



جامعة الإسكندرية
ALEXANDRIA
UNIVERSITY
كلية الدراسات الاقتصادية والعلوم السياسية
Faculty of Economic Studies & Political Science
معرفة واتساء

المجلة العلمية
لكلية الدراسات الاقتصادية والعلوم السياسية

<https://esalexu.journals.ekb.eg>

دورية علمية محكمة

المجلد التاسع (العدد السابع عشر، يناير 2024)

Climate change and Conflict in the Horn of Africa: The case of Somalia⁽¹⁾

Shaimaa Moheyeldin Mahmoud Mohamed

Associate Professor of Political Science

Faculty of African Postgraduate Studies

Cairo University

shaimaa.moheyeldin@cu.edu.eg

⁽¹⁾ تم تقديم البحث في 2023/5/23، وتم قبوله للنشر في 2023/9/6.

Abstract

Climate change is one of the most prominent worldwide challenges that gained priority on the Global Agenda over the last years. literature links climate change and conflict, especially within the African context, as climate change – be it in the form of drought, desertification, floods or a sharp rise in temperatures - and the resulting catastrophic effects that threaten the lives of individuals and groups in Africa constitute a favourable environment and a catalyst that helped create many conflicts and exacerbate existing conflicts.

The case of Somalia is considered one of the cases worthy of study in this regard, as it is facing an unprecedented wave of drought, the worst in the history of Somalia, as Somalia is living in the midst of the fifth failed rainy season in a row, which resulted in catastrophic effects. Among the 16 million citizens who represent the total population of Somalia, about 8 million citizens are facing a real crisis of food insecurity, which has reached famine in some regions, and at the same time, the third quarter of 2022 recorded the highest levels of conflict-related deaths in five years. Under these circumstances, al-Shabaab terrorist Movement escalated its attacks in the centre and south, which are the areas most affected by the drought. Moreover, 3 million citizens were internally displaced, while about 20,000 Somali citizens crossed the border as refugees in Kenya, in what is known as "climate refugees".

In this context, this paper seeks to study and analyse the phenomenon of climate change and conflict, in order to answer the question: To what extent has climate change affected the conflict in Somalia? To achieve this goal, the study adopts a case study approach and is divided into four main sections that begin with a theoretical background on the relationship between climate change and conflict, then it deals with the phenomenon of climate change in

the Horn of Africa, next it focuses on the impact of climate change on the conflict in Somalia, and finally presents Response policies and opportunities to contain the conflict in Somalia.

Keywords: climate change- drought- Somalia- conflict- Horn of Africa- al shabaab.

المخلص

تغير المناخ والصراع في القرن الأفريقي: دراسة حالة الصومال

تعتبر التغيرات المناخية من القضايا ذات الأولوية على الأجندة الدولية في الآونة الأخيرة، حيث تحظى باهتمام كبير سواء من جانب الدول أو من جانب الباحثين ليس فقط في العلوم السياسية وإنما في مختلف الميادين المعرفية. وبالرغم من أن التغيرات المناخية ليست بالظاهرة الجديدة من حيث النشأة، إلا أن ما باتت تفرزه من نتائج وآثار سياسية واقتصادية واجتماعية جعلها تفرض نفسها بقوة خلال الخمس سنوات الماضية. وتعددت الأدبيات التي تربط بين التغير المناخي والصراع، لا سيما على الساحة الأفريقية، ذلك أن التغيرات المناخية -من جفاف وتصحر وفيضانات وارتفاع حاد في درجات الحرارة- وما نتج عنها من آثار كارثية تهدد حياة الأفراد والجماعات في أفريقيا شكلت بيئة مواتية وعنصر محفز أدى إلى تعجر العديد من الصراعات من جهة، كما زاد من حدة صراعات قائمة بالفعل من جهة أخرى، الأمر الذي جعل من إمكانية تسوية تلك الصراعات بمعزل عن سياسات الاستجابة إلى التغيرات المناخية أمراً من الصعوبة بمكان.

وتعتبر حالة الصومال من الحالات الجديرة بالدراسة في هذا المقام، ذلك أنها تواجه موجة غير مسبوقة من الجفاف هي الأسوأ في تاريخ الصومال، حيث تعيش الصومال في خضم موسم الأمطار الفاشل الخامس على التوالي، الأمر الذي أسفر عن آثار كارثية، فمن بين 16 مليون مواطن يمثلون إجمالي تعداد سكان الصومال، يواجه نحو 8 مليون مواطن أزمة كارثية من انعدام الأمن الغذائي للحد الذي وصل إلى المجاعة في بعض الأقاليم، وفي الوقت نفسه فقد سجل الربع الثالث من عام 2022 أعلى مستويات الوفيات المرتبطة بالصراع في خمس سنوات. وفي ظل هذه الظروف، صعدت حركة شباب المجاهدين هجماتها في الوسط والجنوب، وهي المناطق الأكثر تأثراً بالجفاف، والتي تسيطر عليها حركة الشباب بالفعل. وفي ظل عدم استطاعة منظمات الإغاثة الوصول إلى

الأقاليم المتضررة، اضطر 3 مليون مواطن إلى النزوح داخليا، في حين عبر نحو 20 ألف مواطن صومالي الحدود كلاجئين في كينيا.

وفي هذا الإطار، عنيت هذه الورقة بدراسة وتحليل ظاهرة التغير المناخي وعلاقتها بالصراع في الصومال، وذلك بغية الإجابة عن تساؤل: إلى أي مدى أثرت التغيرات المناخية على الصراع في الصومال؟ وتحقيقا لهذا الهدف، تبنت الدراسة اقتراب دراسة الحالة كما انقسمت إلى أربعة أقسام رئيسية بدأت بمدخل نظري عن العلاقة بين التغير المناخي والصراع، ثم تناولت ظاهرة التغير المناخي في القرن الأفريقي، ثم ركزت في القسم الثالث على أثر التغير المناخي على الصراع في الصومال، وتناول القسم الرابع سياسات الاستجابة وفرص احتواء الصراع في الصومال. واختتمت الدراسة بعرض أبرز النتائج، حيث استنتجت الدراسة أن تغير المناخ يعتبر محفزاً رئيسياً للصراع في الصومال، حيث أدى الجفاف وما أسفر عنه من صراع على الموارد الشحيحة إلى تفاقم الانقسامات العشائرية، كما مثلت عمليات الإخلاء القسري الناتجة عن الجفاف سبباً ومضاعفاً لأزمة النزوح الداخلي في الصومال، الأمر الذي أسفر عن المزيد من الصراعات والاضطرابات في مختلف أنحاء الدولة.

الكلمات الدالة: التغير المناخي-الجفاف-الصومال-الصراع-القرن الأفريقي-الشباب المجاهدين

1. Introduction

Climate change is one of the priority issues on the global agenda in recent years, as it received great attention, both on the part of countries and on the part of researchers, not only in political science, but also in various fields of knowledge. Although climate change is not a new phenomenon in terms of its origins, its political, economic and social results and effects have made it impose itself strongly over the past five years. literature links climate change and conflict, especially within the African context, as climatic changes – be it drought, desertification, floods or a sharp rise in temperatures - and the resulting catastrophic effects that threaten the lives of individuals and groups in Africa constitute a favourable environment and a catalyst that helped create Many conflicts on the one hand, and it also exacerbated existing

conflicts on the other hand, which made the possibility of settling these conflicts in isolation from climate change response policies very difficult.

The Horn of Africa is one of the most prominent hotbeds of conflict in Africa and the world, as the countries of the region witnessed internal conflicts and witnessed inter-state wars between countries and each other. Perhaps this is due to a number of factors, including the unique composition of the countries of the region that witness great disparities between their countries, whether in language, identity or religion, in addition to the different historical circumstances in which these countries arose, as the colonial powers of these countries differed, in addition to the policies of colonialism that It worked to dismember the groups that formed the peoples of the region, and the most prominent example of this is the division of Somalia into five sections and the administration of southern Sudan in a manner completely different from its south. All this and more led to the creation of enmities that are difficult to contain between the countries of the region and each other in the aftermath of independence. On the other hand, the countries of the region were subjected to successive waves of drought and desertification, which added to the existing conflicts more complexity and led to the outbreak of conflicts such as the conflict in Darfur as well as the conflict in each of the Lake Turkana basin in Ethiopia and the Awash River basin in Ethiopia among others. (Abshir 2020)

The case of Somalia is worthy of study in this regard, as it is facing an unprecedented wave of drought, the worst in the history of Somalia, as Somalia is living in the midst of the fifth failed rainy season in a row, which resulted in catastrophic effects. Among the 16 million citizens who represent the total population of Somalia, about 8 million citizens are facing a catastrophic crisis of food insecurity, which has reached famine in some regions, and at the same time, the third quarter of 2022 recorded the highest

levels of conflict-related deaths in five years. Under these circumstances, the Mujahideen Youth Movement escalated its attacks in the centre and south, which are the areas most affected by the drought, and which Al-Shabaab already controls. In light of the inability of relief organizations to reach the affected regions, 3 million citizens were internally displaced in what is known as the phenomenon of "environmental displacement", while about 20,000 Somali citizens crossed the border as refugees in Kenya. (IRC 2022)

In this context, this paper seeks to study and analyse the phenomenon of climate change and its impact on the conflict in Somalia, in order to answer the question: To what extent has climate change affected the conflict in Somalia? To achieve this goal, the study adopts a case study approach and is divided into five main sections, starting with the introduction, then moving to a theoretical background on the relationship between climate change and conflict. The third section deals with the phenomenon of climate change in the Horn of Africa. The fourth section focuses on the impact of climate change on the conflict in Somalia. The fifth section presents Response policies to climate change in Somalia. The study finalizes with a conclusion presenting the most important results of the paper.

2. Climate change and conflict: A Theoretical Background & Literature Review

According to the United Nations Framework Convention on Climate Change issued in the year 1992, Climate change refers to a change of climate, which is attributed either 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 periods. (UNFCCC, 1992, Article 1). On the other hand, the Intergovernmental Panel on Climate Change (IPCC) defines Climate change as 'a change in the state of the climate that can be identified by changes in the mean and/or the variability of its properties

and that persists for a period that extends to decades or even longer (Eklow and Krampe 2019). Generally speaking, Climate change refers to long-term shifts in the temperatures and weather patterns. Despite the fact that these shifts may be natural, through variations in the solar cycle for instance, the main driver of climate change nowadays is human activity, primarily due to burning fossil fuels like oil, coal and gas, which generates greenhouse gas emissions – like carbon dioxide and methane- that act like a blanket wrapped around the Earth, trapping the sun’s heat and raising temperatures. Moreover, clearing land and forests can also release carbon dioxide, while Landfills for garbage are a major source of methane emissions. (UN 2023)

The period from 2011 to 2021 proved to be the warmest on the Earth’s record, as the Earth is now 1.1°C warmer than it was in the late 1800s. The consequences of climate change are apparently dangerous to the extent that they really threaten the lives of millions of people all around the globe. These include floods, severe fires, melting polar ice, water scarcity, intense droughts, rising sea levels, declining biodiversity and catastrophic storms, among others. The 10 countries with the largest emissions contribute 68% of total emissions, whereas the 100 least-emitting countries generate only 3%. Accordingly, countries creating more of the problem have a greater responsibility to take an action first. Scientists argue that limiting the rise in global temperature to no more than 1.5°C would help us avoid the worst implications of climate change. (UN 2023)

On the other hand, Climate change can affect human health and wellbeing, including housing, work, safety and even the ability to grow food. Some people are more vulnerable to climate impacts, such as those living in developing countries. In Africa, protracted droughts are putting people at high

risk of famine. Accordingly, the number of “climate refugees”⁽²⁾ is expected to rise in the near future. (UN 2023)

The implications of climate change are numerous, as they may worsen living conditions and trigger displacement or even hamper the return for those who have already been displaced. Within the context of limited natural resources, such as scarcity of water, Crops, people and even livestock struggle to survive where conditions become too hot and dry, threatening livelihoods. In such conditions, climate change can act as a multiplier, exacerbating existing tensions and adding to the potential for conflicts. It has been recorded that extreme weather events, such as prolonged droughts, environmental degradation, heavy rainfall, desertification, or sea-level rise are already causing more than 20 million people every year to leave their homes and move to other places in their countries, and sometimes they are forced to cross borders in the context of climate change and disasters and facing really hard conditions that they may be in need of international protection. (UNHCR 2023)

In the early nineties, Thomas Homer-Dixon conducted a series of studies on the relationship between environmental scarcities and violent conflicts. Dixon argued that growing scarcities of renewable resources can contribute to social instability and civil unrest. Within the next 50 years, he

⁽²⁾ According to the 1951 convention on the status of Refugees, A “refugee” is defined as a person who has crossed an international border “owing to well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion”. This definition may extend in some contexts to include persons fleeing “events seriously disturbing public order”. However, there may be situations where the refugee criteria of the 1951 Convention or the broader refugee criteria of regional refugee law frameworks could apply, as people may have a valid claim for refugee status in cases where the adverse effects of climate change interact with violent armed conflict. In 2020, the UNHCR issued Legal Considerations to guide interpretation and steer international discussion on such claims. Despite the fact that the term “climate refugee” is not endorsed by the UNHCR, which argues that it is more accurate to refer to “persons displaced in the context of disasters and climate change”, it is a widely used term in literature with regards to the impact of climate change on refugees and IDPs.

said, the human population is expected to exceed nine billion, and scarcities of renewable resources may increase sharply. The total area of productive agricultural land will drop, as well as the number of forests and species they sustain. In addition, Future generations will also witness an ongoing depletion and degradation of aquifers, rivers and other sources of water, together with the decline of fisheries. As these environmental problems become more severe, they may precipitate civil, regional or even international strife. Thomas Homer-Dixon, together with a team of 30 researchers in Toronto university examined the relationship between environmental scarcities and conflicts in specific cases. (Dixon 1994, p 44)

Despite the fact that the environment is only one variable in a series of political, social and economic factors that can bring about turmoil, Dixon argued that it is an important factor indeed, whereas renewable resource scarcities of the next 50 years will probably occur with an unprecedented speed, complexity and magnitude. Entire countries can be deforested in a generation, and most of a region's topsoil can disappear and acute ozone depletion may take place in no more than 20 years. Moreover, human actions may bring about scarcities of renewable resources in three principal ways. First, people can degrade the quality or reduce the quantity of these resources faster than they are renewed, in a phenomenon usually referred to as the consumption of the resource's "capital". The second source of scarcity is population growth, which means that a given flow of water, for instance, might have to be divided among a greater number of people. The third and final cause of scarcity is the change in the distribution of a resource within a society. Such a shift can concentrate supply in the hands of a small number of people, subjecting the majority to extreme scarcity, which can be an important force behind changes in the politics and economics governing the

use of such resource. It can cause powerful actors to develop an inequitable distribution of resources in their favour.

Given such situation, Dixon developed his theory of the so called “environmental scarcity and violent conflict”, where he argued that scarcities of renewable resources often produce insidious and cumulative social effects, such as economic disruption and population displacement. These events can, in turn, lead to clashes between ethnic groups as well as to civil strife and insurgency. Such conflicts may have serious repercussions for the security interests of different countries of the world. His research then came to the conclusion that scarcities of renewable resources are contributing to violent conflicts in many areas especially in developing countries, where shortages of fertile land, forests and water, coupled with rapidly expanding populations, are factors that already cause great hardship. (Dixon 1993)

It is worth noting that the causal relationship between environmental scarcities of renewable resources – as described by Dixon- and the outbreak of violent conflict is really complex, given that environmental scarcity emerges within a social, economic, political, and ecological context and interacts with many of these contextual factors to contribute to violent conflict. (Dixon and Percival 1998)

Dixon was one of the pioneer advocates of the close correlation between environmental scarcity and violent conflict. Later, many other scientists proved his theory in practice. In 2007, the international peace institute published a series of working papers titled “Climate Change and Conflict: The Migration Link”. The study reviewed the literature regarding the relationship between climate change and violent conflict, and concluded that climate change is likely to be a significant factor leading to mass exodus, and population shifts stemming from environmental pressures can place significant burdens on migrant-receiving areas, leading to violent conflict and

political instability. (Gleditsch, Nordås and Salehyan 2007) Moreover, in May 2016, the UN office for the coordination of humanitarian affairs published an occasional policy paper titled “Understanding the climate-conflict nexus from a humanitarian perspective: a new quantitative approach”. The paper gave special attention to conceptualizing the relationship between climate change and violent conflict and argued that in the last 7 years, around 22.5 million people were displaced from their homes every year by disasters brought on by climate-related hazard events, especially floods and storms, which is equivalent to around 62,000 people every day. The paper studied cases including conflicts in Syria, Myanmar and Sudan. The study affirmed that Climate change can indirectly increase risks of violent conflicts, either in the form of civil war or inter-group violence by amplifying drivers of these conflicts such as economic shocks and poverty. The preliminary results of the paper are consistent with the aforementioned conflict and climate change literature in identifying many low- and lower-middle-income countries as most vulnerable to the climate-conflict nexus. (UNOCHA 2016)

In the year 2019, a group of top researchers representing an array of viewpoints conducted a study titled “Climate as a risk factor for armed conflict,” and published in “nature”, where they tried to address some longstanding disagreements among historians, political scientists and other experts about the role climate change has played in internal conflicts over the last 100 years. Stanford researchers brought together 11 of the most experienced and cited experts on the topic to assess the impact of climate change on global security. Working together, the experts concluded that worsening climate change will increase the risk of future violent conflict especially intra-state conflicts. They also agreed that climate change will play

a far greater role in destabilizing countries as the planet warms. (Mach et al. 2019)

In the years 2020 and 2021, the international crisis group published a series of papers regarding to the relationship between climate change and the future of conflict. Across the African Sahel, Crisis Group has analysed how climate-related factors have exacerbated intercommunal conflicts between herders and farmers. In Northern Nigeria, large declines in the length of the rainy season and an increase in desert conditions over recent decades have dried up many natural water sources, diminishing pastures and farmland. Such conditions have exacerbated long-running contests between herders and farmers sharing the same resources. They also forced large numbers of herders to migrate south in search of productive land, resulting in increasing conflicts between them and populations of sedentary crop farmers in central Nigeria. This violence has increased Nigeria's security challenges. The papers finally concluded that the impact of climate change on conflict is context-specific, which is why field based political analysis that engages climate expertise could produce the most effective conflict prevention outcomes. (Malley 2020)

Based on all the above, it is now apparent that there is a wide variety of literature that studied the relationship between climate change and violent conflict, and that the majority of these studies concluded that climate change usually exacerbates violent conflicts in many contexts and thereby more attention should be given to the global measures to control climate change in an attempt to contain violent conflicts in the most vulnerable communities especially in developing countries.

This paper seeks to analyse the relationship between climate change and conflict in the case of Somalia, which is a very complex case in itself, a fragile state facing many challenges including environmental ones. The paper

strongly builds upon the findings of Thomas Homer-Dixon with regards to the relationship between the environment and violent conflicts.

3. Climate change in the Horn of Africa: causes and effects

The Horn of Africa refers to that region in eastern Africa, which traditionally consists of Somalia, Ethiopia, Djibouti and Eritrea, in the narrow geographical sense. Given their close ties with the previously mentioned countries of the horn, many countries could be geopolitically added to the horn region, in the so called “the Greater horn of Africa”, which is largely a political concept that incorporates Kenya, Sudan, and South Sudan into the Horn region, and some analysts add Uganda & even Yemen as a result of their integrated relationships with all countries of the horn. According to the EU, The Horn of Africa refers to the eight member states of the Intergovernmental Authority on Development (IGAD), which include Djibouti, Eritrea, Ethiopia, Kenya, Somalia, South Sudan, Sudan and Uganda. This region has tremendous diversity in language, ethnicity, history, politics and economic development. The horn of Africa has access to The Red Sea, the Gulf of Aden, The Indian Ocean & the River Nile, which makes it of significant strategic importance to great powers in the world. (Mesfin, 2010) Moreover, the countries of the greater horn cover an area of over 5.2 million square kilometers, with a total population of over 230 million in 2020. In all countries of the horn, Agriculture is the backbone of the economy, and it employs over 80% of the population. Most of the countries of the horn are among the world’s Least Developed Countries (LDCs); with a very low GDP per capita and high growth rates. (Abshir 2020) and (worldometers 2023)

Across the Horn of Africa, climate change proved to have severe implications, where over 36 million people have now been affected by one of the most severe and longest waves of droughts in recent history, including

24.1 million people in Ethiopia, 7.8 million in Somalia and 4.35 million in Kenya. Within such circumstances, hundreds of thousands of people are at high risk of starvation and millions more are facing very high levels of hunger. On top of the harsh impacts of increasingly frequent severe weather and climate change, the region is also grappling with multiple, overlapping crises including conflict, continued implications of the COVID-19 pandemic, together with locust infestations. Moreover, Food and fuel prices have also soared due to the war in Ukraine. The situation is getting more complicated in the horn, as climate changes continue to threaten the lives of people, who are struggling to survive within these circumstances. (United Nations population fund 2022) an analytical study conducted by the World Health Organization (WHO) in November 2022 has found that the number of reported climate-related health emergencies in the Horn of Africa have reached their highest-ever level this century, deepening a health crisis in a region where 47 million people are already facing acute hunger. Most parts of the horn are battling the worst drought in at least 40 years, with an unprecedented fifth rainy season failure now anticipated. Drought is not the only extreme weather event the region is fighting. South Sudan is experiencing its fourth consecutive year of flooding, with about 40% of the country under water. Flash floods and heavy rains continue to affect tens of thousands of people across neighbouring Sudan, where the floods have destroyed thousands of houses and tens of health facilities, water sources, and latrines in 15 states. Additionally, livestock and a wide area of agricultural land have been affected by floods, which contribute to food insecurity. (WHO 2022)

This section focuses on the causes and effects of climate changes in the countries of the horn of Africa, in an attempt to shed the light on the most significant factors that contributed to the catastrophic situation in the region.

3.1. Causes of climate change in the horn of Africa:

The Horn of Africa is a climate change-vulnerable region, where food and livelihood systems are highly exposed to climate variability, given that the region's agriculture is predominantly rain-fed. Furthermore, the majority of its territory is under pastoralism, which accounts for around 70% of rural incomes in the pastoral communities. Extreme weather events, especially drought, worsens existing conditions in countries of the horn. Many factors contributed to climate changes in the horn of Africa, the majority of which are human created. This section concentrates on the most significant causes underlying climate change in the horn of Africa.

3.1.1. Deforestation and Forest Degradation:

Africa contains about 16% of the world's forested land area, the maintenance of which is crucial to achieve biodiversity and climate goals. However, cutting down forests -or deforestation- has accelerated in the recent years, with an average of 4 million hectares lost every year over the period from 2016 to 2020. (IEA, 2022a) Poor agricultural practices exacerbate the impact of climate change on countries of the horn of Africa. Deforestation hampers forests' CO₂ capture and exposes agricultural lands to inclement weather, leading to desertification, erosion and landslides. The share of sub-Saharan Africa's forests in total land has been declining, with substantial deforestation in many countries including Côte d'Ivoire, Gambia, and Niger. Deforestation is often motivated by the need to expand agricultural production. In the horn of Africa, Soil erosion is projected to be higher than the global average by 2070, particularly in Kenya and Ethiopia. (IPCC, 2021)

The horn of Africa has undergone extensive environmental changes over the past three decades. Open Forests witnessed a sharp decrease from 1990 to 2020. A study conducted on land cover change in East Africa between 1988 and 2017 concluded that the area of Cropland and Settlements

in East Africa increased between 35% and 43%, driving large-scale reductions in forests. In Ethiopia and Uganda, deforestation of Open Forests primarily resulted in conversion to Cropland and Open Grassland. Primary hotspots for the conversion of Cropland occurred in Uganda (55%). (Bullock et al, 2021) In Uganda, the natural forest cover has experienced a severe decline, especially over the past decades. Forest cover went down from 24% of the total land area in the year 1990 to only 9% in 2015. A total of about 3.05 million hectares of forests have been lost in just 25 years, out of which about 2.2 million hectares were from woodlands. Over the years, the forest estate outside protected areas reduced from 68% of the total area of forested land in Uganda in 1990 to 61% in 2005, then to 38% in 2015, which is a loss of almost half of the unprotected forests in only 25 years. (Kazungu, 2022)

Direct drivers of deforestation and forest degradation are unsustainable harvesting of tree products -mainly for firewood, charcoal and timber expansion of subsistence agriculture- expanding settlements and impacts of refugees, wildfires, free-grazing livestock, artisanal mining operations and oil exploration activities. Indirect drivers of deforestation may include demography, natural resources and biomass energy, high dependence on subsistence agriculture, as well as competing economic returns from land disfavoured long-term investments in forestry, amongst others. (Kazungu, 2022) Alternative drivers of deforestation in the region include poaching, hunting, and fire management. (Bullock et al, 2021)

3.1.2 Emissions from fossil fuel combustion:

Anthropogenic factors, led by greenhouse gas emissions (GHG), are the main cause of global warming. Greenhouse Gas Emissions are created from residue burning, increased land use, certain types of fertilizer, and enteric fermentation. (IPCC, 2021) The major source of greenhouse gas emissions is carbon dioxide (CO₂) emissions from fossil energy

consumption. It is worth noting that fossil energy is also an indispensable part of economic development. At the beginning of the 21st century, all countries of the horn of Africa were agrarian and actively exploring ways to revitalise their economies. Later, large economies such as Kenya and Ethiopia have set industrialisation as a major goal in their national economic development plans. (Sun et.al, 2022)

Despite the fact that countries of the greater horn of Africa are contributing only 0.1% of all energy related global co2 emissions in 2020, the region countries face a common challenge, which is their increasing vulnerability to climate change. (IEA, 2022b) According to the ND-GAIN Index⁽³⁾, except for Djibouti, all countries of the greater horn of Africa are among the 20% most vulnerable to climate change and Eritrea, Somalia, Sudan, Ethiopia and Uganda are among the top 10% most vulnerable countries to climate change all over the world. Vulnerability measures the exposure, sensitivity, and ability to cope with climate related threats and challenges by accounting for the overall status of water, food, health, environment, and infrastructure within a country. Table 1 reflects the percentage of total world emissions and the vulnerability together with readiness of countries of the great horn of Africa to face such situation. Readiness measures a country's ability to leverage investments and convert them to adaptation actions by considering economic, social and governance readiness. (Ministry of Foreign Affairs of the Netherlands, 2018)

⁽³⁾ GAIN index summarizes a country's vulnerability to climate change and other global challenges in combination with readiness to improve resilience. For more visit: <http://index.gain.org/>

Table 1: Total Emissions, vulnerability and readiness in countries of the horn of Africa

country	Emission % (global)	Emissions Rank (215 countries)	Rank per capita Emissions (188 countries)	ND-GAIN Index 2016 (181 countries)	ND-GAIN Index 2020 (182 countries)	vulnerability Rank	Readiness Rank
Djibouti	0.003	173	146	141	122	51st most	33rd least
Eritrea	0.01	174	178	179	178	10th most	2nd least
Ethiopia	0.27	98	182	163	161	22nd Most	31st least
Kenya	0.13	93	156	151	149	31st most	37th least
Somalia	Na	176	183	181	172	2nd most	1st least
South Sudan	Na	157	na	Na	na	na	na
Sudan	0.18	91	155	176	177	7th most	14th least
Uganda	Na	na	na	Na	166	na	na

Source: University of Notre Damme 2020, Notre Dame Global Adaptation Initiative

<https://gain.nd.edu/our-work/country-index/rankings/> accessed 09 Feb 2023

Ministry of Foreign Affairs of the Netherlands 2018, climate change profile: greater horn of Africa,

<https://www.government.nl/binaries/government/documenten/publications/2019/02/05/climate-change-profiles/Greater+Horn+of+Africa.pdf>

In 2022, a study calculated the emissions from fossil fuel combustion in East Africa over the period from 2000 to 2017. The emissions are calculated for four fossil fuels (i.e., crude oil, coal and coal products, natural gas and oil products). The study concluded that emissions in East Africa have been rising at an average annual rate of around 6.03%, as it nearly tripled from 17.6Mt in 2000 to 47.6Mt in 2017. In terms of emissions by country, Kenya is at the peak of emissions, as it emits the most, while Uganda's emissions are highly volatile, with a jump in emissions over the period between 2013 and 2015 due to large oil imports for the transport sector. The combined emissions of Kenya, Tanzania, Ethiopia and Uganda account for more than 80% of emissions in East Africa. Kenya is the most industrialized country in the region and CO₂ emissions have been rising at a relatively

steady rate, averaging 5.00% per annum. Ethiopia's emissions grew slowly over the period from 2000 to 2010, at an average annual rate of 6%. After the implementation of the Growth and Transformation Plan (GTP) in 2010, and the shift from agriculture to manufacturing, Ethiopia's emissions grew at an average annual rate of 13% from 2010 to 2017. In terms of the energy source, the main sources of emissions in Kenya and Ethiopia are oil and coal consumption, where oil is the core fossil fuel type and the main source of emissions accounting for approximately 90% of emissions. This emission pattern suggests a very high potential for future emissions. (Sun et.al, 2022)

3.2 Effects of climate change in the horn of Africa:

The Horn of Africa is particularly vulnerable to the negative effects of climate change. The following are some of the effects that resulted from climate change, and that are clearly observed in countries of the horn of Africa over the years.

3.2.1 *Changing pastoral mobility patterns:*

Pastoralists make over 50% of the total population in Somalia and South Sudan, and between 30% to 40% in Djibouti, and around 20% of the population in each of Kenya, Sudan, Uganda, Ethiopia and Eritrea (Mkutu, 2018). It is worth noting that the vast territories under pastoralism are either totally arid or semi-arid, due to high temporal and spatial rainfall variability (Catley et.al, 2016) which is in itself a risk factor for vulnerability to climate change. Droughts in many areas of the horn of Africa have exacerbated famines and the scarcity of pasture and water resources which severely affected pastoral communities inhabiting the least favoured agricultural areas (LFAAs) (Barbier & Hochard, 2018).

As pastoralists incur losses of livestock and poverty, they are forced to migrate into agro-pastoral areas, which increases tension between the two communities over scarce resources. (Catley et.al, 2016). In the Horn of

Africa, the Afar, Somali, fur, Baggara and Karamajong pastoralists have had to migrate southwardly in Uganda, Sudan and Kenya, where climatic conditions are better, and toward water sources in Eritrea, Ethiopia and Somalia (Mkutu, 2018).

Climate change-related livestock losses, therefore, exacerbate inter-communal tensions and make community-level violence intractable. In Sudan, for instance, there was a 30% drop in rainfall distribution in over 30 years, which has stoked tensions between pastoralists and agricultural farmers. The Darfur conflict had its origins in the water and pasture scarcity and the competition that arose between farmers and migratory herders. In Kenya recurrent conflicts arose in the Laikipia County, between rich livestock keepers and herders over pasture and water resources to the extent of threatening the security of the entire county and neighbouring counties, by totally paralyzing education, health, infrastructure and other social services, causing displacement of people. (Sitawa, Ali and Mwasigwa 2022)

3.2.2 Food insecurity:

Food insecurity is escalating across countries of sub-Saharan Africa (SSA) in general. In 2022, around 123 million people (almost 12 % of SSA's population) were recorded to be food insecure—as they were suffering from high levels of malnutrition and they couldn't meet minimum food consumption needs. Over the past two years, at least 28 million of these people became acutely food insecure, mainly due to successive shocks raising food prices. The war in Ukraine has resulted in global shortages in cereal and high prices of fuel, inflating food import bills and raising food prices in SSA. Moreover, countries of SSA are still facing continued challenges induced by the COVID-19 pandemic, especially with regard to falling incomes, rising unemployment, and the lasting negative impact on food supply chains from lockdowns in 2020–2021 (affecting 26 million people). (IMF, 2022)

Climate change is further intensifying food insecurity and potentially jeopardizing hard-earned development gains in the horn of Africa. Currently, the Horn of Africa is suffering one of the most severe droughts in recent history while Somalia is undergoing a fifth consecutive season of drought. such weather event has significantly raised food insecurity, especially for these countries where agricultural productivity is already recorded to be less than half the global average. (Ritchie, 2022) In Ethiopia and Tanzania, food insecurity increases between 5% to 20% points with each drought or flood. Higher temperatures, droughts, storms, rising sea levels, floods, and acidification severely affect agricultural yields and weaken the nutritional value of food. (Baptista et.al, 2022)

A paper published by the IMF in 2022 proved that an increase in temperature by 1 °c in developing countries is associated with a 3% reduction in agricultural output, leading to 1.3% decline in growth. In Sub Saharan Africa, projections show that crop yields are expected to decline between 5% to 17% by 2050. (Baptista, 2022) Rising temperatures and water levels are causing insects and weed seeds to migrate into Sub Saharan Africa. The 2019–2020 locust infestations in Kenya, Ethiopia, and Somalia affected around 1.25 million hectares of land, and the infestation response increased the region’s financing needs by almost \$70 million. (FAO, 2020) Moreover, rising temperatures are shrinking ecosystems, resulting in shortages of meat, fish, and dairy through diminished livestock grazing areas and fishing yields. The current drought in the Horn of Africa has already killed more than 1.5 million livestock, besides the drastic cut in cereal production. (Bloomberg, 2022)

3.2.3 Increasing Climate Migration:

‘Climate-induced migration’ is a term that gained significant attention over the past decade, linking two grand themes of contemporary concern.

Despite the currency of the term, analysts argue that it remains conceptually incoherent. (Nicholson, 2017) Climate migrants refer to people who engage in voluntary movement driven by the impact of gradual or sudden climate change, such as “abnormally heavy rainfalls, environmental degradation, desertification, prolonged droughts, or sea-level rise and cyclones. The term “climate refugees” has been used since the year 1985 when UN Environment Programme (UNEP) experts used the term to refer to people who have been “forced to leave their traditional habitat, either permanently or temporarily, because of marked environmental disruption.” But the extent of the definition is still confusing. Some analysts argue that it has to apply to a broader range of people, including “anyone who has been impacted by disruption in their society that could somehow directly or indirectly be related to short- or long-term change in the environment.” (McAllister, 2022) Yet climate migrants are not afforded refugee status under the 1951 Refugee Convention, which provides legal protection only to those fleeing persecution due to their religion, race, nationality, political opinion or particular social group. Despite the fact that no nation offers asylum to climate migrants, the UNHCR published a legal guidance in October 2020 that opens the door for offering more protection to people displaced due to the effects of global warming. It said that climate change should be taken into consideration, especially in certain scenarios when it intersects with violence, though the UNHCR didn’t think of redefining the 1951 Refugee Convention. (Watson, 2022)

In Africa, the loss of stable income, food sources, and assets can act as a catalyst that may push rural workers to migrate to cities in search for jobs, shelter and better conditions, which raises pressures on cities already struggling to accommodate high population densities. The migration can also be to another country with similar effects there. Climate- change implications especially food insecurity, resulting from flooding and drought, has forced

many people in the horn of Africa to flee their villages and homes and the region now has around 4.5 million refugees and asylum seekers, in addition to 12.7 million internally displaced people (IDPs). Given the crowded temporary shelters of IDPs, and the poor water and sanitation conditions, all these circumstances can contribute to an increased risk of conflict. (WHO 2022)

4. Climate change and conflict in Somalia

The relationship between climate change and violent conflict is complex. Somalia is a significant case for analysing the impact of climate change on conflict. Since the collapse of the central government led by Mohammed Siad Barre in 1991, Somalia has been facing many social, economic and political challenges, including civil war, drought, famine, piracy and terrorism, all of which are taking place within the context of a highly fragile state⁽⁴⁾ that is incapable of imposing law and order over many regions (its territory). Somalia has been witnessing insecurity caused by Al-Shabaab terrorist group, besides clan- based conflict over resources, both

⁽⁴⁾ The term fragile state has been widely used in recent literature. According to the USAID, Fragile states refer to a broad range of failing, failed, and recovering states that are unable or unwilling to adequately assure the provision of security and basic services to significant portion of their populations and where the legitimacy of the governments is in question. USAID distinguishes between distinguishes between fragile states that are vulnerable from those that are already in crisis. (ILO 2016) https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/terminology/wcms_504528.pdf The US fund for peace (FFP) created an index called the fragile state index, which is designed for assessing the vulnerability of states to collapse. The methodology uses both qualitative and quantitative indicators, relies on public source data, and produces quantifiable results.

Twelve conflict risk indicators are used to measure the condition of a state at any given moment, within four main categories that include cohesion, economic, political and social indicators. Considered together in the index, the indicators are a way of assessing a state's vulnerability to collapse or conflict, ranking states on a spectrum of categories labelled *sustainable*, *stable*, *warning*, and *alert*. Within each bracket, scores are also subdivided by severity. In the 2022 fragile state index, Somalia ranked the 2nd most fragile country -after Yemen- of the 179 countries included on the index, scoring 110.5 out of 120. <https://fragilestatesindex.org/>

contributing to a huge number of displaced people. Climate change has played a vital role in intensifying conflicts in Somalia. (Eklow and Krampe 2019) Despite the fact that drought had severely affected the daily conditions of citizens, especially in central and south Somalia, amid deteriorating situation resulting from a fifth failed rainy season in Somalia, not much attention has been given to the study of the link between drought and conflict. Consequently, this part of the paper concentrates on the linkage between climate change and conflict in Somalia in an attempt to find out how climate change may aggravate or exacerbate conflict in Somalia.

4.1 climate change in Somalia

Somalia is located in the eastern part of the Horn of Africa, with the equator crossing through its south. Somalia has a land area of 637,540 km². Bordered by Ethiopia, Kenya and Djibouti to the west, Somalia has the longest coastline in Africa of over 3,025 km, ranging from the Gulf of Aden in the north to the Indian Ocean in the east and south. The country has a warm desert climate in the north, with a semi-arid climate in the south. Somalia's Arid and Semi-Arid Lands make up over 80% of the country's landmass and are characteristically prone to extreme weather conditions including highly erratic rainfall, periods of extended drought, high average surface temperatures, and strong winds (UNDP/ICPAC, 2013). Somalia is characterized by four seasons, with irregular rain and hot periods between the two monsoons. The main rainy season (GU) lasts From April to June. This is followed by a dry season (Xagaa), then the second rainy season (Deyr), which lasts from October to December and provides further rainfalls. Finally, the dry (Jilaal) season extends from December to March. (Anyah and Semazzi, 2006)

With regards to Hydrology, Somalia has two main rivers, the Juba and the Shabelle, and both emerge in the Ethiopian highlands. Increased activities

in the Great Ethiopian Renaissance dam (GERD) strongly affect the river system. Water scarcity is generally a persistent phenomenon in Somalia. Both rivers are facing overall decreasing volumes and they have temporarily dried up completely on several occasions. (SWALIM/ FAO 2016)

As for the Temperature, Somalia has one of the world's highest mean annual temperatures. Given Somalia's location near the equator, its temperature remains high all over the year. (Hadden 2007) Sharp variation has characterized Somalia's climate over the last century. Somalia's mean maximum temperatures ranged from 30°C to 40°C, with Berbera experiencing afternoon high averages of over 38°C between June and September, and Mogadishu reporting around 32°C in April. It is worth noting that the country has experienced a gradual and continuous increase in average annual temperatures since the year 1991. Moreover, projections illustrate that Somalia will witness an increase in its temperature between 3.2°C and 4.3°C by the end of the 21st century. In the long term, warming temperatures make conditions harder for land cultivation and agricultural livelihoods. (IPCC 2007) and (UNFCCC 2013)

Within the previous conditions, Somalia is strongly susceptible to the negative effects of climate change and extreme weather conditions, including periods of flash floods, strong winds, extended drought, erratic rainfall, cyclones, and storms. Since the year 1990, Somalia has seen a threefold increase in severe climatic events, as Christophe Hodder, the UN climate expert for Somalia, argued, with three major drought crises since the year 2010; in 2011/12, 2016/2017, and now in 2021/22. The drought of 2010-2011 was the worst drought in the history of the region for 60 years, after which the UN declared a famine in Somalia, as 3.7 million people experienced crisis levels of food insecurity, and at least 260,000 people died from hunger and related conditions across the Horn of Africa. In the 2016/2017 drought crisis,

over 2.9 million people faced emergency-level food insecurity. (Concern USA 2022)

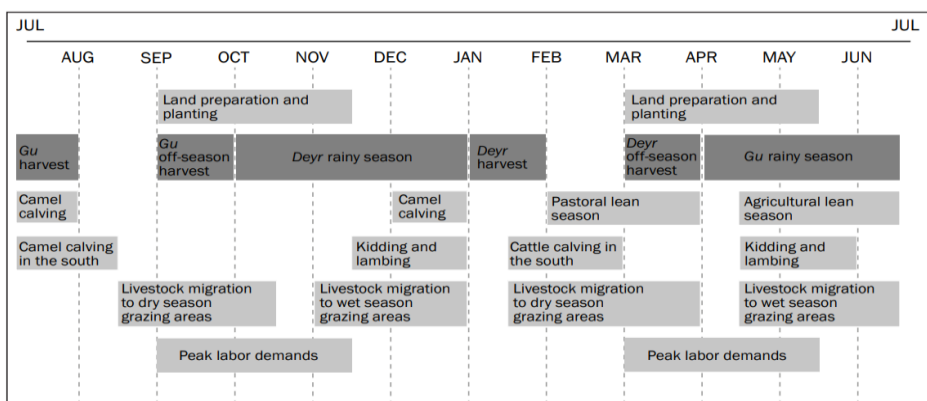
Since the year 2015, Rainfall in the Gu season has been below normal in Somalia, and in 2019, the country has faced the third-driest rainy season since the mid-1980s. (UNOCHA 2019) In the central- south dry regions of Somalia, the rainfall is normally as low as 50–100 millimetres per year. This exacerbates the implications associated with droughts. (Eklow and Krampe 2019)

At the end of 2022, Somalia is in the midst of its fifth consecutive failed rainy season. The combined effects of failed rainy seasons have already caused widespread crop failure and a reduction in the profitability of domesticated animals, as the drought made it almost impossible for herders to find food for their animals. This has tremendous impacts for the daily life of the population in Somalia, being highly dependent on agriculture as a livelihood, given that the employment in the agricultural sector is around 72.5%. As shown in figure 2 there is a close connection between seasonal patterns and livelihood and income-generating activities in Somalia. Consequently, any seasonal variability or unpredicted shift have cascading effects on farmers, herders, families, markets, and the entire community. Due to the increasing impacts of climate change in Somalia, seasons and weather phenomena are getting more difficult to predict. (Eklow and Krampe 2019)

Climate change and Conflict in the Horn of Africa: The case of Somalia

Shaimaa Moheyeldin

Figure1: key livelihood and Labour cycles in Somalia's seasonal Calendar



Source: Eklow, k and Krampe F, 2019, Climate-Related Security Risks and Peacebuilding in Somalia, SIPRI policy paper 53, https://www.sipri.org/sites/default/files/2019-10/sipripp53_2.pdf (accessed 15 Feb 2023)

4.2 drought and conflict in Somalia

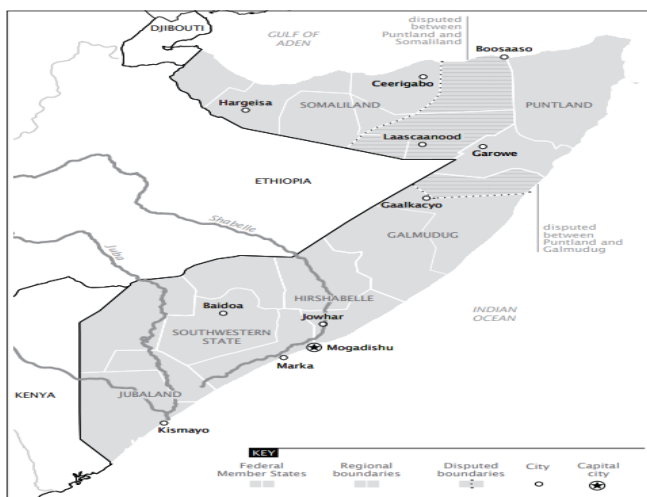
Somalia has experienced armed conflict and violence since the late 1980s, which has resulted in a state collapse in 1991. (Menkhaus 2003) Since then, Somalia has witnessed three interrelated levels of conflicts: the local, national and international levels, each of which has its own triggers and drivers of conflict. At the local level, conflicts in Somalia are usually manifested through communal violence, and are closely linked to resources and clan affiliation. Communal violence has frequently spilled over to the national level, as clan identities become increasingly politicized. (Elmi and Barise 2006)

At the national level, Somalia's conflicts are closely linked to territorial claims and contestations of government. As seen on figure 3, the northern area of Somaliland claims independence and operates as an independent state although it has not been internationally recognized as an independent state. Puntland in north-east Somalia operates with a high degree of autonomy, despite being committed to unity with the Federal Government

of Somalia (FGS). Jubaland, Southwestern State, Hirshabelle and Galmaadug are considered federal states and operate under the 2012 provisional constitution. The national-level conflict is therefore a result of the politicization of clan identities, being exacerbated by elite competition for national power and political control. (Elmi and Barise 2006) The absence of a functioning state apparatus, police and military, together with high levels of corruption provided a perfect entry point for terrorist groups and networks which maintains ties to al-Qaeda. (Eklow and Krampe 2019)

Internationally, Somalia is undergoing considerable changes in its security landscape due to increasing foreign military presence in the country. A variety of international actors and organizations are currently operating in Somalia, including USA, UK, Turkey, the UAE, the EU, the UN and the AU. With around 20 thousand troops, the AU Mission in Somalia (AMISOM) has the biggest multilateral peace operation in the country. With the increasing control of al-Shabaab over many areas in Somalia, broader international military efforts are now taking place in Somalia. (Eklow and Krampe 2019)

Figure 2: Map of Somalia and contested Territories



Source: Eklow, k and Krampe F, 2019, Climate-Related Security Risks and Peacebuilding in Somalia, sipri policy paper 53,

https://www.sipri.org/sites/default/files/2019-10/sipripp53_2.pdf (accessed 15 Feb 2023)

The linkage between climate change and all these levels of conflict could be established through four main factors that illustrate how climate change fuels local and national- level conflicts in Somalia. Climate change feeds armed conflict in Somalia through: increasing migration and internal displacement; boosting the role of al-Shabaab terrorist group; exacerbating local tensions between clans; and hindering UN peace efforts in Somalia. These effects will be illustrated as follows:

4.2.1 Increased Food insecurity and high rates of internal displacement

The current drought crisis in Somalia has led to high levels of food insecurity and increased displacement in the most severely affected areas in Somalia. In one year, the number of people facing the highest levels of hunger has increased 91%. With poor rains forecasted to persist all over 2023, Projections show that by June 2023, over 8 million people—nearly half of the population—will be living through crisis levels of food insecurity as the country faces an impending famine. Moreover, many will be forced to leave their homes to seek humanitarian assistance in urban centres or across the border in Ethiopia and Kenya. Statistics show that at the end of 2022, 3 million people were internally displaced, and at least 20,000 Somalis had crossed the border into Kenya. (IRC 2022)

4.2.2 Inter- clan Resource- based conflict

Traditionally, the Somali people are divided along clan affiliations, as there are four major clans; each of them consists of sub- clans and family networks, in addition to a number of minority groups. Clan divisions have been a source of conflict that has been politicized by different warring factions- and sometimes by the state itself- to fuel endemic clashes over scarce resources. (Peace direct, 2019)

Climate change sharpens inter- clan disputes over scarce resources among warlords, who still enjoy considerable power, dominating the political system. Within this context, severe droughts cause disruptions to water access, high rates of malnutrition, disease outbreaks and food insecurity. This leads to tension and even open disputes between clans. In a country facing such challenges, resources like food and water are not only a basic need, but also a source of power. (Kuele and Miola 2018)

4.2.3 Boosted Role of Al-Shabaab Terrorist group

Since the year 2008, the extremist group al-Shabab has emerged as the main insurgent group in Somalia. By 2011 it enjoyed full control over strategic parts of southern and central Somalia, including the port of Kismayo and parts of the capital Mogadishu. (Eklow and Krampe 2019) Rather than cooperating to mitigate the impacts of drought, Al-Shabaab has escalated it. In the third quarter of 2022, the country experienced its highest levels of conflict-related fatalities in five years. Humanitarian organizations operating in Somalia have limited -and sometimes even dis- ability to enter and operate in areas controlled by Al-Shabaab, and there are reports of food deliveries being burned and water sources being poisoned or destroyed. (IRC 2022) Moreover, Al-Shabaab has been successful in attracting and recruiting youth, especially those who are affected by famine and food insecurity and those who are unemployed, in a bid to survive, with no other option except to join the dominating terrorist group. (Kuele and Miola 2018) In other words, it is such a vicious cycle, where al-Shabaab extremist group uses the climate crisis to their advantage, mainly through mobilizing and recruiting youth for violent prosecution of land claims. Accordingly, they are taking advantage of climate pressures to contest weak government institutions and to consolidate their powers at expense of the government by imposing taxes on charcoal and other natural resources. (IOM 2022)

On the other hand, Al-Shabaab practices are further intensifying the Somali crisis and exacerbating climate change, mainly through their production and illegal export of charcoal which has led to mass deforestation, contributing to recurrent droughts in the region, which in turn led to the loss of livestock and increase of internal displacement of populations, which has resulted in further conflicts between pastoralist communities and charcoal producers. (Peace direct 2019)

All of this puts severe constraints on humanitarian efforts to address people's needs, not just food delivery, but also medical care, water and sanitary health services, and more. (IRC 2022)

4.2.4 Hindering UN peace and security mission in Somalia

In June 2013, the UN Security Council established the United Nations Assistance Mission in Somalia (UNSOM), with the mandate to support establishment of the Federal government in Somalia following the agreement on a new constitution in 2012. Climate change strongly affected the work of UNSOM in multiple ways, as it has hindered UNSOM efforts to provide peace and security, and to establish functioning governance and judicial systems. The key drivers are the substantial impacts of climate-related change on the livelihood of people, and the increase in poverty contribute to grievances and fragility that hamper the implementation of the UNSOM mandate. The consequences are materialized in the form of societal pressures that fuel grievances that are linked to group allegiances and that affect conflicts on multiple levels and are likely to inhibit resolution, thus prolonging conflicts, which in turn creates additional challenges to the implementation of the UNSOM's mandate. (UNSOM 2023)

5. Response policies to climate change in Somalia

Many initiatives were developed to enhance the capabilities of Somalia to address the effects of climate change, especially with regards to conflict. The following are some of the most important response policies to climate change in Somalia, either nationally or internationally.

5.1 National Responses

The Government of Somalia recognizes that improving economic stability and enhancing environmental resilience is fundamental to coping with the impact of climate change. Accordingly, climate change has been mainstreamed into sectoral policies and activities in Somalia. The country's first national communication to the UNFCCC was submitted in January 2019. In 2020, the first National Adaptation plan (NAP) inception workshop was conducted to deliberate its implementation between 2020 and 2023. The main objective of the NAP was to help oversee long- and medium-term climate adaptation planning in Somalia, and to enhance its national coordination capacity and initiate a legal framework for climate change adaptation. The following are some of the policies adopted by Somalia in the last couple of years.

5.1.1 The National Climate change Policy (NCCP)

The National Climate Change Policy (NCCP) was formulated in 2020 to provide Somalia with a framework for implementing and prioritizing climate change activities. This policy addresses cross-cutting issues on climate change, e.g., technology and innovation, capacity building, information dissemination and communication, awareness creation and education (Jalango, et al., 2021). Additionally, the National Climate Change Strategy (NCCS) is a guiding strategy for the prioritization of adaptation

options, with the goal of creating a platform for raising finances for climate change adaptation. (GCF 2019)

5.1.2 The National Drought Plan

The National Drought Plan was developed by the government of Somalia in 2020 to create the mechanisms and systems that would enable government partnerships with all possible and relevant stakeholders, in an attempt to mitigate the impacts of frequent droughts in Somalia. The main goal of the plan is to establish a resilient society that would be able to combat drought shocks. (Jalango, et al., 2021).

Despite the progress made in the last few years with the adoption of the aforementioned policy frameworks, Institutions like the National Climate Change Committee and the Cross-sectoral Committee on Climate Change, which are concerned with coordinating the implementation of climate policy and information sharing respectively, are faced with financial and structural challenges and thus lack the enforcement mechanisms required to operationalize adopted policy. Any enforcement of policy in Somalia faces significant challenges, especially within compromised security context, where the state does not have the ability to enforce them. Moreover, to implement its adaptation targets, Somalia needs a total investment of around \$48.5 billion by 2030, in order to enhance adaptive capacity, strengthen resilience, and reduce vulnerability to climate change, which is a challenge in itself for a country with deteriorating economic and security conditions. Therefore, tangible and financial support from international partners and the private sector is really needed in the form of climate finance, technology transfer, and capacity building, otherwise Somalia will not be able to achieve its goals. (Abukar 2022)

5.2 International Responses

International organizations and stakeholders have provided different strategies and programmes to support Somalia on climate change adaptation, resilience and financing. The following are some of the most significant ones.

5.2.1 Somalia Humanitarian Response plan & UN Drought Response plan

The UN Drought Response plan is an Operational Plan that was adopted in the year 2022, in an attempt to outline the priority needs, gaps, and strategies for humanitarian partners to address the drought and work towards averting a possible response to famine. All interventions outlined in the drought response plan have been incorporated into the 2022 Humanitarian Response Plan (HRP). Given the hard situation in Somalia, the Central Emergency Response Fund allocated \$8 million in 19th November 2022 for immediate response to the drought, including safe water provisions, scaling-up food and nutrition assistance, livelihood protection and other urgent humanitarian assistance to people who have been highly affected by drought across the country. Additionally, the Somalia Humanitarian Fund will provide \$6 million to the response. (UNOCHA 2022)

In an attempt to ensure that the immediate lifesaving needs of affected people are met in response to drought and conflict, the 2022 HRP has integrated the Emergency Response and Preparedness (ERP) framework, which outlines detailed State-level response and preparedness contingency plans to operationalize the volume and speed of critical assistance delivered to the affected people. Moreover, the HRP 2022 also incorporates the planned response to the drought and its impact on the lives of millions of Somalis. For such purpose, the 2022 HRP requires \$1.46 billion to reach 5.5 million people across the 74 districts of Somalia. The HRP is based on the inter-sectoral analysis of the 2022 Humanitarian Needs Overview (HNO), which identified 7.7 million people in need of humanitarian assistance in Somalia, including

refugees and asylum seekers. This constitutes a 1.8 million person increase compared to the 5.9 million people in need identified in the 2021 HRP. (UNOCHA 2022)

Unfortunately, underfunding of the humanitarian response plan in Somalia has significantly hindered the ability of humanitarian actors to fully respond to urgent needs. The UN's 2022 HRP is only 55% funded, approximately \$1 billion short. Sectors critical to an effective response to the crisis—particularly health and WASH (water, sanitation and hygiene)—are funded only 60% and 28% respectively. (IRC 2022)

5.2.2 IOM “climate- conflict mitigation programme”

The climate-conflict mitigation programme in Somalia is the first of its kind in the Horn of Africa, with a main goal to reduce violence and instability by increasing communities' access to natural resources. The project was introduced in 2022 and it involves the Somali Ministries of Energy and Water, Interior, Women, Environment and Livestock, with an advisory role given to the United Nations Environment Programme. It also includes a partnership with SIPRI -the Stockholm International Peace Research Institute- to conduct research on sustainable ecosystems and climate adaptive behaviour. (IOM 2022)

In this context, a EUR 6 million agreement between the International Organization for Migration and the European Union was signed to tackle the effects of climate change on rural communities in the state of Galmudug, as one of the driest places in Somalia, while addressing conflict over scarce resources. Over a period of 18 months, the IOM will help communities create management tools and peaceful resolution mechanisms for disputes linked to a lack of resources to curb the escalation of climate-induced violence. The Organization will also restore or build water catchment systems in conflict-prone rural areas. Throughout the project, the IOM will also collect data to

map pastoralist routes and identify future solutions to resource-driven conflicts. In other words, the project aims to equip Somali communities with the best tools to mitigate climatic shocks. If successful, the IOM hopes to replicate the model in other parts of Somalia and the world, where vulnerable rural communities are facing the worst implications of climate change. (IOM 2022)

5.2.3 UNDP projects

The United Nations Development program (UNDP) has provided different forms of support for Somalia with regards to climate change. Guided by Somalia's National Development plan (NDP) 2020- 2024, and the Resilience and Recovery framework of 2018, the UNDP works with UN partners, development institutions, local authorities, and civil society organizations to help Somali communities adapt to climate change impacts and reduce risks. A number of climate change projects and programs have been implemented in Somalia, through multilateral funds. With \$7.8 million fund from UNDP, the United Nations Multi Partner Trust Fund for Somalia, under the Ministry for Energy, rolled out a five-year joint program on sustainable charcoal reduction (2016- 2022). (UNDP 2016)

In 2019, the UNDP and the Federal Government of Somalia (FGS) launched a \$10 million project, with \$8.8 million from the Global Environment Facility (GEF) and \$1.5 million from UNDP. The project aims at improving access to water resources and adaptations for droughts and floods among pastoralist communities. Under the Directorate of Environment and Climate and the Ministry of Energy and Water Resources, the project is expected to benefit 360,000 farmers and pastoralists. Among the objectives of the project is the establishment of a national hydro-meteorological service, introducing forecasting and early warning tools, and installing monitoring

equipment and automatic weather stations across the country. (Jalango et al., 2021)

In 2020, the Green Climate Fund (GCF) under the FGS and the UNDP launched a \$2.7 million program to “Strengthen Climate Change Adaptation Planning”, which is the first GCF-funded program that will guide Somalia’s adaptation to the effects of climate change across different sectors of the economy. Moreover, it will form a basis for the establishment of funding mechanisms for tackling climate change- related issues, either from domestic or international sources. (Jalango et al., 2021)

5.2.4 COP27 Conference outcomes

The 2022 United Nations 27th Climate Change Conference (Conference of the Parties) was held from November 6th to November 20th 2022 in Sharm El Sheikh, Egypt, under the presidency of the Egyptian Minister of Foreign Affairs Sameh Shoukry. More than 100 heads of state attended the conference, with over 35,000 representatives and delegates from 190 countries around the world. It was the fifth climate summit held in Africa and it addressed the most important challenges related to climate change. (UN 2022)

During the COP27 conference, there were several pledges made to bolster climate- change adaptation funds. The American President Joe Biden announced that the U.S. would double its contribution to the Adaptation Fund by \$100 million, in addition to over \$150 million in new support to accelerate the President’s Emergency Plan for Adaptation and Resilience (PREPARE) efforts across Africa. (The White House, 2022)

Perhaps the most contentious issue at the 2022 COP27 conference was “loss and damage”, which refer to a form of compensation from rich nations, being mostly responsible and the main contributors to climate change, to the developing countries who are the most affected by the negative impacts of

climate change. Loss and damage were on the agenda of the COP27 climate summit for the first time in history. After significant negotiations, delegates in the conference made a historical agreement, as they agreed to set up a fund for loss and damage, which is supposed to be operationalized in 2023, and which will primarily pay for losses resulting from climate change notwithstanding investments in resilience and adaptation. (Abukar 2022)

To some extent, COP27 has some important outcomes for Somalia. The commitments made on adaptation finance and loss and damage fund will allow climate-vulnerable countries like Somalia a small safety net to be able to adapt to the impacts of climate change, and it will afford them the ability to recover when disaster strikes. (Abukar 2022)

6. Conclusion

The Horn of Africa is a climate change-vulnerable region, where food and livelihood systems are highly exposed to climate variability. Extreme weather events, especially drought, worsens existing conditions in countries of the horn. Many factors contributed to climate changes in the horn of Africa, including cutting forests and burning fossil fuels. Across the Horn of Africa, climate change proved to have severe implications, such as changing pastoral mobility patterns, climate migration and food insecurity. Hundreds of thousands of people are at high risk of starvation and millions more are facing very high levels of hunger.

Somalia is struggling with a disproportionate impact of climate change, often compounded by the deteriorating economic, humanitarian and security situation. Somalia is the most severely drought-affected country in the Horn of Africa. Climate change-related droughts resulted in a loss of livestock and agricultural production, which account for around 70% of Somalia's GDP. After five consecutive failed rainy seasons in Somalia, more than 8 million people are in need of urgent food and humanitarian assistance. In this context, climate change is a major driver of conflict in Somalia, as the

struggle for scarce resources exacerbated clan divisions and inter-clan conflict. Moreover, climate change disrupted rural livelihoods, resulting in rapid urbanization which contributed to high rates of forced evictions. These evictions are among the most severe protection threats in Somalia, as they represented a cause and a multiplier of the crisis of internal displacement.

As a climate-vulnerable country, a multifaceted response to the impact of climate change is fundamental to enhance the ability of people and the economy to recover from climate shocks in Somalia. The social, economic and political ramifications of climate change in Somalia are evident. For a comprehensive response, further integration of climate change response into the national planning and development strategy will be integral to supporting those most affected by climate change.

On the other hand, Somalia lacks a central government body to tackle environmental management policies, plans, or strategies. The existence of the federal government and state governments (in Puntland and Somaliland), together with the enhanced control of al-Shabaab terrorist group over many areas in central- south Somalia challenges the implementation of climate change programs. Moreover, Somalia has inadequate human and financial capacity limiting its ability to respond to climate change disasters. The government needs support in building the capacity of both regional and national institutions to enable it to implement the already in place policies. Therefore, Human capacity building towards various aspects of climate change, including research, planning and response, should be regarded as a top priority for improved adaptation towards climate change. Further research is needed on the future responses to the implications of climate change exacerbated conflict in Somalia within this complicated political context.

In addition to the above, enhancing community collaboration with international organizations and stakeholders and creating public spaces for dialogue will help explore solutions for chronic violence, and provide entry points for inclusive adaptation strategies. In this context, widening the space for community collaboration can have positive short-term effects in the form of conflict management and mutual aid as well as long-term effects in the form of restorative strategies that foster structural peace and effective adaptation to climate change.

References

1. Abshir, S. (2020), “climate change and security in the horn of Africa: can Europe help to reduce the risks?”, Adelphi, climate fragility policy paper.
2. Abukar, N. (2022), “COP27 outcomes and their Implications for Somalia”, Somali Public Agenda, available at: <https://somalipublicagenda.org/cop27-outcomes-and-their-implications-for-somalia/> (accessed 22 Feb 2023)
3. Anyah, R. O. and Semazzi, F. H. M. (2006), “Climate variability over the Greater Horn of Africa based on NCAR AGCM ensemble”, *Theoretical and Applied Climatology*, vol. 86, no. 1–4, Sep. 2006, pp. 39–62.
4. Baptista, D. et.al (2022), “Climate change and chronic food insecurity in Sub-Saharan Africa”, International Monetary Fund, African and research department paper series, 2022.
5. Barbier, E. B. and Hochard, J. P. (2018), “The Impacts of Climate Change on the Poor in the Disadvantaged Regions”, *Review of Environmental Economics and Policy*, Vol. 12 No. 1, pp. 26- 47.
6. Bloomberg (2022), “On Brink of Catastrophe’: Horn of Africa Drought Kills over 1.5 Million Livestock”, Bloomberg U.S. Edition, February 14.
7. Bullock, E.L., et al. (2021), “Three Decades of Land Cover Change in East Africa”, *Land*, Issue 10, p. 150 <https://doi.org/10.3390/land10020150>
8. Catley, A., Lind, J. and Scoones, I., (2016) “The futures of pastoralism in the Horn of Africa: pathways of growth and change”, *Revue Scientifique et Technique*, Vol. 35, No. 2, pp. 389-403.
9. Concern USA (2022), Timeline: Breaking Down More Than a Decade of Drought in Somalia, available at: <https://www.concernusa.org/story/somalia-drought-timeline/> (accessed on 5 February 2023)
10. Dixon, T.H and Percival, V. (1998), “Environmental Scarcity and Violent Conflict: The Case of South Africa”, *Journal of Peace Research*, Vol. 35, No. 3, pp. 279–298.
11. Dixon, T.H. (1993), “Environmental change and violent conflict”, available at: <https://homerdixon.com/environmental-change-and-violent-conflict/> (accessed 22 January 2023).
12. Eklow, k. and Krampe F. (2019), “Climate-Related Security Risks and Peacebuilding in Somalia”, SIPRI policy paper 53, available at: https://www.sipri.org/sites/default/files/2019-10/sipripp53_2.pdf (accessed 15 Feb 2023)
13. Elmi, A. and Barise, A. (2006), “The Somali conflict: root causes, obstacles, and peace-building strategies”, *African Security Review*, vol. 15, no. 1, Jan. 2006, pp. 32–54.
14. FAO (2020), “Appeal for Rapid Response and Anticipatory Action in the Greater Horn of Africa”, Rome.
15. Gleditsch, N.P., Nordås, R. and Salehyan I., (2007), “Climate Change and Conflict: The Migration Link”, International Peace Institute, working paper series, pp. 1- 19 available at: https://www.ipinst.org/wp-content/uploads/2007/05/cwc_working_paper_climate_change.pdf

Climate change and Conflict in the Horn of Africa: The case of Somalia
Shaimaa Moheyeldin

16. Green Climate Fund (GCF) (2019), “Readiness and Preparatory Support Proposal”, available at: https://www.greenclimate.fund/sites/default/files/document/readiness-proposals-somalia-undp-adaptation-planning_0.pdf/ (accessed 15 January 2023)
17. Hadden, R. L. (2007), *The Geology of Somalia: A Selected Bibliography of Somalian Geology, Geography and Earth Science*, Topographic Engineering Center, Feb. 2007, available at: <https://apps.dtic.mil/sti/pdfs/ADA464006.pdf/> (accessed 11 December 2022)
18. IMF (2022), “World Economic Outlook”, April 2022.
19. Intergovernmental Panel on Climate Change (IPCC) (2007), “AR4 Climate Change 2007: Synthesis Report”, in Pachauri, R. K. and Reisinger, A. (eds), IPCC Report, Geneva, 2007.
20. International Energy Agency (IEA) (2022a), “Africa Energy Outlook”, world energy outlook special report, p. 178, pp. 1- 250.
21. International Energy Agency (IEA) (2022b), “Clean energy transition in the greater horn of Africa”, October 2022.
22. International Rescue Committee (IRC) (2022), “Crisis in Somalia: Catastrophic hunger amid drought and conflict”, available at: <https://www.rescue.org/article/crisis-somalia-catastrophic-hunger-amid-drought-and-conflict/> (accessed 10 Feb 2023)
23. IOM (2022), “As climate change strains Somalia’s path to peace, communities hold the key”, 14 July 2022, available at: <https://reliefweb.int/report/somalia/climate-change-strains-somalias-path-peace-communities-hold-key/> (accessed 18 January 2023)
24. IPCC (2021), “Summary for Policymakers”, in *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change*, Cambridge University Press, Cambridge, pp. 3–32.
25. Jalango, D., et al. (2021), “WFP Critical Corporate Initiative: Climate Response Analysis for Adaptation: Somalia”, The Alliance of Bioversity and The International Centre for Tropical Agriculture, World Food Programme, pp. 1-75
26. Kazungu, B., Mununuzi, N., Suarez, V. and Allanic, Y. (2022), “Uganda advances in the safeguards front towards readiness”, available at: <https://www.un-redd.org/post/uganda-advances-safeguards-front-towards-readiness/> (accessed 08 February 2023)
27. Kuele, G. and Miola, C. (2018), “Climate change is feeding armed conflict in Somalia”, Institute for Security Studies, available at: <https://issafrica.org/iss-today/climate-change-is-feeding-armed-conflict-in-somalia> (accessed 15 Feb 2023)
28. Mach, K.J. et al., (2019) “Climate as a risk factor for armed conflict”, *Nature*, vol. 571, p.p. 193–197.
29. Malley, R. (2020), “Climate Change Is Shaping the Future of Conflict”, available at: <https://icg-prod.s3.amazonaws.com/malley-speech-22iv20.pdf>, pp. 1-5, (accessed 28 January 2023).
30. McAllister, S. (2023), There could be 1.2 billion climate refugees by 2050. Here’s what you need to know, available at: <https://www.zurich.com/en/media/magazine/2022/there-could-be-1-2-billion-climate-refugees-by-2050-here-s-what-you-need-to-know> (accessed 7 Feb 2023)

31. Menkhaus, K. (2003), "State collapse in Somalia: second thoughts", *Review of African Political Economy*, vol. 30, no. 97, pp. 405–422.
32. Mesfin, B. (2010), The Horn of Africa as a security complex: Towards a theoretical Framework, pp. 2-3, available at: <http://www.open.ac.uk/socialsciences/bisa-africa/confpapers/2010/horn-of-africa-b-mefsin.pdf/> (accessed 22 December 2022)
33. Ministry of Foreign Affairs of the Netherlands (2018), "Climate change profile: greater horn of Africa", available at: <https://www.government.nl/binaries/government/documenten/publications/2019/02/05/climate-change-profiles/Greater+Horn+of+Africa.pdf/> (accessed 28 December 2022)
34. Mkutu, K. (2018), "Pastoralism and Conflict in the Horn of Africa and the Sahel", *Population and Development Review*, Vol. 44, No. 4, pp. 857-860
35. Nicholson, C.T. (2017), 'Climate-induced migration': ways forward in the face of an intrinsically equivocal concept, in Mayer, B. and Crépeau, F. (eds), "Research Handbook on Climate Change, Migration and the Law", Northampton, pp. 49- 66
36. Peace direct (2019), opportunities for peace in Kismayo, Somalia, available at: https://www.peacedirect.org/wp-content/uploads/2019/05/P861-PD-Somalia-LVP-Report_WEB-1-1.pdf (accessed 15 Feb 2023)
37. Ritchie, H. (2022), "Increasing Agricultural Productivity across Sub-Saharan Africa is One of the Most Important Problems this Century", Our World in Data, April 4.
38. Sitawa, M., Ali, J. and Mwasigwa, R. (2022), "Climate Change and Conflict in the Horn of Africa: A Gendered Perspective" *Africa Amani Journal*, Vol. 9, Issue 1, Available at: https://www.researchgate.net/publication/367051495_Climate_Change_and_Conflict_in_the_Horn_of_Africa_A_Gendered_Perspective (accessed 5 Feb 2023).
39. Sun, Y. et al. (2022), "Emission accounting and drivers in East African countries", *Applied Energy*, Vol. 312, 15 April 2022, 118805.
40. SWALIM/FAO (2016), "The Juba and Shabelle rivers and their importance to Somalia", available at: <http://www.faoswalim.org/article/juba-and-shabelle-rivers-and-their-importance-somalia/> (accessed 5 February 2023)
41. The white house (2022), "Fact Sheet: President Biden Announces New Initiatives at COP27 to Strengthen U.S. Leadership in Tackling Climate Change", available at: <https://www.whitehouse.gov/briefing-room/statements-releases/2022/11/11/fact-sheet-president-biden-announces-new-initiatives-at-cop27-to-strengthen-u-s-leadership-in-tackling-climate-change/> (accessed 22 Feb 2023)
42. UN (2022), "Delivering for people and the planet", COP27, available at: <https://www.un.org/en/climatechange/cop27#:~:text=On%202020%20November%2C%20the%2027th,a%20loss%20and%20damage%20fund/> (accessed 12 Feb 2023)
43. UN (2023), "what is Climate Change?", available at: <https://www.un.org/en/climatechange/what-is-climate-change/> (accessed 20 January 2023).
44. UNDP (2016), "The Joint Programme for Sustainable Charcoal Reduction and Alternative Livelihoods", available at: <https://www.undp.org/somalia/projects/joint-programme-sustainable-charcoal-reduction-and-alternative-livelihoods/> (accessed 11 January 2023)

Climate change and Conflict in the Horn of Africa: The case of Somalia
Shaimaa Moheyeldin

45. UNDP/ICPAC (2013), “NAPA Report for Somalia - Climate Variability and Projections”, the Intergovernmental Climate Predictions and Assessment Centre (ICPAC) on behalf of the United Nations Development Programme for Somalia.
46. UNFCCC (1992), United Nations Framework Convention on Climate Change, available at: <https://unfccc.int/resource/docs/convkp/conveng.pdf/> (accessed 12 December 2022)
47. UNFCCC (2013), Somalia National Adaptation Programme of Action on Climate Change (NAPA), Federal Republic of Somalia, Mogadishu, Apr. 2013), p. 28. <https://unfccc.int/resource/docs/napa/som01.pdf>
48. UNHCR (2023), “climate change and disaster displacement”, available at: <https://www.unhcr.org/climate-change-and-disasters.html/> (accessed 30 January 2023).
49. United Nations Assistance Mission In Somalia (UNSOM), 2023, “Environment and climate security”, available at: <https://unsom.unmissions.org/environment-and-climate-security#:~:text=Numerous%20studies%20have%20shown%20the,the%20implementation%20of%20UNSOM's%20mandate/> (accessed 12 Feb 2023).
50. United Nations population fund (2022), crisis in the horn of Africa, available at: <https://www.unfpa.org/crisis-in-the-horn-of-africa> (accessed 2 January 2023).
51. University of Notre Damme (2020), “Notre Dame Global Adaptation Initiative” available at: <https://gain.nd.edu/our-work/country-index/rankings/> (accessed 09 Feb 2023)
52. UNOCHA (2016), “Understanding the climate-conflict nexus from a humanitarian perspective: a new quantitative approach”, available at: <https://www.unocha.org/sites/unocha/files/Understanding%20the%20climate-conflict%20nexus.pdf/> (accessed 22 January 2023).
53. UNOCHA (2019), Somalia Humanitarian Bulletin, 1–30 June 2019, available at: <https://reliefweb.int/report/somalia/somalia-humanitarian-bulletin-1-30-june-2019/> (accessed 10 January 2023)
54. UNOCHA (2022), “Somalia: Humanitarian Response Plan 2022”, available at: https://reliefweb.int/report/somalia/somalia-humanitarian-response-plan-2022-december-2021?gclid=EAIaIQobChMIx4v4xKyp_QIVCj_VCh2vxwyeEAAYASAAEgK02fD_BwE/ (accessed 10 February 2023)
55. Watson, J. (2022), Climate change is already fuelling global migration, Associated press, available in: <https://www.pbs.org/newshour/world/climate-change-is-already-fueling-global-migration-the-world-isnt-ready-to-meet-peoples-needs-experts-say/> (accessed 7 Feb 2023)
56. WHO (2022), “The greater Horn of Africa’s climate-related health crisis worsens as disease outbreaks surge”, November 2022, available at: <https://www.afro.who.int/news/greater-horn-africas-climate-related-health-crisis-worsens-disease-outbreaks-surge/> (accessed 1 February 2023).
57. Worldometers (2023), Eastern Africa Population, available at: <https://www.worldometers.info/world-population/eastern-africa-population/> (accessed 1 February 2023).