives and property of the citizen as the fundamental objective of the State. There was a renewed attempt in 2016 by the National Assembly to pass a Bill for an Act to establish grazing reserves in each of states of the Federation to improve agricultural yield from livestock farming and at the same time curb incessant conflicts between cattle farmers and crop farmers in Nigeria. However, the Bill could not survive due to the argument that if passed into law, the Bill would to the advantage of mostly the herdsmen (Olakunle, 2019). There was also the ethnic and religious slant to the Bill which generated heated reactions from different parts of the country.

Analysis and discussion

Climate change-related natural disasters such as desertification, flood, erosion, drought, hurricanes, amongst others occur in many parts of the world. Nigeria's climate has been changing and is evident in increases in temperature; variable rainfall, rise in sea level and flooding, drought and desertification; land degradation; more frequent extreme weather events; affected freshwater resources and loss of biodiversity (Ebele & Emodi, 2016). The negative impacts of climate change in Nigeria cannot be over emphasized as over 70 percent of the country's population is engaged in agriculture as their primary source of occupation and livelihood (Olakunle, 2019). Agricultural produce in Nigeria is mostly rain fed. Unpredictable rainfall variation makes it difficult for farmers to plan their operations (Anabaraonye *et al*, 2019; BNRCC, 2011). Also, higher temperatures, lower rainfall, droughts and desertification reduce farmlands, lowers agricultural productivity and affects crop yields, increased rainfall intensity in the coastal region, sea level rise, flooding and erosion of farmland will also lower agricultural production (Ogbuabor & Egwuchukwu, 2017).There have been series of attempts by the various governments, agencies and organizations, both local and international to address them. As the situation changes, the government evolved a diverse approaches to solving the problem. Olakunle (2019, p. 431) avers that by the provisions of the 1965 Grazing Reserve Law, Nigeria has a total of 417 grazing reserves across the country out of which only 113 have been gazetted. However, the enforcement of the Grazing Reserve Law by both successive federal and state governments has been poor. This has created room for open grazing with all its catastrophic consequences. In Nigeria, the government under the auspices of the Federal Ministry of Environment

established the National Climate Policy caption "National Environmental, Economic and Development (NEEDS) for climate Change in Nigeria". The Policy highlights climate-relevant policies, strategies and plans in Nigeria to address the problem of climate change-related natural disasters. According to the Framework, Nigeria's response to climate change threats in the context of policy development framework remains a major challenge. Despite its high dependence on fossil fuel and high vulnerability to climate change, Nigeria is just in the process of putting in place a climate change policy or a response strategy that could address the issues of mitigation and adaptation measures and financial requirements and mobilization. The framework covers National Environmental Policy; the National Policy on Drought and Desertification, as well as the National Forest Policy, National Biodiversity Strategy and Action Plan; National Erosion and Flood Control Policy; Agricultural Policy; Water Policy; Coastal Resources, as well as Energy.

The NEEDS study identified the following:

i. Responding adequately to climate change in Nigeria will, in general, be costly. It is, however, important for the country to undertake detailed assessment of mitigation and adaptation costs on sectoral basis in order to plan effectively for its response;
ii. Detailed vulnerability and analysis of the key sectors of the economy is needed for a proper understanding of the impacts of climate change on the socio-economic development of the country. It is yet to be fully done;
iii. Nigeria is not performing as well as expected in envisioning the country's climate future and building dynamic response strategies, including adequate research and infrastructure development. A lot need to be done in the area of climate change scenario analysis for both mitigation and adaptation response measures and their cost implications on aggregate basis. This should enable the country to plan very well for its response to changes in its climatic conditions;
iv. Up-to date data that is critical for climate change analysis and information dissemination, as well as improve our understanding of the climate problem in the context of sustainable national development, is not exactly available in Nigeria in a coherent and accessible manner. The country will need to enforce its efforts at putting in place a comprehensive climate change information management system that is updated periodically and readily accessible;
v. A proactive response, rather than a reactive response to climate change issues will best serve the development needs of Nigeria in the context of sustainable development in Nigeria and the attainment of the objectives of its Vision 2020, in particular;
vi. Integrated and sustainable approach is grounded in the fact that mitigation is essential to avoid the unmanageable, while adaptation is no less essential to manage the unavoidable. This should constitute the basis for the country's efforts at mainstreaming climate change into national sustainable development;

vii. Effective resource mobilization strategy based on private public partnership (PPP) principle is critical to enhancing national capacity to capitalize on a number of existing and potential financial inflows into climate change at national and international levels (Federal Ministry of Environment, 2010).

POLICY response approaches of the Nigerian government

I. Building adequate capacity to manage climate change
II. Continuously reducing Green House Gas (GHG) emission in all sectors;
III. Enhancing international cooperation in climate change
IV. Strengthening private sector participation in the use of clean energy;
V. Supporting ongoing initiatives to gradually eliminate gas flaring
VI. Generating adequate energy from a mix of sources without significantly increasing the country's GHG emissions;
VII. Planning for future climate change scenarios and building dynamic response strategies
VIII. Strengthening inter-sector actions and mechanisms concerned with climate change;
IX. Enhancing food security, reducing poverty and promoting healthy living for all Nigerians;
X. Integrating disaster risk management of climate related hazards into development.

Source: Federal Ministry of Environment (2013)

Despite these, Sayne (2011), argues with the understated illustration that the climate change policy response strategy of the Nigerian government is not only weak but slow. This is highlighted in the diagram below.

The diagram above shows that there is sufficient evidence of incidents of climate change related natural disasters in Nigeria. Climate change effects resulting to climatic shifts indicating more heat; less rain, higher sea levels and more severe weather are evident. These have resulted in resource shortages, insufficient land and water, loss of property as well as loss of revenue. The prevalence of these situations which are the inputs in the environment that necessitates outputs or a support by way of policy response by government is lacking in this regard. Poor response here has resulted in increase in population displacement as a result of migration of individuals in search of survival and better environment for their livelihood, more sicknesses and death, more hunger, more unemployment and less economic growth. The more extreme resultant effects are associated with conflicts such as low economic opportunity; strained relationships; worsened relations between citizens and institutions; destructive self-help. From the foregoing, there is a significant

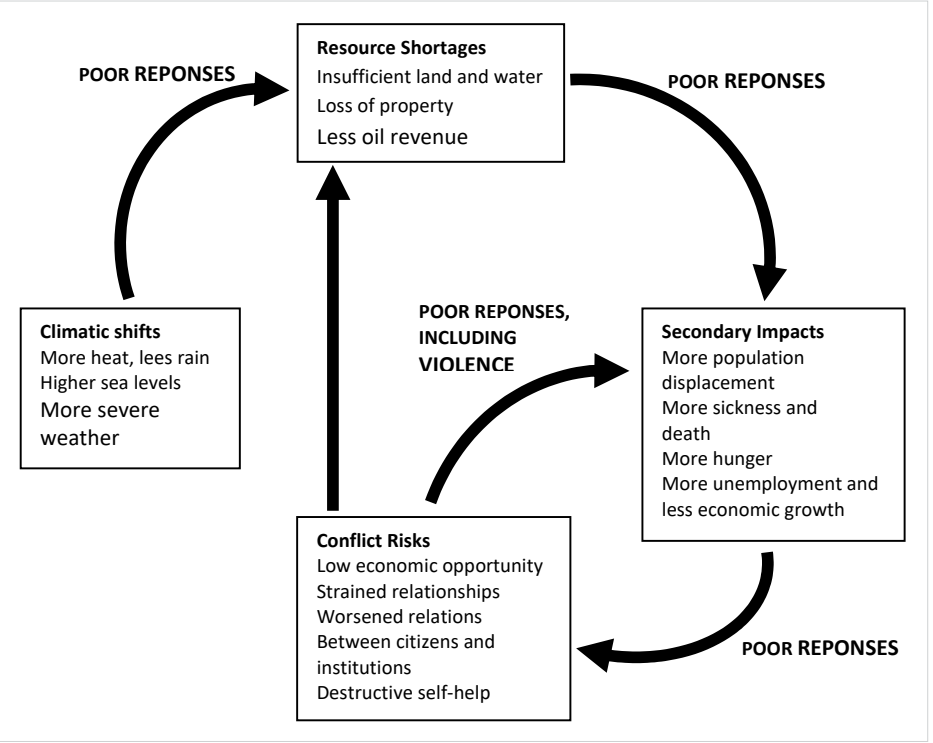

Figure 1: Showing Climate Change and Conflict in Nigeria: A Basic Casual Mechanism

Source: Sayne, 2011.

relationship between poor response and lack of implementation of climate change related policies in Nigeria and violence between farmers and herdsmen. This scenario manifests with attendant negative socio-economic impacts that affect the wellbeing and livelihood of the citizens.

The Table below indicates that from 1989 to 2020 successive Nigerian governments have initiated a total of 22 climate change-related policies. These policies have been initiated sectorally to addresses peculiar and specific issues that arise in the environment. The sectors are: Energy, Agriculture, Water, Coastal Areas; Forestry and Land Use; Transport; Health; Culture and Tourism; Population; Human Settlement as well as Information and Communication Technology. Most of these policies do not comprehensively address the challenges at hand as we shall see. Attempt is made to highlight objectives of some relevant climate change related policies in Nigeria:

Table 1. Climate change related regulatory and policy documents

S/N	Description of policy	Date
1	National Environmental Policy	1989
2	United Nations Framework Convention on Climate Change (UNFCCC)	1992
3	National Action to Combat Desertification	1997
4	National Agricultural Policy	2001
5	National Energy Policy	2003
6	Kyoto Protocol	2004
7	National Biodiversity Strategy and Action Plan	2004
8	National Water Policy	2004
9	National Tourism Plan (NTP)	2005
10	National Policy on Erosion, Flood Control and Coastal Zone Management	2005
11	Draft National Forest Policy	2006
12	Renewable Energy Master Plan (REMP)	2006
13	Nigerian Health Promotion Policy	2006
14	The Fourth Assessment Report (AR4) of the Intergovernmental Panel on Climate Change (IPCC)	2007
15	Drought Preparedness Plan	2007
16	National Reproductive Health Policy	2010
17	National Adaptation Strategy and Action Plan 9NASPA	2011
18	Economic Transformation Agenda	2011–2012
19	Nigeria's Nationally Determined Contribution (NDC)	2015
20	Vision 2020	2020
21	National Health Policy (Revised from 1988)	2017
22	National Policy on Drought and Desertification	

Source: National Policy on Climate Change, 2013

National Agricultural Policy

The objective of the 2001 Nigerian Agricultural Policy include

i. The achievement of self-sufficiency in basic food supply and the attainment of food security;
ii. Increased production of agricultural raw materials for industries;
iii. Increased production and processing of export crops using improved production and processing technologies;
iv. Generating gainful employment;
v. Rational utilization of agricultural resources, improved protection of agricultural land resources from drought, desert encroachment, soil erosion and flood, and the general preservation of the environment for the sustainability of agricultural production;

vi. Promotion of the increased application of modern technology to agricultural production, and
vii. Improvement in the quality of life of rural dwellers (Federal Ministry of Environment, 2010).

National Water Policy

The National Water Policy seeks to improve on the nations' water resources management, including the management of hydrological risks and vulnerabilities. Emphasis on the assessment of water resources is to improve real time forecasting of hydrological phenomena, a major adaptation measure required to reduce societal vulnerability to the impacts (Federal Ministry of Environment, 2010).

National Environment Policy

The National Environment Policy was established in 1989 and revised in 1999 to accommodate new and emerging environmental concerns. The goals of the revised policy are to achieve sustainable development in Nigeria and in particularly to:

i. Secure a quality of environment adequate for good health and wellbeing;
ii. Promote the sustainable use of natural resources;
iii. Restore and maintain the ecosystem and ecological process and preserve biodiversity;
iv. Raise public awareness and promote understanding of linkage between environment and development, and
v. Cooperate with government bodies and other countries and international organizations on environmental matters (Federal Ministry of Environment, 2010).

It is pertinent to also state that the initial philosophy of the policy was geared towards meeting the challenges of addressing key environmental problems and challenges of land degradation (deforestation, desertification and coastal and marine environment erosion) and air and water pollution urban decay and municipal waste, as well as hazards of drought, coastal surges, floods and erosion.

The National Policy on Drought and Desertification: This Policy recognizes that climate change could intensify drought and desertification in the part of the country that are prone to environmental problems. The Policy emphasized the need to equip relevant agencies and institutions and citizens adequately to collect, analyze and use climate data effectively to ameliorate and combat drought and desertification. Specific implementation

strategies for policy include:

i. Strengthening of agencies, institutions and facilities for the collection and analysis of meteorological and hydrological as well as for dissemination of information;
ii. Upgrading the existing national early warning facilities for more efficient service-delivery;
iii. Developing appropriate awareness programs for formal and informal education to enhance knowledge on climate and environment issues; and
iv. Encouraging appropriate land use that enhances carbon dioxide sequestration such as afforestation, reforestation and agro-forestry, which also reduces soil erosion and increase, crop productivity for economic development (Federal Ministry of Environment, 2010).

National Erosion and Flood Control Policy

The goal of this policy is to ensure coordinated and systematic measures in the management and control of the climate-related hazards and risk of erosion and floods to reduce their impacts on the people and the environment. Key strategies for the implementation of the policy are:

i. Evolve a mechanism for forecasting, management and control;
ii. Review the land use laws and regulations;
iii. Promote and strengthen training at all levels in erosion and flood prevention, monitoring and c control;
iv. Creating public awareness to encourage participation;
v. Protection of the marginal lands by limiting utilization to their carrying capacity;
vi. Subjecting resources user and developers to guidelines in order to reduce the vulnerability of the environment to flood and erosion-related disasters, and
vii. Providing early warning systems to avert the escalation of the flood and erosion hazards (Federal Ministry of Environment, 2010).

From, the foregoing, there is a noticeable weakness in climate change related policies in Nigeria which is summarily captured thus:

> Responding to climate change from both mitigation and adaptation angles require strategic approaches from policy, regulatory and institutional frameworks and capacities. In general, the effectiveness of environmental and other policies in Nigeria, as well as their potentials in support of adaptation and mitigation measures is yet to be fully realized. Most of the policies remain very broad and are not in position to provide the country the required focused response to climate change concerns of the country (Federal Ministry of Environment, 2010).

We have seen efforts of governments to address climate change related environmental challenges; it is obvious that policies that bother on the livelihood and socio-economic well-being of the citizens should be taken much into cognizance. This is necessary because the quality of livelihood of citizens determines their quality of life and consequently reduces the conflicts associated with the struggle for survival.

Summary/Conclusion

Nigeria's climate change response strategies have been to ensure adaptation and mitigation of the negative effects of climate change on both the environment and the livelihood of the citizenry. The National Policy on Climate Change of Nigeria is a strategic policy response to climate change that aims to foster low carbon high growth economic development path and build a climate-resilient society through the attainment of set targets. The plan clearly identifies climate change as one of the major threats to economic development and food security (Federal Ministry of Environment, 2013). However, there has been substantial lack of political will to comprehensively and fully implement. For instance, a key feature on the Agriculture Policy is to reduce risks and uncertainties in agriculture by reducing the natural hazard factor (which may include climate change) militating against agricultural production and security of investment. The policy framework covers a number of issues that may be impacted by climate change such as crops; livestock, fisheries and agro-forestry production as well as pest control and water resources and management. Also the policy on ending gas flaring in the Nigerian environment has been problematic in implementation. Oblivious of the implications of the impact of climate change on agriculture, which is occasioned by natural disasters such as desertification, drought, erosion and flood, the national grazing policy, as well as the agriculture policy have not been properly implemented, thus necessitating the non-regulation of activities of pastoralists who invade farms of farmers with their cattle, destroying the economic crops of the farmers. It is the resistance to this scenario that causes the conflict between farmers and herdsmen in Nigeria. This study agrees with the assertion of the Federal Ministry of Environment (2010) that Nigeria's response to climate change threats in the context of policy development framework remains a major challenge and that despite its high dependence on fossil fuel as well as high vulnerability to climate change, government is just in the process of putting in place a climate change policy or a response strategy that could address the issue of mitigation and adaptation measures and financial requirements and mobilization.

In the face of the challenges of farmers–herders' conflict, some state governments have enacted grazing laws as immediate measure to stem the incessant conflicts that have resulted in the loss of lives and destruction of property. On its part, the Federal Government has not

shown sufficient response to addressing the problem. However, the planned introduction of the Rural Grazing Areas (RUGA) across the country was received with mixed feelings and criticisms. This paper concludes that the response of successive governments in Nigeria to climate change is poor. As a result of this, the response to climate change related natural disasters is also poor. This poor response has resulted in the loss of livelihoods by both farmers and herdsmen who struggle for survival. It is the struggle for survival as a result of the inability of the government to respond to the needs of the citizens that has resulted in the numerous clashes and conflicts between herdsmen and farmers in Nigeria.

Therefore, the study recommends as follows: that government should adopt proactive measures, rather than reactive approaches to address problem of conflict between farmers and herdsmen in Nigeria; a practical approach by government to initiate a workable agricultural policy that would ensure that modern grazing methods are adopted for cattle (livestock rearing in Nigeria; modern farming technologies and support to farmers should be set up to boost agriculture and food production; Nigerian government should endeavor to implement climate change policies adopted in the various international climate change protocol, including the issue of unending gas flaring and destruction of the environment by exploration activities of the oil companies; ethnic and religious sentiments should be avoided in order to build trust and confidence in government policy to address climate change—related conflicts such as the farmers-herders clashes.

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Floods, Human Security and the Development of Community Resilience in the Niger Delta

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Abstract. Climate change is a global phenomenon that has devastating impact on people differently across nations and societies. In Nigeria's oil rich Niger Delta, the link between climate change and perennial floods is an emerging human security challenge, complicated by pressures of environmental degradation caused by unregulated hydrocarbon exploitation in the region since the 1950s. Based on primary and secondary data, this paper examines how communities in the Niger Delta cope with the security threats of flood and its associated challenges of internal displacements and loss of livelihoods. The main finding is that in the absence of effective government responses to floods, the strengthening of institutions of socio-cultural capital of the people has been a critical factor in the development of community resilience and coping mechanisms. The article further argues that the reliance on social capital by Niger Delta communities promotes and reinforces local support systems, which in turn reduces vulnerabilities of the people to annual flooding. It recommends the institutionalization of government support systems

by all levels of government in the Niger Delta for floods victims, proactive floods prevention mechanisms and government support for local initiatives of community resilience in order to advert the adverse effects of climate change-induced flooding in the region.

***Keywords*:** climate change, human security, flooding, community resilience, Niger Delta.

Introduction

The human planet has been significantly shaped by human activities since the dawn of history. These activities have contributed to improving human survival while paradoxically altering the natural balance of the earth and the ecosystem. Both ways, humanity has been constrained to adapt to the changing ecosystem including the realities, pressures and consequences of climate change. Some of the consequences of climate change are environmental degradation, rising temperature, human security threats and declining livelihoods systems (Ogele, 2020; Ojo, 2012; Eze, 2010; Oche, 2010). To put it differently, the adverse effect of climate change is leading to severe global environmental problems such as flooding, drought, desertification, deforestation and land degradation, freshwater shortage, food security and air and water pollution (IPCC, 2007; 2013). Further evidence has also projected increases in extreme climatic events as well as more changes in the weather patterns which may further threaten human lives and livelihoods in the face of inaction (IPCC, 2013; Ogele, 2020; Shaw, 1995; Ayodele, 2010).

The case of Nigeria is already showing significant evidence of the negative effects of climate change in the areas of environment, agriculture, food security, water resources, public health, resource conflict and the housing sectors (IPCC 2007; NEST, 2009; Wapmuk, 2010; Sayne, 2011). The areas likely to be worst hit by these worsening trends are the coastal Niger Delta region and oil impacted areas where irresponsible natural resource extraction has led to severe environmental degradation, land, air and water pollution and the loss of lives and livelihoods, as well as the loss of biodiversity (Amnesty International, 2008; Odock, 2010; Okpara, 2004). As a result of its natural ecology, the Niger Delta region is prone to seasonal flooding due to its low land characteristics. However, the failure of effective environmental management infrastructure, adaptation and mitigation measures have compounded the flood crises in the area and made the region fall within the high-risk areas to be affected by the climate change crisis (Odock, 2010; Okpara, 2004). For example, since 2012 to-date, the Niger Delta has been confronted with annual flooding with devastating human security implications such as internal displacements and loss of livelihoods (Allen & Dube, 2013).

The key question that this paper addresses is: How do the people of the Niger Delta prepare for and recover from floods? Based on data from academic and grey literatures, media reports and interviews, the paper argues that in the absence of effective government responses to floods, the strengthening of institutions of socio-cultural capital of the people has been a critical factor in the development of community resilience and coping mechanisms. The paper further argues that the reliance on social capital by Niger Delta communities promotes and reinforces local support systems, which in turn reduces vulnerabilities of the people to annual flooding. It recommends the institutionalization of government support systems by all levels of government in the Niger Delta for floods victims, proactive floods prevention mechanisms and government support for local initiatives of community resilience in order to advert the adverse effects of climate change-induced flooding in the region.

Literature review: Climate change

Climate change is at the core of the scientific debate in terms of human existence, survival and security in the 21st century. The reason resonates with its overwhelming and encompassing impact of human lives and security, and the lack of collective action to tackle it nationally and globally. According to the United Nations Sustainable Development Goals (UN SDG), "Climate change is now affecting every country on every continent. It is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. Weather patterns are changing, sea levels are rising, weather events are becoming more extreme and greenhouse gas emissions are now at their highest levels in history. Without action, the world's average surface temperature is likely to surpass 3 degrees centigrade this century. The poorest and most vulnerable people are being affected the most (UN SDG, n.d.).

The danger posed by climate change to humanity has made the subject matter one of the most engaging in recent times. An internet search via Google confirmed that the subject of climate change has attracted over seven hundred million searches. The literature is vast and varied in terms of the understanding, concerns and intellectual dispositions, analysis and methodological approach (Eze & Oche, 2010; Ojo, 2012; Friedrich Ebert Foundation, 2016; Dokubo, 2010; Oche, 2010; Attoh, 2010) Although, mostly a dominant concern of the core sciences, it has become a major intellectual endeavour for the social sciences as a result of its human and environmental implications; making it an overarching discourse for social science research. Climate change is not new, but its recent manifestations and looming dangers have made it more alarmingly concerning all over the world (Rahman, 2012 apud Ogele, 2020). Of major concern is the fact that poor and weak countries like Nigeria and others in the global south are not the major

contributors to climate change, but are the most to suffer from its effects (Eze, 2010; Dokubo, 2010; Oche, 2010)

Climate change has been defined (IPCC, 2007) as an 'alteration in the state of the climate that can be identified by changes in the mean and /or the variability of its properties and which persists for an extended period of time. It is the major changes in temperature, precipitation, or wind patterns that occur over decades or longer. According to Udechukwu (2016), climate change has been closely linked to global warming i.e the increase in the global temperature caused mainly by emissions of greenhouse gases (GHGs). The Inter Parliamentary Union (2016) considers climate change 'as one of the greatest threats to global prosperity and development. Due to human emissions of greenhouse gases, the international community is on a warming trajectory that will leave the world irrevocably changed. Such a pathway risks unmanageable sea-level rise and a vastly different climate, including devastating heat waves, persistent droughts and unprecedented floods. The foundations of human societies, including food and health security, infrastructure, and ecosystem integrity, would be in jeopardy; the most immediate impact would be on the poor and vulnerable'. Sandberg & Sandberg (2010 apud Madu, 2016) has also defined climate change as the Climate change refers to the increase in temperatures and changes in weather patterns created by carbon and other greenhouse gas emissions. Madu (2016) has noted climate change results from the concentration of greenhouse gases namely; Carbon dioxide (CO_2), Methane (CH), Nitrous oxide (N_2O), and Fluorinated gases (F-gases) in the atmosphere which has led to an observed and projected warming of the earth, known as the enhanced greenhouse effect. Ogele (2020) has stated that climate change affects rights to freedom and a peaceful and safe environment. He further stated that 'the harsh socioeconomic conditions suffered by some communities, particularly those domiciled in the den of oil exploration calls for urgent attention'.

Various studies have been conducted on climate change and its implications for Nigeria, with warnings that Nigeria is severely vulnerable to climate change, and if it is left unchecked, the country will face the worse of it (Idowu *et al.*, 2011; Ekanade *et al.*, 2011; Udechukwu, 2016; Ogele, 2020). Amongst the issues identified as major threats of climate change to Nigeria are flooding (Ekanade, 2011), coastline erosion (Folorunsho & Awosika, 2010), drought and desertification (Attoh, 2010; Ugwuanyi, 2010). Attoh (2010) have also noted the climate change will impact on health, transportation and tourism in Nigeria. Food security is also major challenge of climate change in Nigeria (Agbu, 2010; Ugwuanyi, 2010) as a result of the triple problems desertification and drought in the north, and flooding in the south.

As a country that is highly prone to severe negative impacts of climate change due to the fragile nature of the environment, policy makers at all levels cannot afford to keep silence in the face of grim realities associated with the adverse effects of climate change. The

Federal and State governments must demonstrate sufficient commitments to enact and implement climate sensitive policies and programmes that will ameliorate the programmes which the impact of climate change is likely to cause to the country. Several years of policy inertia in addressing the environmental problems associated with irresponsible oil and gas extraction in the Niger Delta region had left the environment of the area polluted, lives and livelihood disrupted. Growing agitations by locals for environmental justice and compensation for loss of livelihood have remained unresolved; and this has also transformed the area into a theatre of violent conflict as criminal elements continues to seize on the vacuum created by the failure of government at all levels to address the conflict in the area, to wreak havoc to oil and gas installations; which is causing further damage to the environment and exposing the region to greater climatic dangers.

Human security

Earlier studies on security have always emphasised its traditional meaning and connation within the context of the state and national security (Imobighe, 1990 apud Oche, 2010, p. 35). But since the end of the Cold War, the concept of security has moved away from its classic interpretation as the physical protection of a country from external threats and ideological /strategic defence of its national interests into a more robust and people centred form of interpretation and understanding (Buzan, 1983, 1990; Dokubo, 2010). Hence, security as noted in this paper is not necessarily concerned with the militarist, policing or state-centric notions of security that connotes protection from armed violence and physical use of force, but deals with a wider sense of security that places humanity at the centre of the security debate and awareness, and not just states or territories (Nishikawa, 2009 apud Ogele, 2020, p. 6; Shechan, 2005; Thakur, 2004). This radical departure from the narrow state-centric concepts of security became necessary because of the multidimensional security challenges which confronted the international community after the Cold War and which requires deeper insights and interpretations. Hence human security is defined by Hubert (1999 apud Oche, 2010, p. 38).

> 'In essence as safety for people from both violent and non-violent threats. It is a condition of being characterised by freedom from pervasive threat to people's rights, their safety or even their lives. It is an alternative way of seeing the world, taking people as its point of reference, rather than focusing exclusively on the security of territory or governments. Like other security concepts—national security, economic security, food security, it is about protection'.

This broad interpretation of human security is built on the basic notions that there are a wide range of threats that transcends locations and places, and can happen irrespective of where people are or their social status and background. Another reason is that threats to

human security are no longer isolated issues. Human security threats from man-made or natural disasters are easily reported and enjoy widespread global coverage and attention. Another notion is that human security threats are preventable if noticed early and proactive steps and actions are taken to prevent or mitigate the impact. When ignored, the impacts it leaves behind are far reaching and more damaging. Most importantly, human security is people centred and focuses on their existence and survival (Oche, 2010).

To further support this view, human security, as noted by Ogele (2020) is 'human centred in the sense that it focuses on people both as an individual and a group of individuals or communities, and it is security-oriented because its emphasis is on freedom from fear'. While there are still contentions amongst scholars regarding the conceptual meaning of human security, this paper agrees with Oche's (2010) broader categorization of human security in terms of economic security, food security, health security, personal security, community security, political security and environmental security. When viewed from the context of this paper, and the location and realities of the Niger Delta region, all these broad categorizations of human security fits into the analytical framework and clearly underscores the stark reality in the region.

To that end, economic security deals with economic sustenance and the assurance that comes with the availability of basic social goods, welfare and amenities. It also means that jobs and businesses are available and protected from unforeseen shocks and uncertainties. Sadly, in the case of the Niger Delta region, the notion of economic security is a day dream because these services are seemingly not available, and citizens are as good as independent and self-sustaining. The Niger Delta region is inundated with high rate of poverty and unemployment and government presence is not visible in the daily lives of the people.

Food security implies that people have access to food in the right mix, quantity, quality and at all times. It means that they are able to grow or buy their food and even the poorest members of the population can have access to food. The case of the Niger Delta region tells a tragic story because of the deleterious impacts of oil and gas exploration and exploitation on the environment of the region, and which has adversely impacted on food security in the area.

Health security talks about the quality, access and availability of basic healthcare to citizens. It also talks about the capacity of government to manage and prevent communicable diseases, public health emergencies and the general healthcare of the citizens. This cannot be claimed to be available in the Niger Delta region because of high level corruption and the failure of governance at levels. Personal security connotes the sense of safety from harm and self-assurance against threats such as murder, theft, violence and societal vices. But unfortunately, this is not obtainable because Nigeria is a very unsafe place, and the Niger Delta region, is amongst the places in Nigeria, where crime and insecurity is rampant. Communal security is the feeling of safety and protection derived from being part of

community, social group, ethnic affiliation and communal identity. Environmental security explains the core of the concerns of this study as it connects climate change with human security. Environmental security means the adverse effects from years of prolonged and unregulated exploitation of the environment and natural resources, particularly oil and gas exploration and exploitation, industrial activities associated with the oil and gas industry, and criminal theft and tampering with oil and gas installations that leads to oil spill, water and land pollution, destruction of marine ecosystem, lives and livelihoods.

Linkage between climate change and human security

Ogele (2020) and Dokubo (2010) has noted that the literature on human security is still contentious in its varied conceptualisations, and that security scholars are yet to agree on a conceptual definitions of human security, and how it is linked to climate change. But Dokubo (2010) has also rightly noted that with environmental security, it is clear that the link between climate change and human security can be interrogated. Brauch (2005) also supports this view, stating that, scholars in environmental change and peace research have used the concepts of environmental and human security and their linkages. As regarding the extent to which climate change constitutes a threat to human security, Oche (2010) has provided a clue, using various connotations of human security. And judging from other factors, the multifaceted and multidimensional nature and implications of climate change moves it away from a mere environmental phenomenon, to a global challenge confronting humanity; thus linking it to human security, with far reaching and deeper implications for the people of the Niger Delta region.

This paper argues that the link between climate change and human security is hinged on the fact that the environment is at the core of the discourse on the impacts of climate change to human security. The environment implies the land, water and air and every aspect of human existence connected to it. So for the context of this study, environmental security is the driving concern in the linkage between climate change and human security in the Niger Delta region. Thus the implication of climate change to human security is far reaching. Ogele (2020) has identified three issues as the key drivers that contribute to climate change in Rivers State, which is also located in the Niger Delta. They are: gas flaring, deforestation and artisanal refining. These three activities that contribute to climate change in turn impacts on human security in the areas of: increase in temperature, public health hazards such as infectious diseases and epidemics, food security, erosion, flooding, forced migration and displacements.

Similarly, Okon and Dube (2014) have identified environmental violence as major threats to human security and survival in the Niger Delta. They refer to environmental violence ‘as any hazardous or harmful practice which alters the original balance of the

environment and disrupt the natural functions of the ecosystem'. They also defined it as any unsustainable domestic or industrial activity which disrupts the natural livelihood support systems and constitutes survival hazards to mankind. Accordingly, Okon & Dube (2014) noted that in the Niger Delta region, oil industry activity has become the most harmful and unsustainable practice which has had a far-reaching impact on the environment, and threatened the survival of the people, especially women, children and the elderly, who depend mostly on the land and waters of the region for their livelihoods in fishing, farming and trading. Drawing their findings from field work and testimonies from communities in Akwa Ibom, Bayelsa, Delta and Rivers State, Okon & Dube (2014) identified Oil spillage, land degradation, water pollution, depletion in aquatic resources, destruction of mangroves and rainforests, gas flaring and noise pollution, seasonal flooding as the environmental consequences and impacts of unsustainable natural resource exploration and exploitation in the Niger Delta. They also pointed out some social consequences which include poverty, unemployment, communal conflicts and displacements, food crises and health hazards.

From the foregoing, it can be seen that human activities that leads to climate change contribute to threats to human security in the Niger Delta region. When viewed from a gender perspective of the social and human consequences, women are at the core of the suffering, displacement and dehumanisation of climate change induced flooding in the Niger Delta. Giving the displacement that comes from annual flooding in the region, a lot of young women have forcefully relocated to urban slums and ghettos in the outskirts of cities to start a new life without any meaningful and guaranteed livelihood. Many of them later resort to prostitution to make ends meet. There are a prevalence of brothels in places like Ebubu, Alesa, Oyigbo, Afam, Mbiama and Bonny in Rivers State, Yenagoa in Bayelsa State, Eket in Akwa Ibom State and Warri in Delta State. Young men also resort to crime where they could not secure a meaning source of living.

The challenges of climate change induced flooding and displacements cause serious human security problems in the Niger Delta region. Homeless families are left to roam from place to begging and looking for menial jobs to survive. Some people have been forced to migrate permanently to other places to begin a new life. Communities are stretched to their limits because of the pressures of starting over their lives every year due to the destruction of their homes and livelihoods. The environmental consequences of climate change therefore constitute major human survival and security changes to the Niger Delta region. With a growing population, but limited opportunities, the Delta appears to be sitting on a humanitarian time bomb in the coming years. As a threat multiplier, climate change triggers a lot of social, economic and environmental problems, and with growing depletion of natural resources, poor governance mechanisms and weak political institutions, it is clear that the link between climate change and human security is starker than ever. As Dokubo (2010) has pointed out, societies are using up resources faster than

they can be replenished. So this paper reckons that as Niger Delta populations grow and people have nothing to depend on, the link between climate change and human security in the context of environmental disasters such as flooding may probably prove Thomas Malthus right.

Theoretical framework

Human security concerns with natural disasters such as flooding weighs in heavy when they occur, especially when questions about human rights of the victims and government actions and responsibility towards them are posed. This is because natural disasters such as flooding raises serious concerns in terms of the environmental, health, economic, security and survival of the people, and the common questions easily asked is what is the responsibility of government towards the victims, as well as the rights and expectations of the victims from the government. This scenario quickly poses a human rights and state responsibility challenge because it put government on the hot sit of expectations of statutory and political responsibility to undertake its constitutional duty towards citizens, and also raises demand from citizens to the government for social services and emergency response to save the lives and properties of the victims. As Allen and Dube (2013) have noted, the social conditions in which citizens find themselves during natural disasters can tell whether or not governments hold sacrosanct their responsibility towards citizens in regard to recognizing, protecting and promoting their human rights.

This therefore triggers some questions as to what are the appropriate theoretical interpretations for investigating issues of human security during natural disasters. Drabek (2004, 2007) has noted that there are compelling theories which explains how government and non-governmental actors manage and respond to natural disasters. The social construction theory by Stallings (1995, 1997) and expanded by Kreps and Drabek (1996) helps to provide explanation on how hazards and natural disasters are framed as social problems. Dynes (1970), Kreps & Bosworth (2006) proposed the structural-functional theory which expands the knowledge of response patterns to natural disasters by organisations and groups. Similarly, the social vulnerability theory advanced by Bolin (2006) places natural disasters in their social, political and economic contexts, which helps to clarify the degree of difference in exposure of groups to dangers facilitated by social factors such as class, gender and race. Prince's (1920) perspective on the relationship between disasters and social change, submitting that social change can be an essential component of disaster experience. Other scholars have also taken the same route by building on this idea, arguing that disasters indeed offer opportunities for learning what is capable of facilitating change (Anderson, 1969). Issues of human rights have also been advanced by Aginam (2009) to help provide understanding and insight on state responsibility to citizens during natural

disasters. But this has been viewed as less popular because of its susceptibility to fraud, corruption, ideological considerations and national interest. However, human rights considerations are still very important because it is derived from the United Nations' Universal Declaration of Human Rights which states that:

> Everyone has the right to a standard of living adequate for the health and wellbeing of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control (UN, 1948).

Issues around state failure can also be useful in evaluating state responsibility and capacity to respond to natural disasters. Government at all levels have a responsibility to protect citizens and to deliver social services to them. The responsiveness of government towards natural disasters can provide a litmus test to its level of responsibility and capacity to protect flood victims. Government loses legitimacy if it fails in its statutory responsibility towards citizens, especially during times of crises. In the case, of the 2020 floods in the Niger Delta, the failed states perspective provides a clear picture of the weakness and lack of responsibility of government to protect to protect and deliver services to its citizens.

Flood preparedness and government response

The 2020 floods in the Niger Delta did not come as a surprise. Just like previous years, the states and federal governments were forewarned that there will be flooding across various states, and it might be worse. The Nigeria Hydrological Service Agency (NIHSA) had warned that Nigeria will experience more rainfalls in 2020, and that flooding might be worse if excess waters from the dams upstream Rivers Benue and Niger were released. It then warned states and the federal government to be prepared and take necessary steps to avert the impact of the flood. The Nigeria Hydrological Service Agency particularly stated that poor drainage systems might cause flash and urban floods across major cities in Nigeria, and therefore advised states, federal government and all relevant agencies to clear drainages and dredge river channels to prevent the adverse effects of the floods. It also warned communities in coastal areas and along river banks to move to safer areas because the rains will be severe in the months of September and October (Akowe, 2020).

The Nigeria Meteorological Agency (NIMET) also added to this warning in its Seasonal Rainfall Prediction (SRP) that severe flooding will occur in the various parts of the country as a result of torrential rainfall in the months of September and October (Akowe, 2020; NIMET, 2020). However, neither states nor federal government heeded this warning or did the needful until the rains came. What seems to have been the biggest

obsession of States and Federal Governments in Nigeria was containing the COVID-19 pandemic which of course, many Nigerians complained that the government did not provide any support or palliative to them during the period of the national lockdown. It was even clear from the looting spree that followed the nationwide ENDSARS protests in September that most of the claims states and the federal government made about the provision of material and financial palliatives during the lockdown were not true, because of discoveries from food warehouses which were looted by the aggrieved citizens. Moreover, the heavy rains started after the relaxation of the lockdown when citizens have started going about their economic activities and businesses, and the pressure of the pandemic was no longer severe. So government should not have had any excuses to prepare against the floods. But unfortunately, Niger Delta States and the federal government did not take the precautions seriously, or else, the damages and suffering that occurred would have been prevented.

Government social support and protection for flood victims

The evidence on ground across the Niger Delta region shows that neither the states nor the Federal governments came to the rescue of flood victims. And if at all anything was done, it was not significant to cushion the impact of the flood, or it was business as usual for government officials and heads of relevant agencies that capitalise on emergency situations to enrich themselves with monies and materials meant for humanitarian reliefs. This is important to note because of experience with the management of the COVID-19 pandemic and how it impacted Nigerians, particularly communities in the Niger Delta region.

Unlike in 2012 when there was evidence of governmental actions across all the Niger Delta states, in 2020 there was no sign of government commitment to provide support for flood victims. If anything was done, it was in the media, where State Governors easily made statements and issue directives to relevant officials to take necessary actions without any concrete evidence of real action. Visits to flood impacted communities show that there was no emergency management system put in place to support the victims[1]. There was also no official coordination channels established between the government and relevant agencies like the Red Cross, National Emergency Management Agency (NEMA), civil society and international development and humanitarian organisations[2]. In fact, it seems that State Governments did not even engage with civil society or humanitarian agencies

1 We visited flood impacted communities along the east-west road axis from Mbiama in Rivers State to Patani in Delta State.

2 Conversations with CSOs in Port Harcourt, Yenagoa and Warri reveals that no concrete action was put in place by the respective state governments to provide emergency response and relief for the flood victims.

about its flood emergency management plan, if there was any. Communities complained that government have abandoned them and there was nobody coming to their aid[3].

The failure of government to provide social goods and services to citizens easily manifests during emergency situations, be it natural or man-made disasters in Nigeria. This was evident from the national emergency management of the COVID-19 pandemic when the Minister of Humanitarian Affairs claimed that the Federal Government spent over half a billion Naira in feeding school pupils under the Home Grown School Feeding Programme of the Federal during the COVID-19 pandemic; precisely during the national lockdown. Other claims of disbursement of monies to twenty thousand Nigerians were also made. This made Nigerians cry foul over social media that these claims were not true. To make matters worse, the office of the Accountant General of the Federal caught fire during the COVID-19 national lockdown. Days after the incident, the Minister of Finance claimed that the Ministry did not lose any money from the fire incident. But when she was asked by the National Assembly to provide the list of Nigerians who have benefited from the financial nationwide disbursements, she told the committee that the information were part of the documents that were destroyed during the fire incident that engulfed the office of the Accountant-General. This was followed with horrific revelations of massive corruption in the Niger Delta Development Commission (NDDC) during public hearings at the National Assembly, when claims and counter claims of corruption were made by serving and former officers of the commission against each other. The most glaring moment of the NDDC saga came when the acting Managing Director, Prof. Pondei, pretended to have fainted during questioning at the National Public hearing. That was the end of the public hearing for the Commission.

In reality, Niger Delta States and the Federal Government seems to have been overwhelmed by the COVID-19 pandemic that it could not dispense its statutory duties to citizens affected the floods. There was no evidence of relief packages or emergency shelters provided for victims of the flood. Communities were left alone to take care of themselves while the floods ravaged their lives and livelihoods. They lost their houses, farms, businesses, churches, schools and health centre. But Government did nothing to alleviate their plights. Rather, Government continued to claim that it was providing support to citizens to prevent the COVID-19 pandemic or it has directed relevant agencies to action against the floods. And from the massive revelations of fraud at the NDDC and other Government agencies, corruption seems to have taken the better part of governance rather than the provision of social support services to victims of natural disasters.

3 Interview with Isaac Osuoka in Port Harcourt, 17/11/2020.

Community mobilization of social capital and support systems

In the wake of Government failure to provide emergency relief and social support to victims of flooding across the Niger Delta, flood affected communities have resorted to the provision of self-help to aid their own and cushion the effect of the impact of the flooding on their people. Community social support is a continuous part of communal goodwill and social capital that fosters community harmony and strengthens social bonding. Communities ravaged by the flood provided material support to victims of the flood in the wake of government failure to send emergency relief and support services. This ranged from food, clothing and health supplies. Families and friends of victims resident in urban centres accommodated their own and helped them to resettle[4]. In the Engenni and Ekpeye[5] areas of Ahoada-West Local Government Area of Rivers State, community groups-women, social cultural clubs, churches, wealthy individuals and families, aided their own with relief materials[6]. Those staying in cities and urban centres like Port Harcourt relocated their family members and friends to the city and took care of them[7]. One of the respondents even claimed that he has started plans to build a house for his elder brother in Port Harcourt, because from the way the flood was occurring annually, there was no hope that their community can continue to cope with it. He noted sadly that he has given up on going to his community because there was no hope that they will be able to cope with the continuous flooding[8].

This narrative of lack of government support to victims of natural disasters connects deeper with the failure of governance at levels in the Niger Delta and the rest of Nigeria. But also reveals a compelling story of how communities have organised to support themselves through difficult times. Earlier on during the pandemic, findings from a policy research conducted by Spaces for Change and Kebetkache Women Development Centre (2020) on the impact of the impact of the COVID-19 pandemic on Niger Delta communities, and the coping mechanisms of vulnerable groups like women, children and the elderly, reveals that against the background of government claims of providing palliatives to citizens, it was actually individuals, social groups and churches in those communities that were providing social support and palliatives to their people. Government aid was nowhere in sight[9].

This development gives a good picture of the nature of life in Niger Delta communities and how they have continued to stand with each one another during trying times. Findings

4 Interviews with Lordman Oronisowa in Mibiama, Ahoada West LGA, Rivers State, 17/11/2020.
5 Interviews with flood victims from the Ekpeye area of Ahoada West, 18/11/2020.
6 Interviews with flood victims at Mbiama, Ahoada West Local Government Area, Rivers State, 18/11/2020.
7 Interview with Dr. Fidelis Allen in Port Harcourt, 20/11/2020.
8 Interview with a relative of flood victim in Port Harcourt, 22/11/2020.
9 Niger Delta community women activists also confirmed this situation to the researchers during conversations at Kebet-Kache office in Port Harcourt, 25/11/2020.

also show that people in the communities trust their brothers and sisters, friends, relations and church members than the government[10]. And in the face of any crisis, they easily look up to their kit and kin than to expect any support from government. It is to this end, that people converge during moments like funerals in the communities to mourn and comfort each other because of the common bonds they share, and are united to stand by each other during periods of pain and crises. In fact people who fail to attend burials in their villages are viewed with disdain and sometimes get sanctioned[11]. It also explains why people can be away during the whole year, but must go home for Christmas and the New Year celebrations to reconnect with their friends and families because that is where they find love, acceptance and support during times of difficulties. Hence social capital in communities have continued to be rallying point for support to their own during difficult times when government is not available to help them[12].

Conclusion

This research has provided a connection between climate change and human security through linking it with the environmental dangers posed by climate change to the Niger Delta, such as a flooding. It also revealed that the reliance of flood affected communities on community social capital helped to build community resilience against the ravaging effects of the flooding in the Niger Delta region. In a country where government has long abdicated its constitutional duties to citizens, social support from families, friends, churches, age grades and other social affiliations are the channels from which people receive help in times of crises. And in the case of the 2020 floods across the Niger Delta, social capital was effectively mobilized and utilized to provide needed emergency relief and social support in communities. In that sense, social capital had become an effective tool in communities against the failure of government to do its duties to citizens. These become a rallying point for building community resilience against the flood and to also provide emotional, material and psychological support to victims of the flood. To be sure, social capital in communities is not new. It has always been there, but it has not been effectively studied to bring out its beneficial impacts to people, particularly during natural disasters.

We therefore posit that in the face of looming dangers posed by climate change and its environmental impacts on human security, such as flooding, government should be

10 Respondents in communities visited told the researchers that they prefer to look up to their families, friends and community folks than to expect any help from the government because government is not trustworthy.
11 Respondents shared this sentiment in all the communities during the interviews.
12 Respondents claim that cities are where they go to struggle and make wealth, but their communities are where they belong and bond with their families, friends and loved ones.

proactive in responding to scientific information on the dangers posed by climate change in putting in place adequate mitigation measures and the necessary environmental infrastructure that will strengthen environmental resilience and salvage the Niger Delta from the negative impacts of climate change.

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Role of Traditional Institutions in Management of Land and Boundary Disputes in Nigeria

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Abstract. Over the years, a number of problems have been encountered in the land and boundary disputes in Nigeria. Proffered solutions by governments have focused on formal system of conflicts resolution through promulgation of laws to govern land management, rather than the traditional methods that paved ways for a significant feature of people which commanded a large degree of loyalty and respect in the area of disputes resolution. It's against this backdrop that this paper examines the role of traditional institutions in management of land and boundary disputes in Nigeria and to investigate how effective is this approach in the modern-day administration. The paper is theoretical in nature using content analysis. The paper argued that the present approach of land and boundary disputes management system is not a custodian of traditional subjects; rather it has substantially remained the relic of British Colony, where no one would easily forgive another for dragging the other to the court on land and boundary disputes. The paper discovered that, traditional ways of settling disputes enhances quick and affordable administration justice which is cost effective than the modern-day methods. However, the paper advocates for traditional methods of management and settlement of land and boundary disputes rather than imposing the formal state legal system.

Keywords: traditional institution, land and boundary, disputes, management, resolution.

Introduction

West Africa countries have recorded a number of land and boundaries disputes over the years, some which began since pre- colonial and some post- colonial. Many of these disputes have reoccurred severally and they have continued to threaten the social economic and political development of African nation (Asiwaju, 1984; UNESCO, 2001; Joshua, 2013).

Traditional rulers in Africa, most especially in pre-colonial Nigeria, were able to intervene to settle and mediate communal conflicts as well violent border hostilities, which helped to maintain a semblance of order and stability in an otherwise hostile environment created by social relations (Fatile, 2013). For instance, among the farming communities in the North, there is a hierarchy of village elders, ward heads, village and district heads who can be called upon to resolve disputes. If the damage is serious, then a more senior leader is called upon to resolve it. In kingdoms like Oyo, Bini, and Fulani emirates, the traditional rulers were the repository of authority and rules (Thomas, 1992). By and large, their domineering roles became weakened with the influence of colonial rule in the 19th century (Adamolekun, 1988). Thus, the status of traditional rulers changed with the advent of colonial rule, as the colonialists imposed their hegemony on the rulers, usurped

their sovereign authority (Gbenda, 2012). The development was meant to perfect their exploitation and domination of the colony for their own gain.

Land and boundary disputes are important drivers of local-level tensions in African countries (Osakede & Ijimakinwa, 2019). Local institutional configurations have been found to be essential in determining where scarcity and distributional conflicts result in actual insecurity and violence (Akanle, 2009). Notably, so-called "traditional institutions" have received much attention in this regard. Traditional modes of conflict resolution are viewed by many as particularly effective in settling land and boundary disputes because they draw strength from high levels of traditional legitimacy and due to their specific restorative, consensus-based character (Fatile, 2011). Consequently, where they have "survived," they are deemed to be particularly well placed to prevent the escalation of resource-related communal strife (Nweke, 2012). It has been observed that Africa have lived in hostility and coexistence for years and their conflicts have just recently picked up intolerable proportions due to the proliferation of modern weapons (Oyeniyi, 2010).

Various lands and boundaries disputes caused by different issues attracted various mechanisms to their resolution. Most land and boundary disputes management approach prior to colonial administration were predominantly local intervention (Faure, 2000). The disputes were between individuals, villages, communities and tribes who lived in the same or adjoining areas. Those who intervened were often local people who were elders and/or tribal leaders in the community (Aja, 2007). The Nigerian experience, like other nation-states, may be described as one of continuous encounter with land and boundary problems. The Precolonial boundary issues had one unique characteristic in nature: it was inter communal in nature and ensued in the course of disagreement between two or more groups exerting certain notable (minor) differences (Fatile, 2011).

Prior to the establishment of formal legal system, land and boundary disputes were traditionally resolved by village elders by way of mediation aimed at amicable settlement of such disputes (Njoku, 2011). This system was quick, cheap and did not breed bad blood (Joshua, 2013; Fatile, 2013). The British colonial system tampered with this tradition, but still retained the elders, district heads and traditional rulers of all grades, as operators of these legal systems (courts), Performance was undoubtedly appreciated (Olaniran & Arigu, 2013). The role of traditional institutions in disputes resolution and management of land and boundary is imperative for modern day administration system. Asiyanbola (2010) averred that, traditional institutions are the custodians of local traditions, norms and customs and they have gained their authoritative influence through wisdom and experience.

Despite the significance contributions of traditional institutions in pre-colonial and colonial administration in disputes resolution, little is known about the factors that have allowed them to remains particularly strong in the historical, political, and cultural

centers of the local community level of governance. The current patterns of state presence and capacity, however, are very weak predictors of the persistence of the Nigeria state. The question is, should this be replaced by traditional institutions in keeping with a modernizing state? Do unelected traditional authorities still have significance role to play in modern day administration? Placing these in a theoretical framework, we recognize the values attached to traditional institutions and the roles the custodians play in land/ border management, drawing conceptual models for enhancing effective management of disputes through traditional rulers.

Conceptual and theoretical explanations

African traditional societies has been adjudged as a well-organized, structured and well established systems of administration where public order was provided and maintained; where policies were made and implemented; were inter communal and intertribal disputes were being managed and settled (Imobighe, 1993; Asiyanbola, 2009; Makinde, 2014). Traditional institutions have also been recognized as a significant feature of norms, value, and custom of the people and commanded a large degree of loyalty and respect among them (Nweke, 2012).

The traditional ruler is the paramount authority or natural ruler in any given community (Aja, 2007). In some cases, he is the spiritual leader and custodian of all traditions of his subjects (Fabiyi *et al*., 2012). It also knows as the "father" of the entire inhabitants within the community (Akinwale, 2011). Traditional rulers can also be described as individuals or groups of individuals who occupy communal political leaderships sanctioned by immorality and are, through the consent of community members, granted authority and legitimacy to direct the affairs of particular ethno-cultural or linguistic groups in an ordered manner (Adamolekun, 1988, p. 11).

It can also be described as an individuals who occupying communal political leadership positions, sanctioned by cultural, moral and values, and enjoying legitimacy of the particular community to direct their affairs (Adewunmi & Egwurube, 1985, p. 56). According to them, the basis on legitimacy is tradition, which includes the whole range of inherited culture and way of life; a people of history, moral and social values and the traditional institutions which survive to serve those values; traditional religious ideas surviving as autonomous religions in their own right.

Conflict or dispute can be defined as a relationship between two or more parties who believe they have incompatible goals. Conflict connotes a clash, confrontation, battle, or struggle (Adejuyigbe, 1975). It can also been seen as a sharp disagreement or clash between divergent ideas, interests or people and nations (Njoku, 2011). Conflict is an attendant

feature of human interaction and cannot be eliminated. However, Fatile & Adejuwon (2011) averred that, the proper management and transformation is essential for peace and progress in human society. Conflict results from human interaction, in the context of incompatible ends and where one's ability to satisfy needs or ends depends on the choices, decisions and behavior of others (Adejuwon & Okewale, 2009; Asiyanbola, 2010). It is thus possible to argue that conflict is endemic to human relationships and societies. It is the result of interaction among people, an unavoidable concomitance of choices and decisions and an expression of the basic fact of human interdependence. In the same vein, conflict is a condition of disharmony or hostility within human interaction process, which is usually leads to the product of clash of interests by the parties involved (Adewunmi & Egwurube, 1985). It is an expressed struggle between interdependent parties who perceive incompatible goals, scarce resource, and interference from the other in achieving their goals (Faure, 2002).

The concept of land and boundary disputes occur when there is no clearly and structurally agreement between adjacent units as to the limit of their territories or when the people in an area are not grouped in the political unit they would like to join (Fatile, 2013). Land and boundary disputes normally refer to a condition in which one identifiable tribal, ethnic, linguistic, cultural, socioeconomic or political group of is engaged in conscious opposition over a territorial boundary, because these groups are pursuing what appear to be compatible goals (Tuladhar, 2004). It can also be described as a struggle among the racial, tribal or language groups over values and claims to land or scarce resources in which aims of the opponents are to neutralize, injure or eliminate rivals (Oladosu, 1985).

Land disputes in Nigeria are predominantly between individuals, often over boundaries, proprietorship, and occasionally over inheritance rights. These disputes tend to occur between family members, that is, between family heads and other individual members of the family over land dispositions; between family members over inheritance rights; and between different family heads over original boundaries between their lands (Olanira & Arigu, 2013).

Theoretical underpinnings

There two different kinds of boundary, the natural and the artificial boundaries. Natural boundaries feature like rivers, lakes, mountain ranges, or to existing ethno-cultural and political groupings. Thus, natural boundaries are boundaries which follow natural physical features like rivers, lake, mountain ranges, or which separate homogenous territories or communities (Imobighe, 1993).

Artificial boundaries have no regard for existing ethno-cultural or political groupings and loyalties. Not only that, artificial boundaries are usually drawn to follow the lines

of latitude and longitude (Borg, 1992). According to Asiwaju (1984), international boundaries in African states and the internal boundaries of some African societies have a touch of artificiality and arbitrariness. He noted that these boundaries were drawn by British Colonial without taking cognizance of the topography of the continent.

Thus, Nigeria's internal boundaries were not based on any deliberate plan meant to conform to natural features or the existing ethno-cultural composition of the various communities divided by boundary line (Akinwale, 2011). No wonder, Imobighe (1993) notes that the administrative units created after the Europeans' departure, on which some of today's boundaries were based, did not fare better in terms of conformity with natural features or the existing ethno-cultural or political groupings and loyalties. This has been responsible for several inter- and intrastate conflicts among the component units of the federation.

Therefore, this paper anchored on classical and revisionist theories. The theories were propounded by De Bono (1985). The classical theory of boundary emphasizes the protective instinct of human beings in relation to their territorial space. The theory posits that human communities are pushed into territorial protectionism to be able to benefit maximally from the resources derived from the relevant portion of the territory. A boundary attitude governed by this theory is likely to encourage sustenance of territorial division or separation (Fatile 2011).

Closely related to the classical theory is the notion of territorial exclusiveness. It is very common in some international boundaries and much more pronounced in states without religious, ideological or ethno-cultural affiliations and where the relations between the affected states are marked by frequent hostilities (Adamolekun, 1988). In such cases, boundaries are meant to serve as control mechanism to ward off intruders and protect life and property (Vasquel & Henetien, 2001). These affected communities usually see their boundary zones as threatened regions which, if not properly fortified, stand the risk of violation both from within and without (Ogbeide & Fatile, 1998). Although the notion of territorial exclusiveness is not so pronounced within internal boundaries, this is not to say that it does not exist (Imobighe, 1993). In fact, the country's internal boundaries seem to be increasingly dominated by the notion of exclusives. This is so because statism is extolled at the expense of patriotism and national consciousness (Imobighe, 1993). There is no doubt that in Nigeria today, boundary questions have become extremely sensitive while inter- and intrastate disputes arising from them are becoming increasingly violent.

The revisionist theory is otherwise known as the "bridge" concept of a boundary (Akpuru-Aja, 2009). Unlike the classical theory, the revisionist emphasizes the concepts of contact and link, rather than separation, as the main function of a boundary (De Bono, 1985). This theory has won a large number of adherents among scholars in Europe, Africa, and North America (Ben-Yahuda, 2004). According to Ogbeide & Fatile (1998), the purpose of

boundary management, the revisionist theory must be preferred because it de-emphasizes the notion of territorial exclusiveness.

The theory seeks to reconcile the nation-state imperative of territorial exclusiveness with the present-day realities of growing interdependence among nation-states and communal entities (Imobighe, 1993). The application of the bridge concept to internal boundary management will enable us see local borderlines not as contrivances meant to keep the affected communities apart, but rather for administrative convenience (Fatile, 2011). Thus, boundaries, rather than being seen as barriers or barricades, are supposed to be bridges through management activities that foster meaningful socioeconomic and political integration among the three tiers of government.

Managing land and boundary disputes in Nigeria

It has been observed that conflict resolution cannot be left alone. It needs to be put under control by interacting with the parties involved so as to develop common generalizations or principles and practices that will enhance smooth and cordial relationship against violence. Conflict resolution helps parties develop common norms, rules and regulations on utterances, attitude, actions and aspirations for peace to reign, rather than for violence to reign (Akpuru-Aja 2009).

In Nigeria for instance, Boundaries cut across ethnic grouping, cultures and families. Boundary questions also involve the management of resources of land, minerals, water and forest, as well as the whole pattern of economic and socio-cultural relationship between the different communities along these boundaries (Boege, 2004). Often, border and communal dispute concern land for farming or grazing. A revenue—generating border area may trigger border dispute if the two parties lay claim to its ownership. For instance, the availability of timber and wild rubber from the thick forests of Ikale/Ondo led to disputes. In the same vein, the old Obokun (now Oriade) local government area of Osun state, went ahead to collect taxes and other levies from Owena villages, believed to be Ondo state. Not only that, their cocoa farms were raided and farm crops seized (Anifowose, 1993).

The conflicting parties can directly engage in negotiations on conflict-termination and in the search for a solution, or a third party can be invited to mediate; in any case, the process is public and participation in the process and approval of results is voluntary. It is carried out by social groups in the interest of extended families, clans, village communities, tribes, brotherhoods (Ogbeide & Olatunji, 2014).

Land and boundary disputes transformation: The traditional management approach

Traditional approaches vary considerably from society to society; for instance, there are as many different traditional approaches to conflict transformation in Nigeria as there are different societies and communities with a specific history, a specific culture and specific customs (Dougherty & Pfaltzgraff, 2004).

There is no one single general concept of "traditional conflict transformation." Rather, traditional approaches are always con-text-specific (Fatile, 2013). This contextual embeddedness in itself is a decisive feature of traditional approaches. This marks an important difference between traditional and modern approaches, the latter aiming at universal applicability. In principle, traditional approaches are specific, not universally applicable (Boege, 2008).

From a traditional point of view, boundary conflict is perceived as an unwelcome disturbance of the relationships within the community (Faure, 2000). Hence, traditional conflict-transformation aims at the restoration of order and harmony of the community. Cooperation between conflict parties in the future has to be guaranteed. Traditional conflict management is thus geared toward the future. Consequently, the issue at stake is not punishment of perpetrators for deeds done in the past, but restitution as a basis for reconciliation. Reconciliation is necessary for restoration of social harmony of the community in general, and of social relationships between conflict parties in particular. The aim is not to punish, an action which would be viewed as harming the group a second time. Re-establishing harmony implies reintegrating the deviant members. The ultimate matter is restoring good relations (Faure, 2000).

This is why traditional approaches in general follow the line of restorative justice instead of Western-style punitive justice (Boege, 2008). Restorative justice has to be understood "as a compensation for loss, not as a retribution for offense" (Zartman, 2000, p. 53). The ultimate aim of traditional conflict transformation is the restoration of relationships.

Traditional approaches cannot be compartmentalized into "political" or "juridical" or "other"; rather, they are holistic, comprising also social, economic, cultural and religious-spiritual dimensions (Walter, 2004). This is in accordance with the entirety of traditional lifestyles and worldviews in which the different spheres of societal life are hardly separated. The conflicting parties can directly engage in negotiations on termination and in the search for a solution, or a third party can be invited to mediate; in any case, the process is public, and participation in the process and approval of results is voluntary.

Cases of land and boundary disputes in Nigeria

The prevalence border and communal conflicts in Nigeria have become theatres of inter and intrastate disputes, some of which have erupted into violence. People have been killed and properties have been destroyed (Adejuwon & Okewale, 2009). The recent disturbances over land dispute between the Ikale/Ilaje of Ondo state and the Ijebu Waterside of Ogun state, in which villages were sacked, is traced to border clashes (Osakede & Ijimakinwa, 2019). In January 2006, more than ten persons were feared killed and about 150 houses razed following a clash between residents of Ebom and Ibjenka in Abi local government of the Cross River. The two communities were at war over the ownership of the land where a health clinic is said to have been located (Nweke, 2012). A similar incident was reported in Bakatari area, among the border communities in Odeda local government area of Ogun state and Ido local government area of Oyo state during the population and housing census in 2006 where many lives and properties lost due to land disputes (Makinde, 2014).

Another clash was reported between Osun and Ondo in April 2017, involving Alarere–Bolorunduro village in Atakumosa east local government and Ramonu–Aiyetoro village in Oke-Igbo, along Osun/Ondo boundary area, where more than eleven people lost their lives and properties worth millions of naira destroyed (Ogbeide & Fatile, 1998). Also, at least four persons were feared dead following a communal/land conflict that rocked Obufi and Ube communities in Okobo local government area of Akwa Ibom. The crisis, which erupted in the area on August 19, 2011, led to the destruction of properties worth millions of naira in the two communities, in addition to the lives lost, began as a result of lingering land dispute between the two communities (Fatile, 2013).

In the same vein, Ile-Ife and Modakeke are two neighboring communities in the present Osun state. These two communities are so close together that it is said to be difficult or even impossible to delimit a clear-cut boundary between them. Despite this closeness, both communities have a long and surprising history of mutual antipathy and spasmodic crises and violence (Ayowole, 2016). Boundary issue in Nigeria today is treated as a matter of life and death; many have died and many are still ready to lay down their lives for what they consider their legacies.

There is need to draw attention to the seemingly contentious conception of the role of traditional rulers in the mediation of boundary and communal conflicts in Nigeria. If we are correct in making assumptions that the ultimate goal of political authority is the preservation of peace, which would be disrupted by violent conflicts occasioned by border and communal conflicts, the question then becomes, what roles does the traditional ruler play in the restoration of peace once violent conflict breaks out between families and neighboring communities, most especially along the border lines?

The role of traditional rulers in the resolution of communal and boundary conflicts in Nigeria is crucial. They play the most significant role in managing conflict informally and arranging peacemaking meetings when matters get out of hand. They are more accountable and responsible than any other institution and are the only authorities on hand enough to take preventive action (Obah-Akpowogbaha, 2013). However, their power in the community is highly variable and respected. Unlike a Western mediator who will begin the exploration by retracing the steps of the parties to the point of initial conflict, an experienced traditional ruler will consider the social realities, and start from the vintage point further back and try to form a frame of social reference (Asiyanbola, 2010). The rulers may ask questions as: "Who are you, and where are you from?" "Explain your family link, where did you grow up?" "What do you like doing?" among such other preliminary queries. They may provide clues, not only about immediate cause, but will reveal long-standing grievances and thus offer a wider and deeper insight into the differences and similarities between the parties (Ayowole, 2016).

The traditional rulers are the custodians of local traditions and customs and they have gained their authoritative influence through wisdom and experience (Ogbeide & Fatile, 1998). Traditional rulers have traditionally had an important role in border and communal conflict resolution. For instance, the recent land and boundary dispute between Awa-Ijebu and Alaporu in Ogun where the traditional elders revealed that the issue has been reported to Ijebu traditional council, headed by the Awujale, Oba SikiruAdetona, which constituted a committee to look into the matter. He stated that the committee had visited the two communities, to look at the boundary (Fatile, 2013).

Benefits of traditional institution approach to land and boundary disputes resolution

The traditional rulers are the paramount authority or natural ruler in any given community (Aja, 2007). In some cases, he is the spiritual leader and custodian of all traditions of his subjects (Fabiyi *et al*., 2012). Traditional approaches in disputes resolution is the best strategies in situations where a state is in fragility or collapse. As many of today's large-scale violent land and boundary disputes, where the state is absent or a relatively weak actor amidst a host of other actors, nonstate-centric forms of control of violence and regulation of conflict have to be drawn upon. In fact, a renaissance of traditional approaches to land and boundary disputes transformation can be observed, particularly in conditions of state failure and state collapse (Akanle, 2009). In view of the absence of the modern state-based institutions and mechanisms for the control of violence and regulation of conflict, people take recourse to pre-state customary ways. Furthermore, it can also contribute to the termination of violence and sustainable peace-building,

from the local to the national level, as peace-building in Somaliland and in Bougainville demonstrate (Boege, 2008).

Traditional institutions approaches for dispute resolution are not state-centric and because of that they are credited with legitimacy by the communities in which they are sought (Ogunnira, 2006). They can be pursued without recurrence to the task of state- and nation-building. Instead of trying to impose Western legal system of state and nation on societies to which these systems are alien, one can draw upon existing indigenous forms of control of violence and conflict transformation which have proven their efficiency. Traditional institution approaches enhances disputes resolution and peace-building possible and at the same time circumvent or postpone state-building (Gbenda, 2012).

In the same vein, traditional institution approaches are process-oriented and take the time factor into due account (Akanji, 2012). One has to keep in mind that the acknowledgment of different concepts of time, depending on cultural contexts, is of major significance for success or failure of peace-building processes. Traditional conflict management mechanisms tend to be process-oriented, not product-oriented; that is, they focus on managing rather than resolving conflict. In this sense, they are somewhat more realistic than standard international diplomacy, with its emphasis on peace treaties that definitely end a dispute (Makinde, 2004).This approach to conflict management, particularly the tendency to begin renegotiating freshly-minted accords, fits poorly with international diplomatic timetables and approaches.

Also, traditional approaches provide for inclusion and participation (Ayowole, 2016). In the same way as all parties (and every member of each party) are responsible for boundary conflict, everybody also has to take responsibility for its solution. A solution can only be achieved by consensus. To pursue an inclusive participatory approach at all levels of the conflict is extremely complex and time consuming, but has greater chances of success than approaches that are confined to the "leaders" of conflict parties (Akinwale, 2011).

Finally, traditional institution approaches focus on the psychosocial and spiritual dimension of violent in land and boundary disputes and their transformation (Thomas, 1992). This dimension tends to be underestimated by actors who are brought up and think in the context of Western enlightenment. Land and Boundary disputes resolution and peacebuilding is not only about negotiations, political solutions and material reconstruction, but also about reconciliation, mental and spiritual healing. Traditional approaches have a lot to offer in this regard. They do not only deal with material issues, reason and talk, but also with the spiritual world, feelings and nonverbal communication (Ben-Yahuda, 2004).

Challenges facing traditional institutions in Nigeria

The traditional rulers, by virtue of being in existence for long, and their being on the throne indefinitely has given their subjects confidence, assurance, reliability and continuity (Osakede & Ijimakinwa, 2019). They serve as permanent pillars of their existence. Their powers even though seem to be in abstracts form, are still strong and enduring. In fact, it is believed that failure to adhere to advice given by traditional rulers can spell doom on whoever rejects their advice.

The creation of additional District and Village Heads has given high credence and premium to the duties of traditional rulers as land cases are being disposed of faster and easier (Olayiwola & Okorie, 2010). Access by the community to the authority has become easier. Fewer cases are reported at a higher authority. Because appointment of Village Heads is done democratically by election, popular candidate usually emerged and loyalty to his authority and view are respected.

It is worthy of note that majority of the current traditional rulers in Nigeria are well educated and experienced in administration. Many of them have attained high position in government and even retired as judges of supreme courts, military generals, Inspector General of Police, ministers, Permanent Secretaries, Governors, and Professors amongst them (Akanji, 2012). The experiences they acquire during their active years in services have placed them at a very good advantage as traditional rulers. The methods of conflict resolution employed by the traditional rulers are more cost effective than conventional ones used in the law courts.

Though the traditional rulers have prominent roles in land and boundary disputes resolution, they have not been given a constitutional relevance or recognition to effectively and decisively act on land matters. Lack of adequate training in the area of survey and map hinders them from effectively from discharging their duties. There are no adequate map and survey data in their offices and at their local governments offices that will enable them record and maintain land transactions. Lack of capacity building in the areas of human and materials records and maintain such services which land conflict resolutions require on a continuing basis. Also, lack of constitutional recognition to supports and give legal backing in the discharge of their duties.

Many land transactions are not recorded and where the documentations exist they are usually vague and ambiguous (Fatile & Adejuwon, 2009). This certainly leads to litigation and end up being a boundary issue depending on the location and the parties involved. The rigors of arriving at a solution to boundary issues through conventional method are very hectic, long and cumbersome, this has made many land and boundary issues difficult to resolve.

Conclusion

There is no doubt that traditional rulers are very crucial important in any traditional setting. They play a very significant role in managing conflict and arranging peacemaking in the community when matters get out of hand. However, their power in the community is highly variable and in some areas they are opposed by the people, while elsewhere their power is subverted by the central and local government officials. Nonetheless, traditional rulers are more accountable and responsible than any other institutions, but they get little support from government official especially the state government.

Efficient and effective management of conflicts is fundamental to the development of any society. It is imperative to note that in Nigeria the present legal system of dispute resolution has substantially remained the relic of British colonial (Joshua, 2013). No one would easily forgive another for dragging the other to the court. Many believe that some of our inherited procedural ways of settling disputes must be revisited if we desire quick and affordable administration of justice. Traditional rulers of today can effectively be engaged to assist in sanitizing delay in the administration of justice by amending the Constitution to give them powers to resolve minor disputes.

Recommendations

The present land and border dispute management system in Nigeria, it can be seen that very little has been done to involve local people and enhance their capacity in management of customary lands. To build and enhance local capacity, we need to understand the roles of traditional rulers in the chain of land disputes so as to place land administration in a stronger position, Traditional rulers possess accurate local knowledge going back many years and may also have good networks of communication with the grassroots through titleholders. His political neutrality helps prevent conflict and is important in mediating conflict. Traditional methods of conflict resolution are more cost effective than modern ones.

The reliance of the local community and their ruling structure offers great advantage. It is possible to strengthen the local capacity for management and settlement of disputes rather than imposing the formal state legal system, although the formal systems can serve as a guide. Land management systems need to be reorganized under the already established traditional councils to facilitate conveyance and land management.

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Climate Change and Civil Unrest: The Role of Environmental Justice Movements

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Abstract. Since the turn of the twenty-first century, the issue of climate change has become very crucial in managing environmental challenges. The rate of decline and depletion of the natural environment has not only been regarded as a serious issue but one that has a serious negative impact on the lives and activities of human beings. Climatic conditions such as patterns of rainfall and sunshine have been altered globally with resultant effects that have led to some unrest and civil disturbances which have evoked reactions and responses from individuals, groups, and governments all over the world. Hence, the existence of Environmental Justice Movements. This study examines how climate change has led to conflicts and civil unrest globally and the role of Environmental Justice Movements in tackling these problems. Applying the sustainable development approach, the study argues that climate change has led to civil disturbances and unrest in the form of protests and violent misconducts emanating from governments not doing enough to tackle the issue of climate change. Data for this study were derived from secondary sources and were analyzed by adopting the content analysis method. Findings revealed that the activities of these Movements have been frustrated and overshadowed by slow and low government support and response, and lack of political will in contributing meaningfully and giving support to these Movements. The study recommends that the government should ensure that there is an adequate collaboration with

Environmental Justice Movements to effectively curb tackle the challenges of climate change and thereby resolving civil unrests and conflicts arising from it.

***Keywords*:** climate change, environmental justice, conflicts.

Introduction

Advancement in science and technology did not only help to tackle man's challenges, but it also brought about complexities in the human relationship with nature. In other words, there has been a mix of intended and unintended consequences of technological innovations on the natural environment. Notably among these complexities and challenges is the issue of climate change which has been a serious issue since the turn of the twenty-first century. Global climatic conditions have changed as a result of man's activities because of increased human activities of industrialization and bringing about global warming.

Iwilade (2012) noted that no meaningful sustainable development cannot be achieved without adequate consideration and preservation of the natural environment. The abundance of natural resources and the resultant attempts at exploring and exploiting these resources have posed serious environmental challenges in the region. The rapid increase in industrial activities, exploitation, and exploration of natural resources have all led to environmental degradation in the form of destruction of marine and aquatic life, water pollution, air pollution, climate change, destruction of farmlands and mangrove vegetation. All these are not without its attendant problems.

Climate change manifests in different forms such as deadly heat, flood, and raging storms which in turn affects the livelihood of man and thereby leading to frustration and aggression. The Swedish International Cooperation Development Agency (SIDA) (2018) report rightly notes that there is no direct relationship between climate change and conflicts but issues related to climate change can give a room or pave way for conflicts to arise. This stand is also corroborated by Koubi (2019) who stated that climate-related disasters affect the livelihoods of man and imposes human and economic challenges and costs. However, crises and unrest in society are borne out of the inability to solve or proffer solutions to problems confronting man and his environment.

As a result of the effect of these problems, there have been different forms of response mechanisms geared towards finding lasting solutions to these problems and also ensure that sustainable development takes place. Thus, different groups and organizations have evoked different forms of responses and at different times engaged, and are still engaging governments, the private sector, and individuals on environmental concerns that are geared towards environmental justice. These concerns and engagements penultimately

resulted in the formation and existence of environmental justice movements. Ejemudo (2014) pointed out two fundamentally basic premises of environmental justice; first, that everyone should have the right and be able to live a healthy life, and second, that it is predominantly the poorest and least powerful people that are missing these good conditions. Therefore, the objective of this paper is to examine the role of environmental justice movements in managing the crises associated with climate change. The scope of this study will be limited to Nigeria for a proper assessment of a few environmental justice movements that are active in Nigeria.

Literature review

According to the United States Environmental Protection Agency (2017), environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income concerning the development, implementation, and enforcement of environmental laws, regulations, and policies. The Agency has it that environmental justice will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn and work. In other words, it is a conscious effort by concerned groups towards ensuring fair and meaningful environmental practices and decision making.

Bass (1998 apud Sobrasuaipri, 2014) refers to a collection of movements who advocate for a just and equitable allocation and management of environmental benefits and burdens with the view that the health of an individual should not suffer as a result of the nature of the environment where the individual carries out his activities. This also takes into cognizance the fair and meaningful participation in environmental decision-making, recognition of community ways of life, local knowledge, and cultural differences; and the capability of individuals to live and do well in the society they find themselves.

The concept of environmental justice began as a movement in the 1980s due to the realization that a disproportionate number of polluting industries, power plants, and waste disposal areas were located near low-income and minority communities. The movement was set in place to ensure the fair distribution of environmental burdens among all the people regardless of their background (Gillaspy, 2013). The issue of environmental burdens and benefits are considered under environmental justice because it covers many aspects of environmental issues such as pollution, community health, accessibility to healthy food and clean water, good public transportation, and a modern waste disposal system. In general, it is another form of agitating for instituting a better sustainable society for people which will in turn aid and promote fair and equitable distribution of better services and public goods to humans. The total aim of environmental justice is to improve and maintain a clean and

healthy environment especially for those who are prone to the sources of environmental pollution and degradation.

Barton (2002) refers to environmental movements refer to social and political movements that are conscious of the environmental challenges and make concerted efforts towards addressing such challenges and issues. also referred to as ecology movements whose major advocacy is the promotion of sustainable development and management of environmental resources through effective public policy and influencing the behavior of people.

Modern environmental movements arose out of the demand by groups for a clean, safe, and beautiful environment as part of better living standards that will ensure good quality of life. Doyle and McEachern (2008) has it that environmental movements do not view natural resources such as forests, wildlife, and waters as materials for economic benefits but as part of the beauty of nature and life. In other words, environmental movements do not just concern themselves with managing natural resources for future and economic development but as a requisite for man's improved standard of living.

The primary aim of environmental justice movements is the preservation of the ecosystem and sustenance of biodiversity for the overall good of society. Directly and indirectly, there exists a mutual relationship between and among all the species in an ecosystem. Therefore, environmental justice movements advocate the sustenance of this relationship for the overall benefit of man and in the long run.

Theoretical framework

The theoretical framework adopted for this study is the sustainable development approach. Redclift (2008) has it that the concept of sustainable development was first put forward by the United Nations' Brundtland Commission of 1987. The Commission defined sustainable development as development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The essence is for countries to come together and pursue meaningful sustainable development. Todaro & Smith (2011) refer to sustainable development as a pattern of development that permits future generations to live at least as well as the current generation, generally requiring minimum environmental protection. Sustainable development stresses the need to sustain the natural system and achieve greater equity in the economic, social, and political dimensions, with more emphasis on long-term environmental and diversified aspects of development.

A basic emphasis of sustainable development is the recognition that growth and development must be inclusive and environmentally sound to lead to a reduction of poverty and build all-round prosperity of the populace, and to also meet the needs of future genera-

tions. The three pillars of sustainable development are economic growth, environmental stewardship, and social inclusion and they carry across development; from cities to agriculture, infrastructure, energy development, and use, water, and transportation as noted in the World Development Report (2015). Important to note here is the fact that future growth and the overall quality of life of people greatly depend on the quality of the environment. The natural resource base of a country and the quality of its air, water, food, and land represent a common heritage for all generations. The destruction of natural endowments to achieve short-term economic objectives poses a serious threat to future generations thereby negating principles of sustainable development.

Klarin (2018) holds that the general understanding of the concept of sustainable development is considered through the United Nations Millennium Development Goals focused on a complex global situation, such as population growth, hunger and poverty, wars and political instability, and further degradation of the environment. Most countries are not even close to sustainable development and the gap between developed and underdeveloped countries has deepened. There are constraints to the implementation of the concept of sustainable development in many countries and they have not yet achieved significant progress in financial resources and technology.

Methodology

The research design adopted here is content analysis. This paper relied on secondary sources of data. Analysis and discussion of the results and findings were carried out thematically.

Environmental justice movements in Nigeria

The Ogoni struggle as championed by the Movement for the Survival of the Ogoni People (MOSOP) is a typical example of an environmental movement struggle. The struggle, from day one has been about environmental degradation and its attendant problems. The Human Rights Watch Report (1995) has it that the Movement for the Survival of the Ogoni People (MOSOP) was founded by Ken Saro-Wiwa, a renowned environmental activist. In 1990, the people of Ogoni sought more political autonomy and compensation for the environmental damage done to their land by oil extraction. This saw the reawakening of the (Ogoni people) clamor for their autonomy with the issuance of the "Ogoni Bill of Rights" declarations (Saro-Wiwa, 1990). There is no doubt that the Ogoni struggle brought the environmental crisis in the Niger Delta to a global audience and forced many countries to re-examine their political relationship with Nigeria in the 1990s (Saro-Wiwa, 1990).

The effectiveness in linking the environmental question to the issues of political marginalization and economic development (particularly resource rights and control) effectively elevated the political and economic dimension of the governance crisis way above the ecological. Eventually, the lesson that successor organizations of the Nigerian struggle to learn from MOSOP was "resource control" and not management or sustainability. The Ogoni example is instructive because of the demonstrative effect it had on other similar movements that emerged with the return to civil rule in 1999.

The Ogoni struggle, undoubtedly, started with environmental concerns. The Ogoni population is approximately 850,000 (Nigerian Population Commission, 2017). Because of their agricultural economy and an increasing population, most of the rainforest that once covered the area has been altered or removed for farming, which has over the years caused larger Ogoni villages to grow together and form towns, some of which are as large as 10,000 people. According to Iwilade (2012), Ogoni land is made up of six kingdoms—Babbe, Eleme, Gokana, Ken-Khana, Nyo-Khana, and Tai—with four different although related languages, and is united under one town Bori, which is the capital. The Ogoni people have a tradition and custom that is deeply rooted in nature and this helped them to protect and preserve the environment for generations. The land on which they live and the rivers which surround them are viewed by them not just as natural resources for exploitation but with deep spiritual significance (Iwilade, 2012).

The Akpabuyo Bakassi Green Movement (ABGREMO) is also another agency that has taken up the responsibility of environmental advocacy. According to the ABGREMO (2015) document, the agency was founded in 1997 by Emem Okon Edem to proffer solutions to alarming Environmental Human Rights abuses, poverty, reproductive health problem, violence against women and other social problems in the various rural/coastal communities. ABGREMO recognizes the importance of promoting both environmental human rights and reproductive health rights, especially for women & adolescent girls. The mission and vision of the group, as stated in that document, is to work for the protection of the environment and the promotion of human rights of the coastal communities in Nigeria, through information sharing, education and action programs. Oil exploration and exploitation activities along the coastlines of Akpabuyo and Bakassi have resulted in complicated cases of Human Rights abuses by the oil companies. Again, some parts of the islands are gradually being washed away by flood, erosion, and high tides, thereby posing threats to the inhabitants and gradually making them to become environmental refugees.

Environmental Rights Action (ERA) (2017) article states that ERA is a Nigerian advocacy non-governmental organization founded on January 11, 1993, to deal with environmental human rights issues in Nigeria. ERA is the Nigerian chapter of Friends of the Earth International (FoEI). Oilwatch International is a global South network of environmental justice groups that concern her efforts on the effects of oil on the environment of people

who live in oil-bearing regions. In other words, Environmental Rights Action is a branch of Friends of the Earth International.

The ERA (2017) article highlighted that the agency is mainly preoccupied with the protection and preservation of the human ecosystems in terms of human rights and to the promotion of environmentally responsible governmental, commercial, community, and individual practice in Nigeria through the empowerment of local people. ERA advocates on the most urgent environmental, human rights, and social issues. In other words, ERA advocates strongly for a healthy environment, human rights, and social concerns. The agency also questions certain patterns and strategies of economic and corporate globalization which does not consider local communities and also violates the rights of the communities.

Climate and the response of environmental movements in Nigeria

Nigeria is already experiencing deadly conflicts between herders and farmers; as population and land pressure grow, climate change could make these conflicts even worse, and could support recruitment by terrorist groups. People whose livelihoods have failed because of drought, flooding, or other climate impacts may be desperate enough to consider violence. The rise of Boko Haram is correlated with dwindling water resources in the Lake Chad basin which led to crop failure; farmers subsequently abandoned their fields as they fled from the terrorist group. This is an example of how food insecurity, poverty, and violence can feed on one another in a reinforcing spiral (Abere & Ekeke, 2011).

Carter (2001) posits that the ecosystem is being greatly threatened by both natural & human activities, which include, exploitation logging for fuelwood, oil spillage, bush burning, and aquaculture, etc. There is a great deal of ignorance, illiteracy, and poverty, and over-dependence of the forest/water as the only available source of income. However, globally the ecosystem has suffered neglect from conservationists, funders. In the Niger Delta region, for instance, it has been observed that most if not all the biodiversity conservationists & funders pay more attention to the rainforest and little or nothing is done to fund projects in the mangrove/coastal marine ecosystem of the region. In effect, ABGREMO has been at the forefront in the fight against the aforementioned problems, especially along with the Calabar coastal areas. The sustainable management of the environment by ABGREMO has not also received adequate support and response from individuals, private organizations, and the government.

SIDA (2018) states that farmers know through experience what our complex climate models and the data are also telling us: the effects of climate change have arrived in Nigeria, the country with the world's fastest growing population, which is already struggling to

feed itself. As scientists (an ecologist and an economist) working with the USAID-funded Feed the Future Nigeria Agricultural Policy Project, we are working with farmers, policy makers, and other stakeholders to understand and propose solutions to address the numerous impacts of climate change on Nigerian agriculture and food security. These impacts are more diverse and insidious than one might realize at first, and the task is daunting. Through collaboration, shared learning, and developing a broad arsenal of solutions, we believe progress can be made.

Human Rights Watch (1995) has it that the impact of oil on mangrove vegetation and other parts of the environment in parts of the Nigeria has been disastrous, as was evident to the UNEP team during an early reconnaissance mission along the creeks. Impacts vary from extreme stress to destruction. Consequently, the vegetation and farmlands are not just ecologically significant but are critical to the livelihood and food security of the Nigeria. Crude oil pollution has not only reduced productive outputs of the delta mangroves but has also bio-accumulated edible kinds of seafood from the mangroves.

Friends of the Earth Nigeria/Environmental Rights Action (2015) report stated a demand by the group on the Federal Government for a revocation of the operating license of Nigeria Agip Oil Company as a result of constant and unchecked oil spills. The report also recorded constant explosion in course of those spills thereby burning down the entire mangrove vegetation. In some cases, there are periods when mangrove vegetation is intentionally cleared to prepare sites for prospecting, construction of drilling sites, housing, roads, and pipelines. Staff, equipment, and installations have to be transported and each new drilling activity requires roads to be developed. The activities of environmental movements agree with the fact that the theory that human interference with the destruction of the natural environment poses a very huge threat to both humans and other organisms because both constitute the natural environment.

Conclusion

The situation in Nigeria as a result of climate change is serious, but there is hope. If this challenge is to effectively tackle the enormous challenges to food security presented by climate change, diversity, innovation, participation and awareness of climate change impacts should be cultivated in all parts of the agricultural and food system. The damage on the environment not only affects water, air, and soil quality but also impacts oil contamination on the extended mangrove ecosystems of the area (Badejo & Nwilo, 2007). A long series of scientific research papers, reports, book chapters, and conference contributions have demonstrated that mangrove vegetation is heavily affected by oil spills, waste from oil production activities, and flaring. This includes activities on the mainland, often directly disturbing fragile mangrove vegetation and fauna, as well as offshore

activities and transportation movements in between. Damage to environment as result of climate change includes toxic chemical impacts as well as persistent physical disturbances which may form a source of continuous stress. The huge amount of oil lost and the large – and increasing – number of spill incidents, together with the observed disposal of waste from oil-based industrial activities constitute a huge risk, not only for the population but also for their sources of food, shelter, and energy.

To help environmental movements, achieve significant progress in the struggle for the preservation of the environment, there should be far-reaching environmental awareness campaigns and improved education and orientation of the people on environmental problems and their effects. The political institutions are not doing enough in this regard. It is little or no compliance to existing environmental laws and the poor response and insensitivity of the government over these neglects have helped to create a major setback thereby continuously subjecting the people and environment to untold hardship and poor health conditions.

All through the country, environmental movement achievements have been elusive and the environment's future is threatened by environmental devastation and degradation, deteriorating economic conditions, and socio-economic dislocation despite its huge resource base. There are pieces of evidence that environmental movements in the Nigeria are engaging the governments and international groups in the quest for the popular control of the environment. These movements are confronted with little or no co-operation from the governments as well as from the strategies of oil corporations that simultaneously create and use some environmental NGOs to co-opt these movements and subvert them from within while backing the government's repression of the same movements. Thus, environmental governance is a difficult issue across the Nigeria which has not yet yielded the desired results.

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Social Workers Function in Climate Change —Induced Herders–Farmers Conflict in North-Central Nigeria

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Abstract. Worldwide, climate change destabilizes the earth's temperature equilibrium and has far-reaching effects on human beings and the environment. It is estimated that its impacts are expected to intensify in the coming decades. This paper intends to establish social workers function in climate change-induced herders-farmers conflict in North-Central Nigeria. This paper relies on secondary sources of data collection. Besides the health-related risks of climate change through rising air temperatures and heat waves, loss of biodiversity is a significant factor to environmental stress leading to conflict over scarce resources. Competition between herders and farmers over depreciating natural resources culminates to killings and displacement of the population from their natural place of habitation. The consequences manifests in the disruption of socio-economic and social livelihoods.

Social work is becoming a recognized profession in the country with the professional mandate to deal with problems that inhibit human progress. Given the growing and unending conflict between herders and farmers in Nigeria, it is pertinent for Nigerian government to begin to take into consideration of and conceptualize the importance of professional social work intervention in addressing the needs of the affected population. Social workers through training and practice can utilize short-, medium- and long-term intervention models to restore family wellbeing through resilience building, coping mechanisms and strengths. This paper, therefore, recommends the recognition of social workers as team collaborators in the process of rehabilitation, reintegration and restoration of the affected children and families to normal life.

***Keywords*:** climate change, herders-farmers conflict, conflict management, social work function.

Introduction

Since the 21st century, climate change is an issue of high priority among the global community. Global climate change manifests in the constant warming of our atmosphere and oceans, accompanying by increasing sea-levels and changes in global weather patterns (National Infrastructure Commission [NIC], 2017). Climate change circumstances include elevated temperatures, changes in rainfall, and higher atmospheric CO2 concentrations. Steady increase in anthropogenic activities such as deforestation, urbanization, industrialization, agriculture and change in land use pattern, among others factors lead to emission of greenhouse gases (Kumar *et al.*, 2018). In the last 10,000 years, the projected rate of global warming is unprecedented. For example, ecosystems are rapidly changing in response to climate change, and human-induced stressors with an average global temperature of about 1 °C (1.8 °F) since the inception of industrial revolution (National Academy of Sciences [NAS], 2014). The rise in temperature may get worse with 1.5 °C (2.7 °F) (Intergovernmental Panel on Climate Change [IPCC], 2019b). It is anticipated that in CO2 emitted to the atmosphere for about hundred years past will be in the atmosphere for hundreds of years ahead (Leahy, 2018). The changes in atmospheric and weather patterns have implications for competition over natural resources. As a consequence, it constantly generates intra and internal conflict in some parts of the world.

The relationship between climate change and conflict has been discussed and analyzed in various quarters. In recent times, climate change as a source of security risk is garnering public attention across developed and developing countries. As a consequence, the Security Council of the United Nations established that the effect of climate change is

mediated through desertification, water scarcity, drought, land degradation and food scarcity (Swedish International Development Cooperation Agency [SIDA], 2018).

Most studies are in consensus that there is no direct relationship between climate change and violent inter- and intra-state conflicts. However, studies revealed that although no direct link is found, but climate change contributes to rising insecurity especially in environments that are already volatile (SIDA, 2018). Examples are found in Afghanistan, Lake Chad Basin (Niger, Sudan, Somalia, DR Congo, etc.).

Africa is acknowledged as one of the world's most vulnerable to the impacts of climate change (IPCC, 2014). This implies that some regions of the world are prone to higher risks, and while some will face risks previously not predictable (IPCC, 2019). In sub-Saharan Africa, while limited water sources, desertification, and soil Salinization are critical in analyzing climate change related conflict, threat multipliers/factors such as demographic pressure, poverty, urbanization, poverty and economies substantially triggers of violent conflict (Hoste & Vlassenroot, 2009; McSweeney, 2016). These have far-reaching consequences for political stability and conflict resolution (Lisk, 2009).

In Nigeria, drivers of conflict are multifarious and complex. The drivers of conflict in Nigeria include, population growth, ethnic differences and diversities, drought in the arid and semi-arid regions and competition over natural resources. Further stresses and vulnerabilities such as social, economic and political instability, as well as lack of income and job opportunities, or ethnic tensions could give rise to conflict (Peters *et al*., 2020). It implies that conflict in this part of the world may not be attributed to a single phenomenon. For example, in Nigeria the rise of the Islamic Boko Haram terrorist organization in the North-East, armed banditry in the North-West of the country are attributable to political and religious undertones or sentiments. However, in the South-South a major source of conflict between the population and central government is resource control. While in the other zones of the country, particularly in North-Central, the major conflict that has attracted both the attention of the local people and the international community is the herders-farmers conflict. This conflict between the mobile pastorals from the northern region to other parts of the country is occasion by climate change. Pastorals migrate from arid and semi-arid north to viable areas in search of vegetation and water for their herds.

In the context of North-Central Nigeria, this region has large expanse of land. This region is often the grazing route of herders to the southern Nigeria. Herders migrate to other parts of the country when the productivity of traditional grazing areas becomes insufficient due to climate change (SIDA, 2018). The escalation of the conflict is largely when the sedentary farmers engage in climate adaptation practices which require larger areas or new crops fields in ways that do not support herders' mobility across what traditionally were fallow land (SIDA, 2018). The outright possession by local owners manifests in open defiance by herders who strive to sustain their grazing route. North-Central zone of

Nigeria is worst hit by decades of inter communal conflict between farming communities and Fulani herders. For example, between January and March 2018, 1,078 people died in the violence in Benue, Kaduna, Taraba, Plateau, Nassarawa, Adamawa, Kogi states and Kwara States. While in Benue State alone, about 102,000 children, representing 60 per cent of the 169, 922 people displaced by the conflict, have been forced out of school (Human Rights Watch, 2018).

The governments of Nigeria has had measures in place to protect lives and property of its citizens, especially in the North-Central zone, but efforts have not been laudable. Lives of children and families are in dire need of social, psychosocial, educational and economic support of government, humanitarian aid agencies, and professional capacities. Social workers are trained professionals with requisite knowledge and expertise to assuage the sufferings of vulnerable population through adaptation strategies. Since climate change long term impacts cannot be accurately predicted, its significant consequences for human welfare and the environment is expected in the near future (NIC, 2017). This paper, therefore, intends to establish social workers function in climate change-induced herders-farmers conflict in North-Central Nigeria. The paper, therefore, reviews climate change as a principal cause of conflict between herders and farmers, government climate change and conflict management plan, and social work function in climate change-induced conflict. The paper concludes with recommendations.

Climate change as a cause of conflict between herders and farmers

Climate change impacts on the environment and economies at local, national and global levels, particularly in developing countries (Safonov, 2019). Ecosystems, human communities and economies are vulnerable to the climate change harm (Leahy, 2018). Diminishing arable land and steady decline of water resources intensify competition among the population (Institute for Security Studies [ISS], 2010).

Studies show that changes precipitated by climate change may expose societies to disputes and tensions, especially where state functions are lacking, as well as low confidence level in state institutions and high inequality are predominantly vulnerable (Detges, 2017; Kohli *et al*., 2018). In the Northern Sahelian zone of Nigeria, desertification and depletion of vegetation space and grazing routes prompts migration to zones favorable for herding (Haider, 2019). This pattern of migration contributes to inter-ethnic clashes between herders and farmers leading to death in some circumstances (Elisha *et al*., 2017; Onah *et al*., 2016).

Climate change-related conflict severely affects the relationship between herders and farmers in Nigerian. This hostile relationship increases over competition over natural

resources such as land and water. It is further exacerbated by the growing population as well as political, ethnic tensions that exist over the decades in Nigeria. Risk factors associated with climate change include enlarged frequency of floods, droughts and storms to growing water stress, decline in food security and forced migration (Kohli *et al*., 2018). This implies that violent conflict undermines individuals and communities the basics of life and decline in development (Peters *et al*., 2020).

Climate change creates additional burden on land, livelihoods, biodiversity, ecosystem, and food systems IPCC (2019a). Expected change resulting from climate change occurs within the ecosystem with associated social and economic implications that may generate complex and difficult events to predict (SIDA, 2018). In the midst of unpredictability, the social and familial relationships and economic development faces deleterious setbacks. The ecosystem is fractured in ways that endanger the well being of children and families. The farming communities are confronted with uncertainties, insecurity, decline in economic production, migration from natural place of habitation to safe places. More so, the affected population is confronted with varying degrees of social, psychological, educational, health and economic challenges. It implies that the security of lives and property is a prerequisite for healthy living. In broader perspective, Skillington (2012) believes that:

> Threats to international security are most likely to emerge where governance capacity at the state level is overstretched and unable to manage the physical impacts of climate change. Where this occurs, civil unrest, inter-communal violence, mass migration, breakdown of trade, state failure and international instability become increasingly probable (p. 137).

The implications are huge. If policy frameworks are not holistically articulated and implemented, climate change-induced conflict may exacerbate, permeate further to less affected environment. An increase of and reduction of inter conflict is contingent on the intervention ability and mobilization of required professionals who have the requisite expertise necessary for adaptation. This is because the social and environmental dimensions are integral to sustainable development which is a hallmark in global agenda.

Climate change and conflict management plan in Nigeria

Nigeria's economy is oil dependent. The activities of the multinational companies have severe impacts on social, economic, and environmental status of the environment through oil spillages and gas flaring. The industrial impact releases tones of greenhouse gases, which in turn impacts on deforestation and biodiversity and aquatic and terrestrial life forms (Federal Ministry of Environment, 2016). For instance, the estimated amount of gas flaring in Nigeria stands at 7.4bn cubic feet at the moment, and ranks in the top 10

gas flaring countries in the world (PricewaterhouseCoopers [PwC], 2019), and the second highest behind South Africa (Dunne, 2020).

Nigeria is dependent on fossil fuel, and high vulnerability to climate change. Given the nature of vulnerability, the Nigerian National climate-related policies, strategies and plans indicates the effort of government to the management of challenges threatening human existence. The policies include National Policy on the Environment, National Gas Policy, National Policy on Drought and Desertification, National Forest Policy, National Biodiversity Strategy and Action Plan, National Climate Plan, and among other sectoral policies. These policy developmental frameworks are borne out of the political process of the country to ensure mitigation and adaptation strategies, as well as the required financial requirements and mobilization (Federal Ministry of Environment, 2010). Principally, the central goal of these environmental-related policies and strategic plans are to guarantee environmental protection and the conservation of natural resources for sustainable development (Federal Ministry of Environment, 2016). It may be deduced that the environmental-related policies requires coordinated and systematic measures in the management and control of the climate-related hazards and risks. However, these policies have not achieved its desired outcome due to lack of implementation in terms of systematic mitigation and adaptation of the vulnerable population.

According to Dunne (2020), the government of Nigeria initially pledges to reduce its greenhouse emissions by 20%, and currently rises by 45% by 2030 due to Paris Agreement ratified in 2017. Following the international deal, the Nigerian government pledges to reduce emissions by commitment to solar energy production, improving renewable energy, and ending gas flaring within its boundary (Dunne, 2020).

Despite Nigerian government to the global treaty, incidences of climate change are evident in the country. The CO2 emission to the atmosphere is nevertheless persistent, among other environmental hazards that heighten climate change. More so, inter communal conflict between herders and farmers remains unabated. The consequences to North-Central and the nation at large are far-reaching considering the country's fragile economy and overall growth and development. Based on these narratives, professional expertise and input is critical for effective mitigation and adaptation of the vulnerable population.

Social work function in climate change-induced conflict

The approach and structure of Nigeria's National Adaptation Plans [NAPs] goal is to determine strengthen the resilience of Nigerians and thereby reduce vulnerabilities to real and potential impacts of climate change (Federal Ministry of Environment, 2020). Despite government intervention in collaboration with other stakeholders in the polity, the

National Adaptation Plans [NAPs] process in the country remains largely uncoordinated and incoherent in implementation (Federal Ministry of Environment, 2020). In addition, a proposal to the Green Climate Fund in 2017, approved in 2019 seeks to address issues related to institutional capacity and stakeholder collaboration; acknowledging insufficient analysis and dissemination of climate change information; poor adaptation funding; and limited monitoring and reporting protocols in climate change adaptation process (Federal Ministry of Environment, 2020). This calls to mind the roles and responsibilities of social workers in planning, strengthening resilience and adaptive capacities of vulnerable Nigerians.

Social workers have a role in addressing environmental-related issues such as climate change. This is because of the explicit skills and knowledge inherent in the profession, and the mandate of the profession (Cumby, 2016). In social work practice, practitioners create practice models toward meeting the social, psychological and physical needs that result from climate change, involving the core social work value of creating a just society and empowering people and/or vulnerable populations for adaptation (Tischler, 2011). The wealth of skills and knowledge base and value system are fundamental in working with other professionals and citizens that will engender sustainable living and development in Nigeria.

The professional obligation to people, particularly the vulnerable population is indicative of social workers knowledge ability about climate change and its impact on people (Dorn, 2019). According to National Association of Social Workers (NASW) Code of Ethics (1999), essentially, social work is pre-occupied by environmental forces that create, contribute to and deal with problems of living. In addressing the imbalance in the environment, social workers attention is channeled toward confronting the social, political and structures, and unending processes that bring about climate change (Peeters, 2012). Furthermore, social work practices are adapted toward great social transition, a systemic change that is enduring (Peeters, 2012).

Resilience building is an attribute that transcend preventing and/or adapting to consequences of climate change (Dominelli, 2011), but broadly refers to capacity building for action and social change (Peeters, 2011). To this regard, social work interventions toward influencing the environmental behavior of people lack legitimacy if they are excluded from continuum or context of social action that makes a difference on a broader scale or system of care (Peeters, 2012). Social workers are strategic team members in the process of environmental change. Utilizing person-in-environment situation, social workers primary concern is to ensure effective functioning of service users within the environment, working to address conditions that create or reduce stress. Practitioners rely on strengths and coping mechanisms of their service to enthrone change in attitude and social relationships.

Conclusion and recommendations

As stated earlier, the drivers of conflict across countries are multi-dimensional and complex. However, with the impact of climate change on earth planet, substantial evidence suggests that climate change-induced conflict is rising in the 21st century. The central driver is explained in resource control or competition on declining natural resources. The huge impact of climate change is threatening livelihood in all ramifications, in terms of social and familial relationships, personal and national economy, health, education, and peaceful co-existence of populations with diverse background, language, religion and culture. The inability of the government of Nigeria to mitigate the impact of climate on the country's environment may continue to add to the burden or multiplier to global environmental threat. With this in mind, there is need for government to lead a holistic and comprehensive team of professionals, including social workers toward adaptation and resilience building (ability to recover from shock) among the vulnerable population of Nigeria, especially in the North-Central Nigeria.

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