



IMPACT OF CLIMATE CHANGE ON REFUGEES AND FOOD SHORTAGE CRISES IN AFRICA

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ABSTRACT

The effects of global climate change, regarded as “environmental stresses” could be natural or anthropogenic-induced. Africa, which is the second-most populous continent in the world after Asia, is vulnerable to the impacts of global climate change. The continent is characterized by a staggering population of refugees of which many are displaced from their original environment. This study investigates the impacts of global climate change on refugees and food crises in the African States dealing with empirical studies of climate change, migration, and food production. Present study discussed primarily the environmental disasters affected by variations in climate. The paper also explains how climate changes have affected the refugees and food shortage crises in the African continent. Through empirical studies, the study discovered that the effects of changes in climate and resulted environment have caused the conflicts, economic shocks and food crises for the millions of people in Africa. Most African countries that experienced a significant rise in undernourishment for 7 years (2011-2017) faced serious economic slowdown or downturn. The study concludes that there will be a continuous and future increase of migration hotspots around Africa due to the impact of environmental change if actions are not put in place. The study recommends that the governments in all countries of the African continent should foresee and respond to environmental issues, promote decent employment to avoid involuntary migration, and strategize on regional grain reserves that contain food price volatility to avoid food crises.

KEYWORDS: *Climate change, environmental disasters, food shortages, refugees, undernourishment*

1 INTRODUCTION

Climate change, a global phenomenon, is recognized as the most serious environmental threat facing our planet today. It is a reality and would continue to affect our lives in the coming years, particularly in Africa. It is described as the change in the average weather conditions in the atmosphere over a considerable length of time, caused by natural events and anthropogenic activities on the lithosphere and hydrosphere that alter atmospheric composition and variability (Tilakasiri, Olanrewaju & Salami, 2016). Generally, climate change immediately affects the natural environment, causing many disasters which have direct impacts on the people. Problematic environments are characterized by land and soil degradation, water scarcity, food insecurity, danger and risky living conditions which act as pushing factors for migration to safer places.

The total population of Africa will continue to grow from 1.2 billion to 2.5 billion by 2050 (European Council on Foreign Relation, 2017). In 2018, there were about 41 million international migrants from, to, or within Africa (United Nations Conference on Trade and Development, 2018). 19 million migrants resided on the continent, 17 million were residents outside of the continent, and 5.5 million were immigrants from the rest of the world (UNCTAD, 2018). Climate change could further snowball the figures of refugees in the continent due to the conflicts associated with environmental problems. The concept of a refugee is

described as someone who has been forced to leave their country in order to escape war, persecution, economic hardship and natural disaster.

An individual could also be referred to as “asylum seekers” till granted “refugee status” by the UNHCR if they formally claim sanctuary or asylum. Climate refugees are people driven from homes because of climate emergency (UNHCR, 2019). Environmental Refugees/Migrants are people who are obligated to depart their habitual homes, either temporarily or permanently, and move to another area, which may be within the country or abroad due to some compelling reasons of unforeseen or progressive modification within the environment that unfavourably affects their lives or living conditions (Warner, 2008).

The interaction between global climate change and environmental disasters (either natural or man-made) coupled with conflicts and violence brings forced displacement of people in Africa (UNHCR, 2019). Most parts of the world, both wealthy and poor countries, are affected by environmentally-induced displacement most especially between the periods of 2012 and this present time. For example, the European Council on Foreign Relation (ECFR) (2017) opined that environmental changes have a profound impact on migration from the African continent to other continents of the world, especially Europe.

Most parts of the world face the problems of food shortages or crises and mass movement of people from their traditional habitats as a result of water crises or

shortages, precipitated by global warming. Food security is considered as an important issue as it affects not only people's livelihood but also national economic development and social stability. Food security is described as adequate access to food in both quality and quantity; food insecurity is the limited access to food, at the level of individuals or households, because of lack of money and/or other resources (Food and Agricultural Organization, 2018); undernourishment is defined as the condition in which an individual's habitual food consumption is insufficient to provide the amount of dietary energy required to maintain a normal, active, healthy life (FAO & ECA, 2018). Chronic undernourishment is described to be synonymous as hunger.

Over the years, it has been a major challenge for many economies to achieve food security, especially in developing countries. African countries depend on rain-fed agriculture for survival. Climate change could cause a drop in agricultural yields and increase the existing scarcity of food. Drops in food production due to variation in climate could induce food crisis, food rioting and consequently undermine the economy of the world's least developed countries, especially in African continent. Several studies had been carried out on climate change and environmental induced migration as well as on food crisis at the global, continental, and country levels. Such studies include but not limited to Tilakasiri et al., 2017; Black et al., 2011; Carr, 2005; Warner, 2010; and Perch-Nielsen et al., 2008. Therefore, this study is aimed at presenting empirical studies on how

environmental disasters have affected the refugees and food shortage crises in the African continent. The paper also explains how climate change has affected the refugees and food shortage crises in the African continent.

2 RESEARCH METHODS

This study was undertaken based on empirical studies and published materials on climate change, migration, and food security. The data used in this study were based on available published data and information by the United Nations Conference on Trade and Development (UNCTAD), United Nations High Commissioner for Refugees (UNHCR), International Organization of Migration (IOM), Food and Agricultural Organisation (FAO), Department for International Development (DFID), United Nations Children's Educational Fund (UNICEF), and World Health Organisation (WHO).

3 RESULTS & DISCUSSION

The results and discussion are made primarily on climate change, environmental disasters due to climate change, refugees' situation and food shortage crises, and trends/pattern of migration in the African continent.

Climate change in the African continent

Africa is a vast continent and it experiences a wide variety of climate regimes. The continent is predominantly tropical, hot and dry (Ajibade et al., 2012). The location, size and shape of the African continent play key roles in determining climate. There are small

regions of temperature (cool) climates in the extreme south and north. Parts of West Africa, as well as the western part of central Africa, are humid with substantial rainfall during the wet season. Most of the human population occurs in the sub-humid and semi-arid zones (Ajibade et al., 2012). The nature of the environment in any area is primarily determined by climate. If there is a significant change in the climate prevailing over an area, it will also have an impact on the other components of the environment in the long run. Observational records indicate that the continent of Africa is warmer than it was 100 years ago (IPCC, 1996). Warming through the 20th century has been at the rate of about 0.5⁰C per decade, with slightly larger warming (Department for International Development, 2009). The warming is more noticeable in the period June-November than December – May each year (Hulme et al., 2001). The five warmest years in Africa have all occurred since 1988, with 1988 and 1995 the two warmest years (Ajibade et al., 2012).

One of the most significant changes to Africa's climate has been reduction in rainfall in the semi-arid regions of West Africa. Many countries in Africa depend on natural resources that are sensitive to changes in climate. Water supplies for example, already suffer from high rainfall variability in many parts of the continents. With reservoir levels already dangerously low, projected changes in the climate look set to put further pressure on water availability which may lead to local or regional conflicts and is certain to affect the economic development of the continent.

Similarly, a changing climate is likely to affect migration and food security. Over half of the African population lives in rural areas, dependent on the marginal cropping conditions in semi-arid and sub-humid areas, where rainfall is extremely unreliable (Ajibade et al., 2012). Per capita food production has been declining over the past two decades. The result is widespread malnutrition, a recurrent need for emergency food aid, and increasing dependence on food grown outside the region. The snowy cap of Mount Kilimanjaro, Kenya and Elgon are melting. The shorelines of Lake Chad, Tanganyika and Victoria are receding. Droughts and floods, out-of-season rain and dry spells are affecting the welfare of millions of people. All these and other changes have led to unreliable farming seasons and low water supplies in the African continent.

Environmental hazards and socio-economic impacts occurred due to climate change

The impacts of change and natural disasters such as shrinking or loss of water, rising sea levels around the coastal areas, prolonged droughts, or creep of desertification, can create newly displaced populations and pose challenges for existing ones. The human environment has been the victim of all sorts of attacks that affect the environment, thereby resulting in losses of the environment, humans and finance. These losses depend on the human population to withstand the hazards and their resilience. Hazards, whether caused by nature or human-induced, are generally categorized into

four; namely, environmental, biological, radiation, and hazardous substances.

United Nations Environment Programme (UNEP) (2012) identified two major types of environmental hazards, namely, episodic and perennial. Episodic hazards could be regarded as ongoing/sudden-onset threats while perennial hazards are referred to as slow-onset threats. The first type of event majorly encompasses hazards caused by accident, geology, and hydrometeorology. The perennial hazards are related to the nature of the atmosphere. These may include but not limited to pollution, acid rain, changes in climate and ecosystems, droughts, erosion, and many more. In general, while the ongoing-onset (Episodic) events precipitate refugees, climate change which belongs to slow-onset (perennial) tends to precipitate migrants (Abel et al., 2019). Global climate change and disasters usually exacerbate the conditions that create forced displacement of people across borders and providing extra impetus to flee. For example, climate change can indirectly engender refugees, and also induces environmental problems which can cause shrinking in naturally limited resources.

Environmental hazards caused by climate change include desertification, droughts, insecurity, flood, tropical cyclones, erosion, etc. A persistent drought leads to desertification which is the culmination of “land-dead” in terms of fertility. Desertification is mostly caused by overgrazing, bush burning, deforestation, prolonged drought, climate change, and over-cultivation or over exploration. The land degradation problem has effects on

many countries of the world, and its profound impact can mostly be felt in Africa. The presence of deserts in a geographical location may lead to the displacement of people and settlements; crop failure or poor yield of crops; loss of pasture or livestock, shortage of water (such as Lake Chad) for animal and human consumption, loss of agricultural land, etc.

Drought is defined as a “period of abnormally dry weather sufficiently prolonged for the lack of water to cause a hydrologic imbalance in the affected area”. Areas often affected by drought in Africa include Sahelian regions and desert areas. Droughts are caused by climate change which brings out the absence of, or significant drop in rainfall, high daily temperature without a corresponding rainfall, low humidity and cloud cover as well as a high rate of evapotranspiration. Flood is another environmental disaster caused by climate change. The flood occurrences are common in Africa. Flooding is an accumulation of an abnormally large volume of water in an area that refused to percolate or flow away. Floods are mostly caused by climate variability which in turn results in increased rainfall in the tropics. Its effects can be dangerous as it destroys lives and properties, especially when it occurs without adequate preparation and warning.

Water problems are likely to be exacerbated in warmer earth especially in current semi-arid environment such as the West African Sahel. Increase in temperature will increase the demand for water for human and agricultural uses. On

the other hand, decrease in rainfall coupled with the increase in temperature and evaporation will reduce the amount of water available for various uses. In coastal areas, the increase in sea level leads to the salinization of both surface and groundwater (Ayoade, 2012).

Refugees can fall victim to climate change and/or natural disasters and hazards. This forced displacement of people abounds in Africa due to some factors or features characterized in the continent. Climate change, for example, could cause loss of water and land because of desertification, and reduced agricultural activities that fueled conflicts over the available limited resources among the poor (Salami et al., 2016). A severe drop in rainfall causes drought, which in turn leads to desertification. This can cause pastoralists and farmers to compete over the diminishing available lands for grazing and farming. The area around Minawao refugee camp in northern Cameroon is being threatened by desertification. Darfur crisis presents a classic case of an ecologically - induced war that had produced tens of thousands of refugees being protected in other countries. Conflict had been associated with the changes in climate and environment that threatened to induce wars across the African continent.

The effect of drought occurrence in Mali displaced many people to safe areas such as Cote d'Ivoire (Table 1). In the receiving areas, the displaced people would be able to sustain themselves by engaging in different work (Meier & Bond, 2007). Threat of desertification in the Sahelian regions of Africa is caused by draught. In

the 1990s when the migrants returned to Mali (Maliens who fled from the civil war in Cote d'Ivoire), they faced serious issues of unemployment and marginalization, coupled with other challenges. This led to an increase in the population of refugees in the country. The impact of changing climate leads to massive displacement of people in the African continent, especially in the most affected areas. Droughts reduce sources of water for consumption and agricultural purposes, which in turn leads to scarcity of these resources. The scarcity of resources of those affected areas brings about increasing conflicts, thereby displacing people and settlements to other regions (Brown & Crawford, 2009).

Lake Chad which is a major source of water, and livelihoods for millions of people in surrounding areas (like Chad, Niger, Nigeria, and Cameroon), has shrunk by 90 per cent since the 1960s (UNHCR, 2019). Millions of people depend heavily on this lake for their livelihoods in agriculture, fisheries, and livestock. The remaining half part of the Lake is covered by invasive plants which make it difficult for boats to access it (UNHCR, 2019). The drastic reduction in the levels of water of Lake Chad makes almost 7 million people food insecure (ECFR, 2017). Its shrinking is associated with climate change, population growth and unregulated irrigation for agricultural purposes, the nature of the surrounding areas which suffer from deforestation, desertification, and drought.

Drought and insecurity drive thousands of Somalis to safety in Ethiopia (UNHCR, 2019). Drought curtailed the livelihoods

of Somalis and left them with less to eat. Besides, since 2002, there have been serious issues of food shortages in South Africa due to consecutive droughts in the area. Millions of people in Darfur and the Eastern part of Chad were affected by conflicts. Of the estimated number of 4.2 million affected people, 3.5 million people received international assistance which included food. In Sudan, about 5.18 million persons were internally displaced. An estimated Sudanese refugee of 305, 000 were from Darfur and South Sudan, while an estimated refugee that came from Ethiopia, Democratic Republic of Congo, Eritrea and other areas to Sudan was 215,630. In 2006, about 3,600 people died per day.

When an environmental disaster caused by climate change strikes, it causes people to lose their traditional homes and flee their natural habitats if the disaster makes the environment uninhabitable. A case in point is Mozambique flood and cyclone disasters. In 2000, 2001, and 2007, thousands of people (refugees) were displaced due to the occurrences of floods and cyclones. In early 2008, Warner (2008) opined that a heavy rainfall in southern African which resulted in flooding, displaced making it 800,000 displaced people (Table 1). The seasonality of the water bodies is very

crucial to understand. During the rainy or wet season, the volumes of water increase as it may result in flooding when it overflows. A similar example of the effects of environmental change was that of Somalia flood that occurred some years ago. In Somalia, a river overflow occurred with heavy rains, nourishing the land and enabling crops to grow well. At present, the same river has no water due to continuous failure of rain. This situation makes life intolerable for over 70,000 displaced persons in the area.

Another similar case of flooding in Africa was in Mozambique, occurred in the year 2000. The occurrence of the flood covered most of the country for few weeks, which consequently killed thousands of people and left the country shattered for many years (Brown & Crawford, 2009). When tropical cyclones Idai hit Mozambique, Zimbabwe, and Malawi in 2009, all existing refugees were relocated by UNHCR to safety homes or areas and provided with needed materials including tents, plastic sheeting, sanitation equipment, and clean water (UNHCR, 2019). This assistance is also operating for Rohingya refugees in Southern Bangladesh to curtail the effects of environmental disasters such as monsoon storms, flooding, and landslides.

Table 1: Refugees and Internally Displaced Persons (IDPs) in most affected African Countries

Country	Month	Refugees	IDPs	Most Affected Area (s) in the Country	Reasons or factors for Displacement	Receiving Region(s)	Returnees
Nigeria	July, 2018	227,000	2.4 Million	Northern part, especially North-East	Violent attacks	Cameroon, Chad, and Niger	-
Cameroon	July, 2018	24,000	239,000	Far North	Activities of cross-border insurgents	Nigeria	-
Mali	June, 2018	130,000	51,800	Northern and Central parts	Insecurity in the border areas	Burkina Faso, Mauritania, and Niger	-
	July, 2018	30,000	15,000			Niger (Tillaberi region)	7,000
South Sudan	July, 2016	2.5 million	1.8 million	South Sudan	Violent attacks which resulted in food shortages	Neighbouring countries	-
	June, 2018	84,000	-				-
Somalia	June, 2018	820,000	2.65 million	Central and Southern regions	Flooding	Horn of Africa, Yemen, and Ethiopia	-
Ethiopia	August, 2018	-	2.8 million	South-west	Drought and violence	-	-
Democratic Republic of Congo	June, 2018	620,800	4.5 million	Eastern part	Intercommunal conflict, violence and clashes in the region	Angola	-
Burundi	July, 2018	430,000	169,000	Burundi		Neighbouring countries	

Source: UNHCR, 2019

People's response to above crises (migration)

The impacts of climate change coupled with an increase in the human population in developing countries, exert profound pressure on cross-border and internal population movements (Tilakasiri et al.,

2017). Comprehensive evidence that links refugee migration to local or civil conflicts in receiving areas is presented by Salehyan & Gleditsch (2006). Previous studies indicate that rainfall in the Sahel,

pushed the northern pastoralists southwards into the land occupied by deskbound farmers such as the case of semi-Tuareg of Mali in the 1970s and 80s (Tilakasiri et al., 2016). The trends of refugees and IDPs have increased since 1968. For instance, the number increased from 860,000 in 1968 to 6,774,000 in 1992. Similarly, since 1980, a total of 8.4 million registered refugees globally was recorded till the end of 2010 (UNHRC, 2019). The 2009 statistical data of refugees and IDPs in African countries is

illustrated in Table 2. IDPs are those dislocated from their natural habitats by natural disasters or wars. UNHCR (2009) stated that all the countries in Table 1 have all their registered refugees in refugee-like-situations except Mauritania which has 795 refugees and 26,795 both refugees and people in refugee-like-situations. The total of refugees in African countries as of 2009 was 2,053,896 while the total refugees and people in refugee-like-situations were 2,104,006.

Table 2: The statistics of refugees and Internally Displaced Persons (IDPs) in Africa

Country	Registered Refugees	IDPs protected/ assisted by UNHCR, incl. people in IDP-like situations ⁶
Algeria	94,137	-
Algeria	94,137	-
Angola	14,734	-
Benin	7,205	-
Botswana	3,022	-
Burkina Faso	543	-
Burundi	24,967	100,000
Cameroon	99,957	-
Central African Rep.	27,047	197,000
Chad	314,393	170,531
Congo, Rep. of	111,411	-
Côte d'Ivoire	24,604	519,140
Dem. Rep. of the Congo	185,809	2,052,677
Djibouti	12,111	-
Egypt	94,406	-
Equatorial Guinea	-	-
Eritrea	4,751	-
Ethiopia	121,886	-
Gabon	8,845	-
Gambia	10,118	-
Ghana	13,658	-
Guinea	15,325	-
Guinea-Bissau	7,898	-
Kenya	358,928	399,000

Liberia	6,944	-
Madagascar	-	-
Malawi	5,443	-
Mali	13,538	-
Mauritania	795	-
Morocco	773	-
Mozambique	3,547	-
Namibia	7,163	-
Niger	325	-
Nigeria	9,127	-
Rwanda	54,016	-
Senegal	22,151	-
Sierra Leone	9,051	-
Somalia	1,815	1,550,000
South Africa	47,974	-
Togo	8,531	-
Tunisia	92	-
Uganda	127,345	446,300
United Rep. of Tanzania	118,731	-
Zambia	56,785	-
Zimbabwe	3,995	-
Grand Total	2,053,896	5,434,648

Source: Adapted from (UNHCR, 2009)

The number of registered refugees worldwide from 2010 increased to 21.3 million in 2016, the number of concerned persons also increased to 24.2 million in 2017. An estimated number in 2017 increased to 25.9 million in 2018 (UNHCR, 2019). There has been an increase of 4.6 million since 2016. This was due to the additional new refugees and IDPs from other places in Africa. Of the 25.9 million registered refugees in 2018, 20.4 million refugees were under UNHCR's mandate, while 5.5 million refugees (registered) were being taken care of in 60 camps across the Middle East by United Nations Relief and Work Agency for Palestine Refugees in the Near East, established in 1949. This could

be the result of push factors that ranged from conflicts to natural disasters.

One-third of the 20.4 million refugees under UNHCR's mandate was found in the world's least developed countries (UNHCR, 2019). This means that most refugees and internally displaced people are housed by countries in Africa. The present situations of concerned persons by UNHCR in most affected countries in Africa may be discussed based on regions: West Africa; East Africa and the Horn of Africa; Central Africa and the Great Lakes; and Southern Africa (Table 2). At the global level, the number of forcibly displaced people was estimated at 67 million (UNHCR, 2009), and

increased to 74.8 million in 2018 (UNHCR, 2019). As at the end of 2018, according to the report of UNHCR (2019), the number of Asylum was approximately 3.5 million, 41.4 million people were internally displaced due to armed conflict, generalized violence or human rights violations, 2.9 million returnees, 2.8 million Stateless persons, and others were estimated at 3.8 million. Every year, about a million persons seek asylum.

In the West Africa sub-region, the situation is critical in most countries that surround Lake Chad Basin. Lake Chad environ is characterized by many challenges or problems which might be the results of the effects of climate change and/or changes in the environment. These problems around Lake Chad include armed conflicts, poverty, water and food shortages, drought, extreme violence, etc. In East and Horn Africa, most of the affected countries include South Sudan, Somalia, and Ethiopia. South Sudan is the only country with the largest situation of the displacement in this region, while Somalia is one of the most protracted refugee situations in the world (UNHCR, 2019).

In Central Africa and the Great Lakes region, the Democratic Republic of Congo, and Burundi are the most affected countries. An estimated number of refugees in Congo increased from 537,000 to 620,800 in 2018. An estimated number of refugees in the mid of 2018 was projected to increase in December 2018 due to the political uncertainties which were linked with a presidential election. In Southern Africa, most

affected countries are Namibia, Angola, Zimbabwe, and Zambia. Refugees from DR Congo moved to both Angola and Zambia in Southern Africa. In general, the resultant global climate change and environmental disasters induced a large number of movements towards safety regions.

In 2011, it was projected that the 25 million estimated environmental refugees would be twice in number, making it 50 million by 2020 (Zelman, 2011). This projection or hypothesis was not in consideration of some factors. Myers (2002) projected that an estimated number of 25 million displaced people because of the effect of environmental change would be 4 times, making it 200 million by 2050. This projection is based on some factors which include but not limited to demographic change and environmental conditions. It has been posited that ninety-eight per cent (98%) of human migration or displacements is due to environmental disasters precipitated by weather and climate-related risks.

Climate Variability and Food Security in the African States

The global food insecurity is associated with the effects of both climate change and changes in environmental conditions such as drought, heavy rains, and floods, and/or conflicts. The ENSO floods in 1998 in east Africa resulted in human suffering and deaths as well as extensive damage to infrastructure and crops in Kenya (Magadaza, 2000). Flood in Mozambique in 2000 and Kenya in 1997 – 1998 sparked major emergency relief as hundreds of people lost their lives and

thousands were displaced from their homes (Brickett et al., 1999; Ngecu & Mathu, 1999; Tilakasiri et al., 2017). Such climatic episodes can serve as an analog of climate change. Irrespective of whether climate change will cause more frequent or more intense extreme events, it is apparent that many aspects of African economies are still sensitive to climate hazards. Niang et al. (2014) stated that the future impacts of global climate change in the African continent would be substantial because climate change has affected African ecosystems. Population increase has contributed to forest degradation, loss of biodiversity, and desertification. The African continent is characterized by conflicts, changes in extreme climate and environmental conditions which lower its economies.

Over the decades, there was a steady drop in the number of undernourished worldwide based on measurements. Table 3 presents the trend of undernourishment in the world, Africa and its sub-regions from 2005 to 2018. The table indicates the largest number of undernourished people in sub-Saharan Africa and the least in North Africa. FAO and ECA (2018) state that 20 per cent of African's population which is more than other regions in the world, is affected due to the rise in the prevalence and number of

undernourishment. It is confirmed that the trend continues with the two regions (Central and West Africa) proceeding the worse. Studies have shown that high-income countries also lack regular access to nutritious and sufficient food (FAO et al., 2019).

At the end of 2018, approximately 822 million people are globally undernourished, of which 256 million are in Africa, underscoring the immense challenge of achieving the Zero Hunger target by 2030 (FAO & ECA, 2018; FAO et al., 2019). The total number of undernourishment worldwide corresponds to one in every nine people globally. The reason for the larger per cent of the prevalence of undernourishment in sub-Saharan Africa is due to drought in the region which has increased by 45.6 per cent since 2012. If actions on the effects of climate change are not put in place, an estimated 71 million people worldwide will face severe food insecurity in which over half of the population will come from the African continent. Table 4 presents the prevalence of moderate or severe food insecurity, and severe food insecurity in Africa. It was estimated that 9.2 per cent of the world population were exposed to levels of food insecurity in 2018 (FAO et al., 2019).

Table 3: Undernourishment in the World, Africa and its Sub-regions, 2005–2018

Regions/ subregions/ countries	Prevalence of undernourishment (%)						Number (Millions)					
	2005	2010	2015	2016	2017	2018*	2005	2010	2015	2016	2017	2018*
WORLD	14.5	11.8	10.6	10.7	10.8	10.8	947.2	822.3	785.4	796.5	811.7	821.6
AFRICA	21.2	19.1	18.3	19.2	19.8	19.9	196.0	199.8	217.9	234.6	248.6	256.1

Impact of Climate Change on Refugees and Food Shortage Crises in Africa

Northern Africa	6.2	5.0	6.9	7.0	7.0	7.1	9.7	8.5	15.5	16.1	16.5	17.0
Sub-Saharan Africa	24.3	21.7	20.9	22.0	22.7	22.8	176.7	180.6	202.4	218.5	232.1	239.1
Eastern Africa	34.3	31.2	29.9	31.0	30.8	30.8	113.5	118.6	119.3	126.9	129.8	133.1
Middle Africa	32.4	27.8	24.7	25.9	26.4	26.5	36.2	36.5	37.9	41.1	43.2	44.6
Southern Africa	6.5	7.1	7.8	8.5	8.3	8.0	3.6	4.2	5.0	5.5	5.4	5.3
Western Africa	12.3	10.4	11.4	12.4	14.4	14.7	33.0	31.9	40.3	45.0	53.7	56.1

Source: FAO, IFAD, UNICEF, WFP & WHO, 2019

Table 4: Prevalence of Moderate or Severe Food Insecurity, and Severe Food Insecurity only, Measured with the Food Insecurity Experience Scale, 2014–2018

Regions/ subregions/ countries	Prevalence of severe food insecurity in the total population (%)					Prevalence of moderate or severe food insecurity in the total population (%)				
	2014	2015	2016	2017	2018	2014	2015	2016	2017	2018
WORLD	8.0	7.7	8.0	8.7	9.2	23.2	23.2	24.1	25.6	26.4
AFRICA	18.1	19.0	21.9	22.9	21.5	47.6	48.3	52.6	54.3	52.5
Northern Africa	8.6	7.2	9.3	10.1	8.0	27.1	22.9	27.8	35.2	29.5
Sub-Saharan Africa	20.3	21.7	24.8	25.8	24.6	52.5	54.2	58.3	58.7	57.7
Eastern Africa	23.9	25.1	27.8	28.7	25.9	58.2	59.7	64.8	65.5	62.7
Middle Africa	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Southern Africa	21.4	20.6	30.7	30.8	30.6	45.3	45.9	53.5	53.6	53.6
Western Africa	12.9	14.4	16.5	17.7	17.6	43.7	45.3	47.3	47.7	47.9

Source: FAO, IFAD, UNICEF, WFP & WHO, 2019

The situation of undernourishment in the world was reverted in 2015. Between 2015 and 2018, there was a significant increase in the number of undernourished people in sub-Saharan African, especially in conflict-affected countries when

compared with countries that are not exposed to conflicts (FAO et al., 2019). Between 2014 and 2016, West African countries recorded the strongest rise in the prevalence of undernourishment. The rise was strongest in Guinea, Mauritania,

Niger and Nigeria. FAO and ECA (2018) state that the most populous country in Africa that is Nigeria, was affected by deteriorating commodity prices, Niger faced population displacements and civil insecurity, Mauritania was affected by the influx of refugees while Guinea suffered localized production shortfalls due to the emergence of Ebola Virus Disease.

Considering the trend of food insecurity, there was a dramatic increase in the price levels of commodities like oil, food and others within the two years (2006-2008). In 2016, the economic growth of the continent was very slow due to weak prices of its commodities, especially for minerals and oil (FAO & ECA, 2018). A year after, an increase in the prevalence of hunger was reported in Africa by FAO. The situations of food insecurity affected most African countries where conflicts occurred due to the effects of climate change such as drought and/or floods. For examples, drought and/or conflict led to soaring staple food prices in Ethiopia, Kenya, Niger, Nigeria, South Sudan, Sudan and Uganda as well as Southern Africa.

Overall progress towards achieving the WHO global nutrition targets is too slow at the continental level to hope to achieve them by 2025. Climate change has an impact on agricultural productivity in Africa as individuals rely heavily on rain-fed agriculture. The effects of climate change such as decreased rainfall and increased temperatures have been noticed on crop yields. Also, climate variability

and extremes affect millions of lives in Africa by causing hardships every year and contributing to conflict (FAO & ECA, 2018). The impact of climate shock on crop and livestock production can lead to 'entitlement failure' by destroying livelihoods and inflating prices and without large scale public interventions, hunger and famine follow (Devereux, 2007). Food insecurity in the African continent is, of course, a more complex problem than the simple availability of food; it is a function of poverty, poor governance and inequity within countries.

In Africa, 25 countries were affected by food shortages and placed approximately 200 million people on the verge of calamity (Centre for Nava Analysis, 2007). Since 2001 consecutive droughts in southern Africa have led to serious food shortages. In 2019, according to Anyadike, drought in Africa left 45 million in need across 14 countries. Drought affects most Africans across eastern, southern and Horn of Africa. The negative impacts of climate change on crops yields are more than the positive impacts. Climate-related disasters, especially drought and heavy rains affected many countries in 2010 by destroying their harvests, killing livestock and creating food crisis (Berazneva & Lee, 2013). Details of food crises in most affected African countries are presented in Figure 1. Besides, Egypt is a country in which desertification has taken over virtually all the arable land, thereby forcing the country to depend on food imports. Studies (e.g. Abdalla & Yunsheng, 2015) have shown that the adverse climate condition has been

responsible for drops in crops yields and shortages of food in Egypt.

Niger is very vulnerable to climatic conditions: desertification, caused by consecutive years of droughts because of severe drops in rainfalls, has caused Niger's land to be arid, unproductive for crops. The country has been experiencing a very serious food shortage crisis and this has encouraged population movement to Nigeria, Chad and Benin Republic in search for food. Niger depends on food imports to feed her citizens (Berazneva & Lee, 2013). Protests and violence that occurred in Mozambique killed several people while over 100 people injured due to an increase in the price level of fuel and food. The violence came on the heel of the flood disaster of 2008 that displaced up to 80,000 people. In 2000, 2001 and 2007, the country had floods and cyclones that swept away farmlands and destroyed homes. These created severe drops in agricultural productions and food shortages.

Trends/Pattern of people mobilization in the African continent

Migration in Africa involves large numbers of migrants both within and from the region. The number of African migrants who have left the continent is not negligible and has increased since 1990. Between 2000 and 2017, the number of international migrants increased by 10 million; 15 million in the year 2000 to 25 million in 2017, with the growth rate of 2.8% per year. During this period, the number of women migrants in Africa increased by 47% (United Nations Department of Economic and Social

Affairs, 2017a). Between 2015 and 2017, the number of African international migrants living within the region jumped from 16 million to around 19 million (McAuliffe & Kitimbo, 2018). Within the same period, there was only a moderate increase in the number of Africans moving outside the continent, from 16 million to 17 million.

In 2018, United Nations Conference on Trade and Development stated that there were about 41 million international migrants from, to, or within Africa. 19 million migrants, representing 53% of Africa's international migrants resided on the continent, 17 million were residents outside of the continent, and 5.5 million were immigrants from the rest of the world (UNCTAD, 2018). In 2019, over 21 million Africans were living in another African country, a significant increase from 2015, when around 18.5 million Africans were estimated to be living within the region. The number of Africans living in different regions also grew during the same period, from 17 million in 2015 to nearly 19 million in 2019 (International Organization of Migration, 2020). During the last two years, there was major migration and displacement events which resulted in great hardship and trauma as well as loss of life (IOM, 2020).

Large-scale displacement triggered by climate and weather-related hazards occurred in many parts of the African continent in 2018 and 2019, especially in Mozambique. Many factors have been attributed to the migration situation in the African continent. Figure 2 shows interregional migration as an important

contributor to population change in some African countries such as Equatorial Guinea (UNCTAD, 2018). South Africa and Côte d'Ivoire are the two countries for many Africans on the continent due to economic opportunities (McAuliffe & Kitimbo, 2018).

4 CONCLUSIONS

This study has explored the impacts of global climate change on refugees and food insecurity in Africa. The study revealed that environmental disasters triggered by the change in climate have led to an increase in refugees and decrease in food supplies resulting in food

rioting in some of the African countries especially sub-Saharan Africa. Also, forced displacements of people and food shortages continue in the African continent due to insufficient resources to address the detrimental effects of the present issues. It is recommended that governments at all levels should foresee and respond to various environmental issues, requiring time, money and organization; decent employment should be promoted by the government to avoid involuntary migration, and efforts should be made to encourage insurance markets and create strategic local grain reserves to contain food price precariousness and avert food crises.

REGION	COUNTRY	DRIVERS OF FOOD CRISES (main driver in orange)			ECONOMIC SHOCKS DESCRIPTION	DOWNTURN	SLOWDOWN	NUMBER (millions) PEOPLE IN IPC/CH PHASE 3 AND 4	
		ECONOMIC SHOCKS	CONFLICT	CLIMATE				IPC/CH PHASE 3 (Crisis)	IPC/CH PHASE 4 (Emergency)
AFRICA	Burundi	•	•	•	Economic downturn (consequent to the 2015 political crisis); food-import dependence.	•		1.7	n.a.
	Cameroon	•	•	•	High food prices; low livestock prices; low purchasing power especially for pastoralists.		•	0.5	0
	Central African Republic	•	•		High food prices.		•	1.4	0.5
	Chad	•	•	•	Decreased wages; low purchasing power; low livestock prices.	•		1	0
	Democratic Republic of the Congo	•	•	•	Decreased wages; high food prices; export restriction from Zambia.	•		9.7	3.4
	Djibouti	•	•	•	High food prices.		•	0.15	n.a.
	Eswatini	•		•	Unemployment; sluggish economic growth.			0.1	0.1
	Kenya	•	•	•	High food prices; income inequality.		•	2.6	n.a.
	Madagascar	•		•	High food and fuel prices; low purchasing power.	•		1.1	0.4
	Malawi	•		•	High food prices; low wages and labour opportunities.	•		2.9	0.4
Mozambique	•		•	High food prices.		•	1.4	0.4	
AFRICA	Niger	•	•	•	Low livestock prices; low purchasing power especially for pastoralists.		•	0.8	0
	Nigeria	•	•	•	High food prices; low purchasing power.	•		5.1	0.2
	South Sudan	•	•	•	Hyperinflation; currency depreciation.	•		4.4	1.7
	Sudan	•	•	•	Downturn; currency depreciation; high inflation; lack of income-earning opportunities.		•	5.6	0.6
	Uganda	•	•	•	High food prices.	•		1.1	n.a.
	Zambia	•		•	High food prices; currency depreciation.		•	0.9	0.3
	Zimbabwe	•		•	Currency depreciation; high food prices; lack of labour opportunities.	•		1.9	n.a.

Figure 1: African Countries and Territories with Food Crises in correspondence with Economic Shocks, 2018
Source: FAO, IFAD, UNICEF, WFP and WHO, 2019

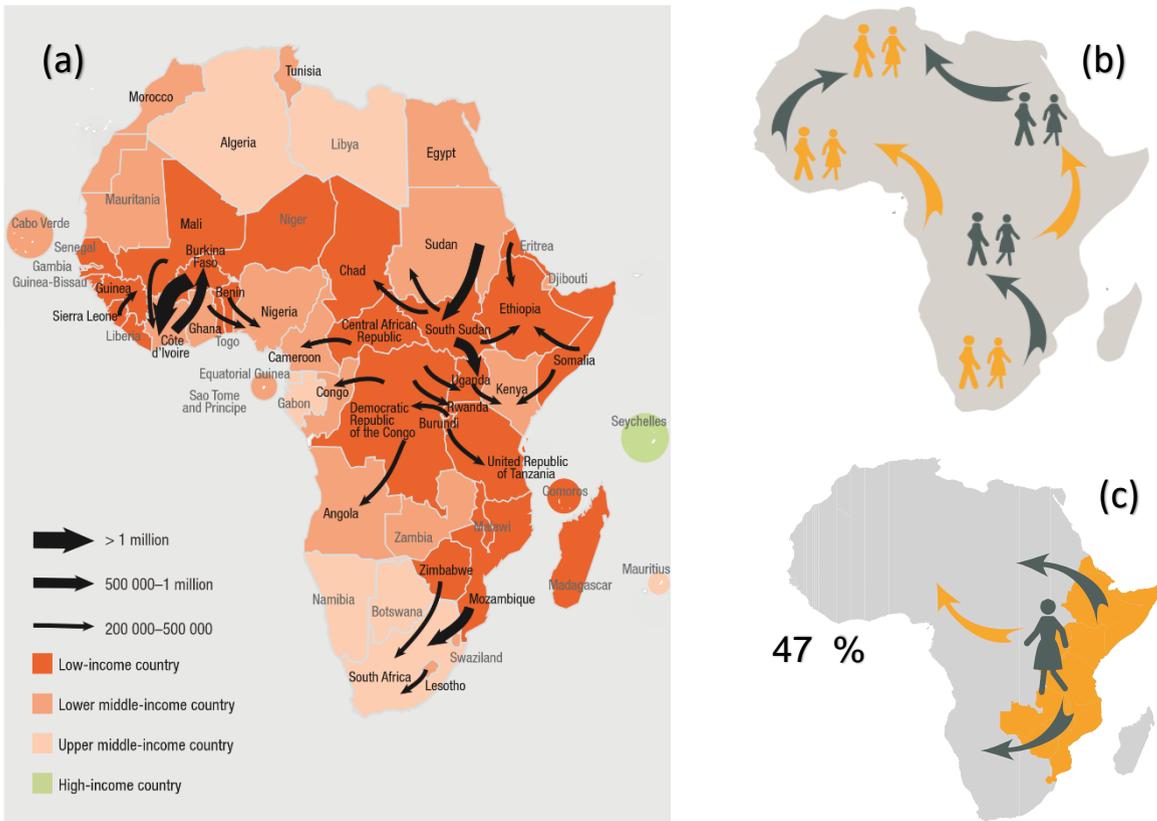


Figure 2: African Map showing: (a) Main intra-African migration corridors, stocks in 2017; (b) Intra-African regional migration (c) Percentage of women migrants as share of international migrant stock in African regions.

Source: UNCTAD, 2018

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