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Water Conflicts in Sub-Saharan Africa

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Freshwater is a strategic natural resource in any region of the world, and this is especially true for the Sub-Saharan Africa region. Sub-Saharan Africa states, where water ecosystems are strategic resources, are oriented towards regional conflict rather than cooperation. However, its fossil fuels—principally, oil and natural gas—have constantly been exposed to scientific scrutiny. To compensate for the scarcity of scientific literature on the issue, the article analyses the role of the unequal distribution of freshwater that has been generating conflicts in Sub-Saharan Africa from the time of decolonization. Next, these conflicts are examined. Recommendations on the non-conflictual use of water are provided.

Keywords: water conflicts, ecosystems management, water resources, sub-Saharan Africa, water resource management, responsible use of scarce resources

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1 INTRODUCTION

Freshwater is a strategic natural resource in any region of the world, and this is especially true for the Sub-Saharan Africa region. However, its fossil fuels—principally, oil and natural gas—have constantly been exposed to scientific scrutiny. To compensate for the scarcity of scientific literature on the issue, this paper analyses the role of freshwater as a natural resource that has been generating conflicts in Sub-Saharan Africa from the time of decolonization, as well as the conflicts themselves.

In Sub-Saharan Africa, the relations between the states are not oriented towards cooperation but conflict (Easterly and Levine, 1997; Easterly, 2009; Moyo, 2009; Espinosa et al., 2021). For example, when the colonization collapsed, newly independent states began to emerge, failing to define their territorial borders properly. Thus, there are territories with no strict demarcation all along the interstate frontiers regarding the lack of clear borders. It is considered highly problematic to set a boundary through multi-ethnic villages. Nationalities were never confined to their official borders having relatives and doing business technically "abroad". Therefore, we face a phenomenon of compact residence and many enclaves.

The lack of regional cooperation and the governments' weakness and negligence commonly result in negotiations coming to deadlock. The governments tend to consider only national interests and are reluctant to make concessions. In the field of water management, the existing legislation is inefficient. The disintegration of the regional joint water and power systems, previously managed by the colonizing states, led to an urgent need for new legislation which would define the use of power and water facilities, at that time owned by independent states. However, the transboundary water re-sources management principles developed were not efficient enough (Bernabé-Crespo and Peña-Ramos, 2019; Peña-Ramos et al., 2021). Neither were the associated legislation intended to satisfy the demands of those countries that claimed that these principles favored one country and neglected the interests of others (Filin et al., 2021; Peña-Ramos and Luis, 2021).

Graphical Abstract |

It is worth mentioning that the concept "freshwater"—or just "water"—includes water systems and any of their elements. Further, we restrict our study to freshwater only. In this sense, the paper will also have environmental destruction and the Sustainable Development Goals (SDG, particularly the indicator 6.5.2 "Proportion of transboundary basin area with an operational arrangement for water cooperation") as a backdrop (Espinosa, 2020; Espinosa et al., 2020; Espinosa et al., 2021). Global warming would increase the water demand, especially in the states threatened by desertification, which inevitably exacerbates tensions between Sub-Saharan Africa countries.

First, we will put our research into a qualitative analytical framework, debate, and the broader context of the published literature on water conflicts. The hydro poli-tics literature has several schools of thought, including water wars (Homer-Dixon, 1991; Gleick, 1993; Homer-Dixon, 1994), a more le-gal school of conflict and hydro diplomacy (Schmeier et al., 2010; Schmeier, 2011; Pohl et al., 2014), or hydro-hegemony (Zeitoun and Warner, 2006; Wegerich, 2008). There is also literature in the vein of Peter Haas' work on the Mediterranean Blue Plan (1989) if better science (joint fact-finding) will lead the way out; the work of Dukhovny and De Schutter (2011) is an example of this (Haas, 1989; Dukhovny and Schutter, 2011). Additionally, to better contextualize the document within the relevant literature on hydro politics, regarding the definition of cooperation around water and conflicts over water, it is also necessary to mention the work of Mirumachi and Zeitoun in particular and the work of the London Water Research Group on critical hydro politics, including publications on water infrastructure (Zeitoun et al., 2010; Cascão, 2009; Hussein, 2018; Hussein, 2018; da Silva and Hussein, 2019; Daoudy, 2008; Conker and Hussein, 2020) and the work of Ahmet Conker on "small is beautiful but not trendy" in which he explains how governments use different strategies to build dams, generating transboundary conflicts (Hussein et al., 2020).

Water wars are believed to be the final step of conflicts doomed to remain unresolved by peaceful means. In the context of constant population growth, water scarcity is getting more and more widespread, which cannot but raise extreme concern among politicians. While they deem water as the principal motivation for military movements and territorial claims, the populations of the

aridest and water-deprived areas live un-der the threat of a war that may break out over the precious resource at any time. This article speaks closely to the literature on the politics of scarcity and crisis and how such issues are constructed. Water scarcity is a key concept for the paper; it is linked to the water crisis, shortage, and stress (Cascão, 2009; Hussein, 2018). A discussion of the construction of water scarcity (discourses of water scarcity) can be found in the works of Mehta, Edwards, Allouche and Hussein (Mehta, 2003; Allouche, 2011; Edwards and Bulkeley, 2018).

Currently, global geopolitical interests determine the management of natural resources. A hydro-diplomatic negotiation at various levels, from the local to the international one, makes the balance between the two spheres possible. This model is a powerful instrument for rationalizing water use, marine and terrestrial ecosystem preservation and restoration, wastewater collection, treatment, storage, and possible future reuse. Hydro-diplomacy is a more effective alternative to conflictive behavior. Throughout history, we have had evidence of water's conflict-generating capacity and its ability to encourage cooperation and dialogue between the rivalries.

Joint fact-finding is sometimes considered to be the most critical element of water diplomacy. It is a multi-stage collaborative process that makes negotiating parts with different interests and perspectives work together on finding an efficient and durable solution. "Hydro-hegemony is hegemony at the river basin level, achieved through water resource control strategies such as resource capture, integration, and containment" (Zeitoun and Warner, 2006). These strategies can be applied due to the power asymmetries that exist between neighboring nations. Therefore, the outcome of the struggle for water is predicated on hydro-hegemony; usually, it favors the most powerful actor. Freshwater is a strategic natural resource in any region of the world, and this is especially true for the Sub-Saharan Africa region. Sub-Saharan Africa states, where water ecosystems are strategic resources, are oriented towards regional conflict rather than cooperation. However, its fossil fuels—principally, oil and natural gas—have constantly been exposed to scientific scrutiny. To compensate for the scarcity of scientific literature on the issue, the article analyses the role of the unequal distribution of freshwater that has been generating conflicts in Sub-Saharan Africa from the time of decolonization. Next, these conflicts are examined. Recommendations on the non-conflictual use of water are provided.

2 MATERIALS AND METHODS

The methodology used is eminently qualitative-interpretive. The primary method is to review, identify, and analyze specific scientific literature with more relevant theoretical and empirical contributions to the subject in question. The information collected from secondary sources has been fundamental, allowing us to access the knowledge accumulated by reputable academic and intellectual specialists in books, book chapters, articles, interviews, compilations, and documentary analysis of specialized journals and newspapers (Sub-Saharan African and international). All the legal norms have been extracted from the corresponding official gazettes.

The Pacific Institute complies in its Water Conflict Chronology (Pacific Institute Water Conflict Chronology, 2021), which regularly updates and reviews 926 conflicts concerning freshwater that erupted over five thousand years worldwide, from 3000 BC to 2019, inclusive. Though there is no record or historical evidence of many of the conflicts, this is one of the most complete chronologies, especially if we speak about the 20th and 21st centuries, which this article focuses on; Covering the conflicts that occurred in Sub-Sahara Africa from 1958 to 2019. The President Emeritus of the Pacific Institute is precisely the mentioned Peter Gleick, one of the world's leading authorities on the matter, so that we will frame our article and our research question in the school of thought of the water wars within the hydro political literature. Moreover, Peter Gleick's Pacific Institute chronology, which is the basis for our work, classifies these conflicts as "conflicts over water". In this sense, it is imperative to underline from the beginning that the article does not intend to weigh the importance of other possible shared causes of some conflicts, but instead to analyze and highlight the role of water itself from a qualitative point of view. According to the classification system of the Pacific Institute [33], there are three categories of conflicts based on the role water played in them.

- Trigger: Water as a trigger or root cause of conflict, where there is a dispute over the control of water or water systems or where economic or physical ac-cess to water, or scarcity of water, triggers violence.
- Weapon: Water as a weapon of conflict, where water resources, or water sys-tems themselves, are used as a tool or weapon in a violent conflict.
- Casualty: Water resources or water systems as a casualty of conflict, where water resources, or water systems, are intentional or incidental casualties or targets of violence.

This paper will tackle the trigger category, which is the key category for the topic at hand. Of the 926 conflicts mentioned above listed by the Pacific Institute, in 316 of them, freshwater took on the role of a trigger (in whole or part); in 173 conflicts, they were used as a weapon (in whole or in part); and, finally, in 505 cases we would refer to them as a casualty (in whole or in part). We will understand Sub-Saharan Africa broadly, which includes all those African countries located below Morocco, Algeria, Tunisia, Libya, and Egypt (which constitute North Africa). Therefore, our criterion here differs from that of the Pacific Institute, which also includes in North Africa some conflicts that have involved Sudan, South Sudan, and Ethiopia, and that we will nevertheless consider it to be part of sub-Saharan Africa.

Of these 316 conflicts, no less than 127, more than 40%, have occurred in Sub-Saharan Africa. They have also occurred in just 61 years, specifically between 1958–2019. Therefore, our research began in 1958, when the decolonization process of Africa in general and of Sub-Saharan Africa, in particular, was well advanced - and about to accelerate in the 1960s–and therefore,

TABLE 1 | The main characteristics of the four largest rivers in Africa adapted from Karyabwite (2000) and Hirji et al. (2002).

River	Basin area (103 km^2)	Length (km)	Average annual runoff (109 m^3)	Unit runoff (mm)
Congo	3,699.1	4,380	1,260	341
Nile	3,110	6,671	84	27
Niger	2,274	4,184	177	78
Zambezi	1,388.2	2,574	94	68

TABLE 2 | Largest lakes in Africa adapted from Shiklomanov and Roda (2004).

Lake	Area (km^2)	Maximum depth (m)	Volume (km^3)
Victoria	68.800	84	2.750
Tanganika	32.000	1.471	17.800
Malawi/Nyasa	30.900	706	7.725
Chad	18.000	11	72
Turkana	8.660	73	204
Albert	5.300	58	132

there were already new sovereign States between them, which could arise conflicts around water. We will therefore exclude from our analysis the only conflict in Sub-Saharan Africa prior to 1958 included in the chronology of the Pacific Institute, as it is a purely colonial conflict: the struggle for the Nile in 1898 between the United Kingdom and France, which was on the verge of lead to a military conflict. Of these 127 conflicts, we will specifically address the eighteen conflicts that concern this article: those that have involved two or more States or actors (such as communities, workers) attached to different States.

How do we define conflict? Following the Pacific Institute Water Conflict Chronology (2021), an incident is listed as a conflict when there is violence (injuries or deaths) or threats of violence (including verbal threats, military maneuvers, and shows of force). We do not include instances of unintentional or incidental adverse impacts on populations or communities that occur associated with water management decisions, such as populations displaced by dam construction or impacts of extreme events such as flooding or droughts. Thus far, the conflicts we are going to cover in the paper have not been studied enough. They are conflicts over scarce resources such as water. Our idea is that these conflicts are to be studied, in the first place, per se and independently. Actually, as the result of that commonly accepted scientific approach, the actual and potential capacity for de-stabilization contained in conflicts of this kind has not been analyzed profoundly either.

Although there is scientific literature on conflicts in Sub-Saharan Africa, including conflicts over natural resources—particularly water—and even though there have been a significant number of them in 6 decades, two areas for improvement have been detected in the literature. Firstly, there is no direct, specific, and clear connection between conflicts, on the one hand, and water, on the other hand. Secondly, a comprehensive and structured exposition and analysis of the origin and evolution of these conflicts have not been accomplished. This article attempts to deal with these deficiencies.

As we have already indicated, it is imperative to underline that the article does not intend to weigh the importance of other possible shared causes of some conflicts, but rather to analyze and highlight the role of water itself from a qualitative point of view (therefore without using statistical analysis or similar). Furthermore, Peter Gleick's Pacific Institute chronology, which is the basis for our work, classifies these conflicts exactly as conflicts over water. The research question, framed in the school of thought of the water wars within the hydro political literature, is: what was, in qualitative terms, the real capacity for the direct and indirect generation of conflicts of water as a natural resource with tremendous strategic value due to the unequal distribution of water in a region like Sub-Saharan Africa, whose states are not oriented to-wards cooperation but towards conflict, from 1958 to 2019?

The hypothesis of this study, theoretically informed, which answers this research question, is: in the years 1958–2019, in a regional context such as Sub-Saharan Africa, where the relations towards between the states are not oriented cooperation but towards conflict, the unequal regional distribution of water has made it a natural re-source with tremendous strategic value and that in qualitative terms has had a very high real capacity for the direct and indirect generation of conflicts.

3 WATER RESOURCES IN SUB-SAHARAN AFRICA

The total of renewable water resources is estimated at 8,204 cubic kilometers per year (km^3/y), about 14% of the total worldwide (FAO-Aquastat, 2018). Of the total renewable water resources on the continent, it is estimated that 72% is found in central Africa and in the western regions that cross the Gulf of Guinea, where around 34% of the continental population is concentrated (McClain, 2012). Significant deficiencies in management and supply compound the scarcity of water resources in many areas. According to the United Nations (UN) indicators for the fulfillment of the 2030 Agenda, placing ourselves in the Sustainable Development Goal 6, it is observed that only 21% of the population has access to adequate sanitation facilities and that only 30% have access to a safely managed drinking water supply (United Nations, 2020).

TABLE 3 | Largest dams in Africa (adapted from The New Africa Channel (2020)).

Dam	Area (km^2)	Maximum depth (m)	Volume (km^3)	Power (MW)
Akasombo Dam	8,502	70	150	1.020
Kariba Dam	5,400	100	180	1.626
Aswan	5,250	9	162	2.100
Cahora Bassa Dam	2,739	100	52	2.070
Renaissance Dam	1,874	140	74	6.450
Akasombo Dam	8,502	70	150	1.020

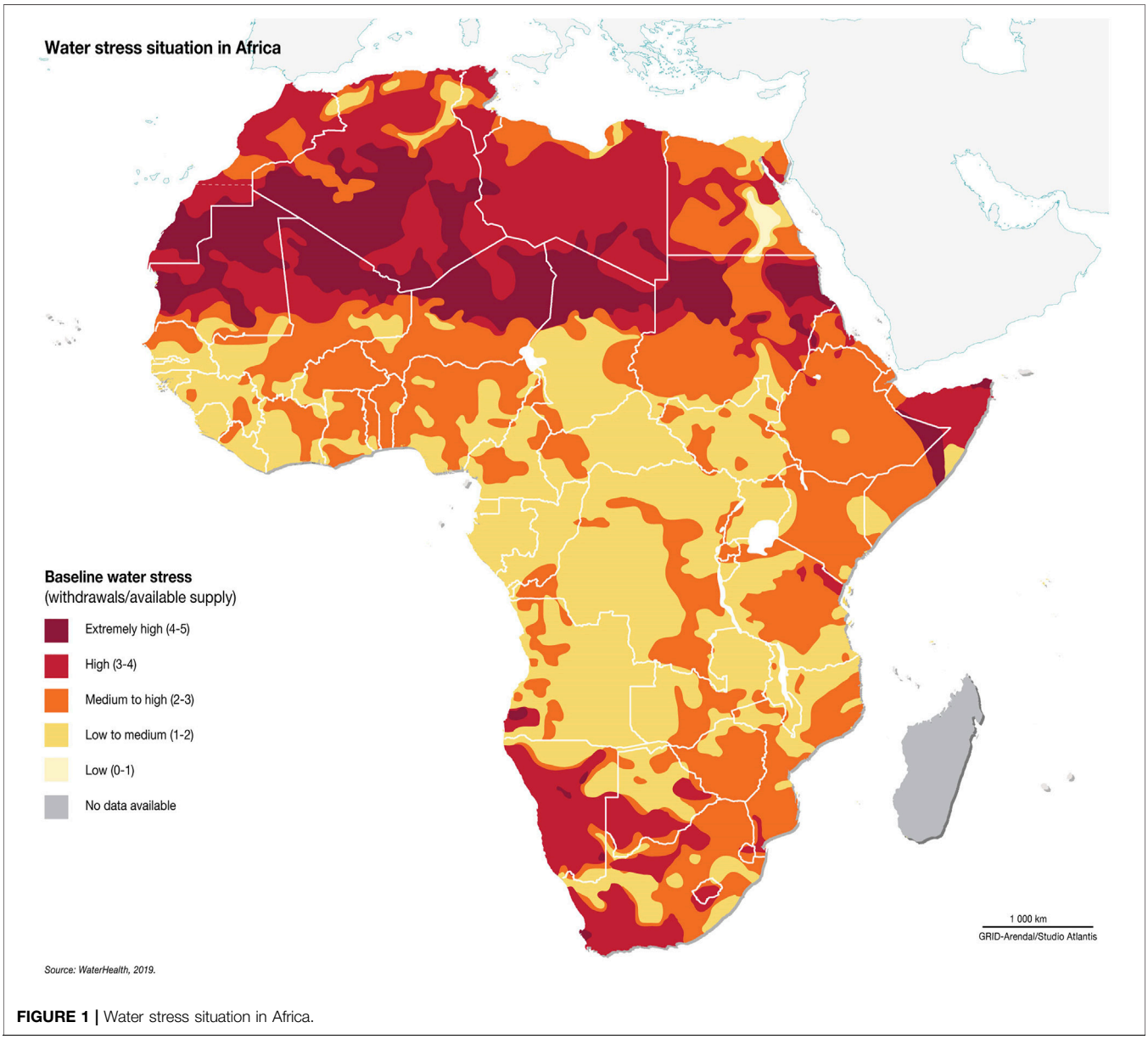

FIGURE 1 | Water stress situation in Africa.

3.1 The Rivers

Rivers are a fundamental element for the life of all living beings that inhabit the Earth. The fluvial courses of these rivers contribute resources of all kinds to the biodiversity that lives in them and the communities that have settled around them. The rivers present enormous seasonal and interannual variability,

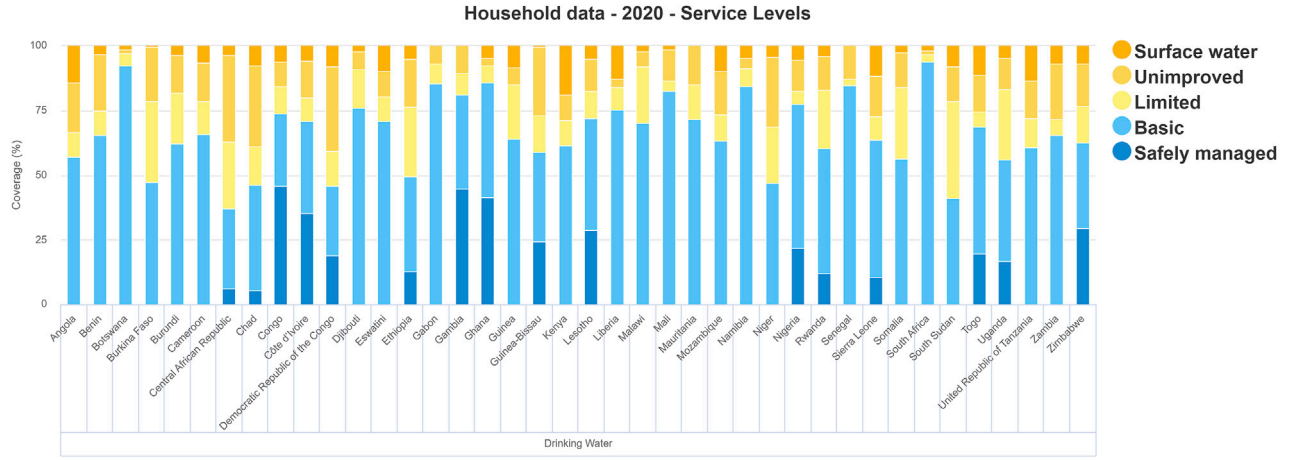

FIGURE 2 | Household data - 2020- Service Levels.

variations that are the cause and consequence of the precipitation patterns in the hydrographic basins of the region. The main rivers of sub-Saharan Africa are the Nile, the Congo, the Niger, the Zambezi, and the Oranje, the Volta, or Senegal (**Table 1** and Map 1).

The Nile is the second-longest river in the world; the White Nile rises from Lake Victoria between Kenya, Tanzania, and Uganda, while the Blue Nile rises from Lake Tana in Ethiopia; after joining the two tributaries, the Nile crosses Egypt to flow into the Mediterranean Sea. The Niger River originates in Guinea and crosses West Africa until it empties into the Gulf of Guinea in Nigeria. The Congo originates in the northeast of Zambia, between the Tanganyika and Nyasa lakes, and crosses the equator creating a huge hydrographic basin, only surpassed in the surface by the Amazon basin, to empty into the Atlantic Ocean. The Zambezi River is known for the famous Victoria Falls. It originates in Zambia and crosses Angola, Zambia, Namibia, Zimbabwe, and Botswana to empty, forming an extensive delta in the Indian Ocean in Mozambique (UNEP, 2010). Many rivers in sub-Saharan Africa are navigable and interconnect different parts of the region, and they are fundamental habitats for the balance of flora and fauna. Their water is used for human consumption and sanitation and, among many other functions such as energy production electricity, they are an essential complement to rain for crops (UNEP, 2010).

3.2 The Lakes

Sub-Saharan Africa has some of the largest natural lakes globally, including Lake Victoria, Tanganyika, Malawi, Chad, Turkana, and Albert (**Table 2** and Map 1). These lakes are scattered throughout the region within valleys and mountains.

Although it is relatively shallow, Lake Victoria is considered the second largest freshwater lake on the planet, with an area of around 68,800 km^2. Lake Chad is Africa's fourth-largest lake by area. Its endorheic basin is the largest globally, covering an area of 2.5 million km^2 (Goudie, 2002). Starting in the 1970s, due to severe droughts and the extraction of water for irrigation, Chad experienced a significant decrease in its surface area due to the loss of water above its recharge rate, seasonally oscillating its extension between 3,000 km^2 and the 24,000 km^2 of the wet season (Lemoalle, 2004; Stock, 2013). Likewise, it should be noted that lakes Tanganyika and Malawi are, respectively, in the second and third place of the deepest lakes on the planet (SADC, 2022).

3.3 Groundwater

In Africa, it is estimated that there is around 660 thousand km^3 of groundwater, which is around 100 times the amount of water found on the surface (Calatayud and Benito, 2012; MacDonald et al., 2012). The total volume of renewable groundwater in sub-Saharan Africa is estimated to be about 1,400 km^3/y, which is equivalent to 15 years of the average total flow of the Nile River (Leader and Wijnen, 2019). Groundwater contributes to ensuring the supply of large cities such as Cairo, Lagos, or Cape Town (Sperling and Sami, 2019). There are many aquifers in the region where contamination from surface activities seeps, to which it must be added that their long-term sustainability is in question since a large part of them is losing water above their recharge rate (MacDonald et al., 2021; Masindi and Foteinis, 2021).

3.4 Water Infrastructure

Sub-Saharan Africa's water infrastructures include various reservoirs, dams, canals, irrigation systems, and pumping stations. More than 2,000 dams have already been built, and there are currently more than 200 dam construction projects in the region. These infrastructures are also a cornerstone of the energy policies of many countries in their use as hydroelectric plants (UNEP, 2010). Although some countries, such as Egypt or South Africa, have good access to electricity, the same is not the case for most sub-Saharan Africa (World Bank Group, 2018). For this reason, electrification is currently one of the main arguments for constructing dams in the region (Verhoeven, 2013). Although its large dams are relatively small compared to the continent's natural lakes, several African countries have some of the largest

water infrastructures in the world, such as the Akosombo Dam in Ghana, the Kariba Dam between Zambia and Zimbabwe, the Aswan Dam in Egypt, the Cahora Bassa Reservoir in Mozambique or the Renaissance Dam in Ethiopia (**Table 3**).

3.5 Water Stress in Sub-Saharan African Countries

Freshwater increasingly demanded and still poorly distributed is a vital resource. The global water demand continues to increase, leading to an urgent need to respond to the challenge of providing access to water for all. While more than 2 billion people live in countries under high water stress, some 4 billion people face severe water shortages for at least 1 month a year. Thus, access to safe water is a particularly sensitive issue in Africa, especially in sub-Saharan Africa, where almost half of the people who consume water from unprotected sources live. Approximately 75% of the region's water resources are concentrated in the eight most important hydrographic basins (Freitas, 2013). In the last 3 decades, climate change, coupled with various factors such as pressure from expanding urban areas, government weakness, corruption, low investment, and poor management of water resources, has dramatically reduced the amount of freshwater available is considerable. This means that many countries, such as South Africa, Namibia, Ethiopia, or Angola, suffer from serious problems related to water stress (**Figure 1**).

About 60% of the population of sub-Saharan Africa lives in rural areas, the vast majority engaging in subsistence agriculture (Goedde et al., 2019). Therefore, rainfall is vital to sustain their way of life and guarantee their food security. However, rainfall shows significant interannual variability, which is a matter of genuine concern for the aridest areas of the region (Nicholson, 2000). Water scarcity in the region is one of the factors responsible for hunger, poverty, and rising unemployment.

3.6 Access to Clean Water in Sub-Saharan Africa

Although access to a clean, affordable, and safe drinking water supply is a fundamental human right recognized by the UN, this right is not yet effective in most countries on the continent. In sub-Saharan Africa, 400 million people lack this resource (Mason et al., 2019). 63% of the sub-Saharan Africa population do not have clean and safe water access. The region has the lowest levels of sanitation globally, where 45% of the population uses shared or inadequate facilities (**Figure 2**). Droughts have already caused great famines, and the most affected countries are precisely the poorest. The population, especially in rural areas, only has access to highly polluted waters from ponds, wells, and streams, where sanitation infrastructures are not optimal and, on the other hand, generate severe risks to the health of the population, such as the spread of infectious diseases (Freitas, 2013). In addition to infrastructure, the water shortage on the continent is due to the disparity in large dams. More than half of the large dams in Sub-Saharan Africa are in South Africa, while Tanzania only has two. Given the scarcity of water, other diseases persist, including cholera, hemorrhagic and typhoid diarrhea, or malaria. As a result of pollution and the least deficient sanitation and supply infrastructures, only a tiny percentage of the available water is usable for human consumption.

4 RESULTS

4.1 Conflicts

We will chronologically describe and analyze the conflicts below.

4.1.1 Egypt and Sudan Clashed Over the Nile (1958)

In 1958, in negotiations over the dispute over the waters of the Nile, Egypt carried out a failed military operation. The Nile Waters Treaty was signed following the Sudanese elections to unify both states (Wolf, 1998; Pacific Institute Water Conflict Chronology, 2021). Clashes over the waters of the Nile have been frequent. In Egypt's colonial era, it was decided to deal with the Nile issue with Sudan first, rather than Ethiopia, which receives the most water (Espinosa, 2013). In 1929 an inter-national treaty was signed between Egypt and Sudan that establishes resources management until today. This agreement did not take Ethiopia into account and granted Egypt 55,000 million cubic meters (m^3) out of a total of 84,000, along with the right to veto the construction of reservoirs in other states, among other measures. Leaving 90% of the river's flow in the hands of Egypt and Sudan upset the different countries in the basin. Egypt argued that the distribution of the basin should be made based on the need for resources of each country, compared to a proportional distribution per kilometers (km) (Espinosa, 2013). In the early 1950s, Nasser came to power. He considered the construction of the new Aswan Dam or High Dam (Hultin, 1995; Turton, 2000). In 1954 the plans for the dam were contrary to Sudan's plan to build the Roseires dam. The tension between Egypt and Sudan increased, declaring the 1929 Agreement void (Hultin, 1995; Turton, 2000). In 1956 Ethiopia claimed the power to use the water of the Blue Nile. This conflict was aggravated by the independence of Sudan, which brought with it tension between both States since Sudan, in turn, wanted to control the Blue Nile. All this displeased President Nasser.

Meanwhile, Egypt sent a military expedition to the conflict zone between Egypt and Sudan (Postel, 1999; Conflicto entre Botsuana y, 2013). However, everything returned to calm after a coup in Sudan that established a military dictatorship and strengthened ties with Egypt. In 1959, the 1929 Treaty was modified, and a new agreement was reached, which currently governs and establishes a distribution of m^3 per country that is the same as that of 1929 and does not address the situation of the riparian countries (Mekonnen, 1999). Construction of the Aswan Dam was completed in 1971. At present, the situation with the waters of the Nile continues to be conflictive. In this regard, we can highlight the signing in 2015 of a decla-ration of principles between Egypt, Ethiopia, and Sudan, which implicitly recognizes Ethiopia's right to build the Great Ethiopian Renaissance Dam (GERD) on the condition that it shares the electrical energy it

produces in theory only must be for this purpose and not for consumption (González, 2015).

4.1.2 Ethiopian and Somali Nomads Clashed Over Desert Water (1963–1964)

In 1948 the border delimitation between Somalia and Ethiopia left Somali nomads in the Ethiopian territory called the Somali Region, in the Ogaden desert (Elmi and Barise, 2006; Pacific Institute Water Conflict Chronology, 2021). In 1960 Somalia emerged as an independent state, and from the beginning, the authorities tried to create Greater Somalia, referring to the regions of the Horn of Africa where Somali ethnic groups live. This led to conflict on the Ethiopian-Somali border in 1964, but Ethiopia maintained control of the region (Mulugeta, 2011). The Somali Region (also called the Ogaden Region) of Ethiopia comprises nine areas, one of which is Shabelle-Ogaden, and is inhabited by tribes of nomadic pastoralists of ethnic Somali, with a culture identical to the inhabitants of the neighboring country (Morón, 2019). This conflict occurred in 1963–1964. In 1963 Somali leaders created the Ogaden Liberation Front (FLO), which created the Ogaden Liberation Army to achieve independence. They had the support of Somalia but the opposition of Ethiopia. That same year the Ethiopian administrator of Ogaden announced his intention to collect taxes from Somali nomadic herders, sparking clashes. In November 1963, small groups of Somali soldiers were added. The FLO came to have virtual control of the area but for a short time. Both Ethiopia and Somalia sent troops to the border. In early 1964 Ethiopia launched airstrikes against Somalia, invaded Somalia's border areas, and subsequently carried out a brief invasion of Somali territory.

The Organization for African Unity (OAU, now the African Union -AU-) requested a ceasefire in February 1964. The guerrillas continued on the border until april, especially in Somali territory and the Ogaden Region. Ten days after a ceasefire agreed in March, mediated by Sudan, the fighting ended. This mediation allowed both states to agree, which withdrew their troops from the border area (Dixon and Sarkees, 2015; Tillema, 2019). "Mukta Dahir announced that the FLO would not tolerate the ceasefire and would continue its attacks. However, without the support of Somalia, the FLO reduced its efforts significantly" (Dixon and Sarkees, 2015). After General Barre's 1969 military coup in Somalia, relations between Ethiopia and Somalia worsened. Barre ordered the invasion of the Ogaden territory. Both States faced each other in 1977–1978 in the Ogaden War (Mulugeta, 2011). Currently, the tension is still latent in the area. Somali groups in the area threaten Ethiopia and any international interest that may settle in the area without their authorization, as demonstrated in 2007 by the kidnapping and murder of nine Chinese engineers working in an oil extraction area.

4.1.3 The United Kingdom Defended the South African Dam (1965)

In this conflict, Zambia requested the United Kingdom send troops to the Kariba dam to protect it from possible Rhodesian saboteurs (Pacific Institute Water Conflict Chronology, 2021). Zambia had become independent from the United Kingdom a year earlier, and in 1965 Rhodesia unilaterally gained independence from the United Kingdom, after which a minority settler regime was formed, and relations between Zambia and Rhodesia weakened. The future of the Kariba dam was up in the air, so Zambia requested the United Kingdom to send troops to control the dam, as it had information that it could be sabotaged (Nakayama, 2003). Had the United Kingdom accepted the Kaunda plan and ordered the military occupation of the Kariba Dam, a bloody battle would indeed have occurred in Rhodesia, which would have caused outrage among the British people. On the other hand, if the United Kingdom refused to comply, Zambia would have tried to get other states to invade Rhodesia. To find an intermediate solution, the United Kingdom offered Kaunda a squadron of Kenyan aircraft with radar equipment and 500 British soldiers, provided they did not occupy the dam (Roucek, 1966). The dam was not destroyed, but relations between the two states continued to be conflictive until 1980, the date of Zimbabwe's independence. As of that date, the Zambezi River Action Plan (ZACPLAN) was adopted, which sought to draw up an inventory, assess the environmental impact, develop a unified control system for the entire basin, draw up a water development and management plan, promote environmental education, and establish minimum standards for drinking water, among other objectives. In 1987, Zambia and Zimbabwe created the Zambezi River Authority (ZRA) to manage the Kariba Dam, helping alleviate the long-standing dispute over the assets of the Central African Power Corporation, the forerunner of the ZRA (Nakayama, 2003).

4.1.4 South Africa Seized Control of the Angola Dam (1975)

South Africa tried to seize control and defend the water resources of Southwest Africa and Namibia; Therefore, South African troops were sent to Angola to occupy and defend the Ruacana hydroelectric complex (Meissner, 2000; Pacific Institute Water Conflict Chronology, 2021). The People's Republic of Angola was divided into two: the Popular Movement for the Liberation of Angola (MPLA), supported by the USSR and Cuba, and the National Union for the Total Independence of Angola (UNITA) and the National Liberation Front of Angola (FNLA), which received the support of the United States and South Africa (the country entered a civil war in 1975 that did not end until 2002 when the MPLA won). This situation was taken advantage of by South Africa, which sent a military detachment to Calueque and Ruacana, penetrating 15 km on the Angolan border, claiming the preservation of the facilities of the Cunene River hydroelectric complex, which provided energy to Namibia (Mayoral, 2014), and whose 240 km finals mark the border between Angola and Namibia (Meissner, 2000; Mayoral, 2014).

On November 2–3, 1975, the Cuban and Angolan military caused wear and tear on the South African detachment but could not defeat it or stop its advance (Mayoral, 2014). On November 10, Operation Carlota began, which consisted of the Cuban mission sent to Angola to be part of the conflict. Fidel Castro secretly sent a detachment of 82 Special Forces soldiers. The objective was to prevent the troops' advance from South Africa

and Zaire and for the UNITA and FNLA guerrillas to form a government before the Marxist guerrillas. Cuban interference lasted until 1991, and more than 350,000 Cubans were sent (Álvarez, 2015). On November 13–14, the South Africans were stopped at the Queve River. The Ebo Combat took place (November 23), in which the Cubans managed to defeat the South Africans. Cuban support intensified with the arrival of more military personnel. Something similar happened in the northern part of the country since the South African troops were defeated in the battle of Kifangondo (November 10). On 27 March 1976, the last South Africans reached Namibia by crossing the Cunene River. It thus seemed that the Marxist forces were taking control of the country. However, although refugees in neighboring countries, the non-Marxist side did not end the conflict, and the civil war lasted for more years.

In 1988, after the battle of Cuito Cuanavale, peace accords were signed in New York between Cuba, South Africa, the United States, and the USSR. It was agreed to withdraw Cuban troops from Angola, and South Africa renounced that such withdrawal occurred before the independence for Namibia began, which would become in-dependent from South Africa in 1990 (Guardiola, 1988). After the independence of Namibia, cooperation between the States mentioned above concerning the Cunene River increased. Being aware of the need for electricity, Namibia decided to sign two agreements with Angola. Their purpose was to finish the Ruacana-Calueque water system and establish a joint authority and an evaluation commission (Hernández, 2003).

4.1.5 Egypt Threatened Ethiopia Over the Nile Plans (1978 Onwards)

This conflict is related to the Nile conflict - already analyzed - between Egypt and Sudan. Ethiopia is where conflict situations originate, especially over the Blue Nile. Egypt declared the importance of the water of the Nile River following Ethiopia's announcement to build dams at the source of the river (Gleick, 1991; Gleick, 1994; Pacific Institute Water Conflict Chronology, 2021). Egyptian President Sa-dat stated in 1979 that "the only issue that could lead Egypt to war again is water", and Foreign Minister Butros-Ghali stated in 1988 that "the next war in our region will be by the waters of the Nile, not by politics". Moreover, the 1959 Nile mentioned above Treaty between Egypt and Sudan did not include the rest of the states of the basin, which particularly irritated Ethiopia, which recalled that it could reduce the water reaching the others. For this reason, since the signing of the Treaty, relations between Egypt and Ethiopia have been tense. Ethiopia intends to use the water of the Nile, and Egypt has traditionally responded with the deterrent threat of violence. In 2010, sever-al countries of the Nile basin (Tanzania, Kenya, Ethiopia, Sudan, Burundi, Rwanda, and Uganda) signed the Entebbe Agreement, which established a new distribution of resources, with the opposition of Egypt and Sudan, and later Ethiopia announced the GERD construction project, which would serve to expand the acreage and generate more hydroelectric capacity (Rahman, 2013).

The dam is located 40 km along the border with Sudan and is part of an ambitious Ethiopian project to transform the country and turn it into the first electricity producer in Africa (International Letters Magazine ORT Uruguay University: 3). Egyptian opposition is manifest, arguing that the Nile represents almost 90% of its water resources. It alleges that water consumption is 500 m^3 per inhabitant, more diminutive than recommended by the UN and that Ethiopia has a rainy season. Ethiopia built the dam with the primary objective of generating electricity, not irrigation, so the flow to Sudan and Egypt should not be significantly reduced. However, the dispute is in periods of drought, in which Ethiopia does not assure Egypt that it will receive the minimum amount requested (González, 2020). On the other hand, Ethiopia considers that Egypt already has the Aswan reservoir, which is Ethiopia's turn.

In 2015 Egypt, Sudan, and Ethiopia signed a Declaration of Framework Principles to resolve the conflict. However, this statement is ambiguous on many points and is not interpreted in the same way by the parties. For example, there is no explicit agreement on the duration of the reservoir filling process (González, 2020). In 2013 the Ethiopian government diverted a section of the Blue Nile to build the dam, and Egyptian President Morsi publicly expressed his disagreement claiming that "water or blood", while ensuring that he was not calling for war. From that moment on, there were attempts at international mediation, sometimes at the request of Egypt.

However, although not ruled out, "the water war" is unlikely since Egypt and Ethiopia do not share a physical border, so it should occur through an Egyptian bombardment. In addition, the international community would react by condemning Egypt, which cannot afford it given its difficult internal economic situation and deteriorated image for violation of Human Rights (González, 2020). In addition, Egypt lacks airplanes with the necessary flight autonomy to make the round trip, so Sudan should give up one of its airports (unlikely due to the international response it would generate). An-other option would be to send the infiltrated military to Ethiopia, which managed to blow up the dam, but it is also unlikely. Thus, the military option is generally unlikely (Rahman, 2013). That is why Egypt has opted for the diplomatic route. He has tried to persuade his allies of the problem and in 2020 managed to have the matter discussed in the Security Council of the United Nations (UN), although no resolution was adopted. Egypt continues to try to get the UN to intervene in the matter, and it is presumed that, if it fails, it will try to destabilize Ethiopia by fomenting territorial conflict.

4.1.6 Military Clashes Between Cameroon and Nigeria Over the Retreat of Lake Chad (1980s and 1990s)

Starting in the 1980s, Lake Chad began to lose most of its surface. This caused the Nigerian fishermen to move to Cameroon, generating military clashes. This conflict ended in theInternational Court of Justice (ICJ) in 2002, which proved Cameroon right (Dimon, 2012; Pacific Institute Water Conflict Chronology, 2021). At the end of the 19th century, the area gained importance, and European explorers took it from the Sudanese leader Fadlallah. France, Germany, and the

United Kingdom transformed it into a navigation space divided into three parts, but after World War I, it was divided into two: the English and the French. This distribution continues to this day. When the states involved achieved their independence, the Lake Chad Basin Commission (1964) was formed to manage natural resources jointly. The basin is located in the center ofAfrica, where it has been the subject of political and economic pressure and ambitions by several States (Dimon, 2012; Inza, 2016). The countries that created theCommission were Cameroon, Niger, Nigeria, and Chad,although others joined as observers. The Commission is not achieving many successes, except for some milestones such as the demarcation of borders between the States (1988–1992) and the preparation of the Vision 2025 analysis.

Given the area's importance, armed conflicts and violence by rebels have in-creased since the 1970s. There is a direct relationship between the reduction of the waters of Lake Chad and the increase in violence (Inza, 2016). After independence, there was a conflict of borders between Cameroon and Nigeria, which reached the ICJ. The ante-cedent of the conflict is the drawing of the border by the colonial powers: Germany (Cameroon) and the United Kingdom (Nigeria). In 1913 they decided to establish the borders bilaterally (Ventura, 2019). With the decrease in the waters of Lake Chad, islands arose in Cameroon that Nigerians occupied. The Borno region, bordering Nigeria with the lake, accepted it and administered the region. Thus, the border conflict between States would arise. In the mid-1990s, more than 7,000 Nigerians formed some 30 villages in the Cameroonian part of Lake Chad. Darak, 35 km east of the Nigerian border, was also occupied by Nigerian fishermen.

Consequently, borders did not rule in the lake basin, so the fishermen entered the Cameroon area–which did not act. Nigeria decided to establish a military presence in the area, and in 2017 it raised its flag in this territory of Cameroon, which protested the actions carried out by Nigeria (which has been occupying some thirty islands). Nigeria ignored and kidnapped the Cameroonian chiefs of the zones and replaced them with Nigerians. Likewise, the employed population suffered these consequences, and excessive taxes were imposed. In March 1994, Cameroon filed a lawsuit with the ICJ against Nigeria to clarify how far its southern border reached. Cameroon added the Lake Chad border dispute to its claim 2 months later. Finally, in 2002 the ICJ upheld Cameroon's claims. It granted sovereignty to Cameroon and asked Nigeria to with-draw its military and police troops from the area as quickly as possible (Abdouraman, 2008).

In general, the withdrawal of forces from Nigeria was successful, although there are still problems with some Nigerian leaders who are reluctant to lose power. The border dispute has prompted Cameroon to implement its administrative presence in the Darak area. Despite handover to Cameroon, this region continued to be economically dominated by Nigeria. Currently, there is competition between farmers and herders for water. Regarding the situation of jihadist terrorism in the area with the significant and increasing presence of Boko Haram, pressure from the Nigerian security forces and forces pushed said organization to move to the islands and shores of Lake Chad (Inza, 2016).

4.1.7 Coup d'etat in Lesotho, Partially Over Water (1986)

In 1986, a South African-backed coup was carried out in Lesotho. One of the immediate consequences was the agreement to share the Lesotho highlands water after 30 years of failed negotiations (Elmi Mohamed, 2013; Pacific Institute Water Conflict Chronology, 2021). Since its independence from the United Kingdom in 1966, Lesotho was governed by the Basoto National Party, a conservative party that was in good agreement with all the anti-apartheid countries–such as Angola, Zimbabwe, Mozambique, Zambia, and Namibia–and that allowed Lesotho to welcome opponents to the racist regime in South Africa. So South Africa decided to close its border with Lesotho in 1983. Finally, in 1986 Leabua Jonathan was overthrown by a military coup. South Africa assured that it was not involved, but the truth is the new regime, a dictatorship that would continue until 1991, carried out an apparent rapprochement with South Africa (Conflicto entre Botsuana y, 2013).

The main river in the area is the Orange, which originates in the Lesotho Highlands. Its basin encompasses four states: Botswana, Lesotho, Namibia, and South Africa. The basin's water resources are unevenly distributed among the States, with South Africa dominant. Since the late 1950s, South Africa had a clear goal to develop the river, so it planned several projects, notably the massive Lesotho Highlands Water Project (LHWP) with Lesotho. The Katse dam was the most important result of the LHWP, which was launched in 1980 to transfer water from Lesotho to South Africa (Mohamed, 2003). In 1986 a treaty was signed between Lesotho and South Africa (which remains there today without substantial changes) regulating the design, construction, operation, and maintenance of the project and the export of water to South Africa and considered the concerns and interests of both States. Their most disputed points were the amount of water delivered to South Africa, the distribution of the benefits, and the amount to be paid to Lesotho. On the other hand, the payment system was delimited. South Africa had to pay for everything related to the water transfer, while Lesotho would take care of the hydroelectric power component (LHWP, 2018).

4.1.8 Water Shortages due to Drought Contributed to the Start of the Arab-Fur War (1987–1989)

The Arab-Fur War (1987–1989) refers to a conflict between the Arab and Fur ethnic groups due to a drought. Gaddafi intervened by providing supplies to deal with it and weapons to both sides (Bromwhich, 2018; Pacific Institute Water Conflict Chronology, 2021). The Fur ethnic group inhabits the Darfur region in eastern Sudan, borders Libya, Chad, the Central African Republic, and South Sudan. The immediate antecedent to the conflict is a series of droughts that began in the 1970s, although those of 1984–1985 stands out, together with the migration of inhabit-ants from northern Dafur to other parts of the region. The number of farms and land use increased in the south, causing herders not to move their livestock. Arab groups, such as the Abbala and the Baggara, united against other Arabs (Tanner, 2009).

Ethnic tension had increased in the years leading up to the 1984–1985 drought. The power of the Fur ethnic group was on the rise when the Darfur Development Front (DDF), led by Dereig, came to the regional government. The drought had created many tensions, and farmers fenced off their land so that herders could not move with their livestock. Relations between the DDF and the Government were tense because a gov-ernor not from the region had been imposed in 1980. Dereig requested help from the President of Sudan, who disagreed and thus led to a series of protests that led to his overthrow. Gaddafi seized the opportunity to gain influence in the Darfur region and sent supplies to deal with the famine and weapons to support the Arabs. This is a key moment to understand the ethnic polarization between Fur and Arabs. The Fur ethnic group claimed that the objective was to destroy their daily lives and economy by at-tacking farmers and explaining that they were being annihilated. The Arab League pointed out that both tribes had always coexisted, but that since the late 1970s, the situation was reversed when the Fur created the slogan Darfur for Fur and that the Arabs were only trying to exercise legitimate self-defense of their right to water and pastures. The conflict was resolved with a peace agreement that reflected the importance of con-trolling the natural resources in dispute. It was intended to reduce the parcel enclosure model and the government's demand to make natural resources, such as water and land, more accessible to herders and farmers (Bromwhich, 2018).

In subsequent years, the Yanyauid, a paramilitary army forged in the Darfur re-gion, has acted. Attacks by this group make the villages uninhabitable as they apply the "scorched Earth" tactic and steal livestock (Cultural Survival, 2004). The region is conflictive, and, following Tanner (2009), there are subsequent related conflicts: 1) the Arab-Masalit con-flict, in which there is a claim to land in the mid-1990s, with a high degree of violence with murders and destruction of property; 2) the conflict of Zaghawa and Aulad Zeid in 2001; 3) the 2003 rebellion, which extended looting by rebels; and 4) rebel tactics since 2006: competition for resources that the government faces against these rebels.

4.1.9 Dispute Over the Use of a Cattle Trough in Tribal Clash Kills 30 Along Mali-Burkina Faso border (2012)

The incident originated when Malian herders from Missira-Samoura prevented a Mauritanian rider from using a waterhole (Pacific Institute Water Conflict Chronology, 2021). The rider withdrew but returned to the village with members of his clan, and after attacking it, a confrontation ensued. The incident did not stop there, as eleven more people died in reprisals, after which Mauri-tania and Mali decided to cooperate to restore peace in the border area (IRIN, 2019). The reprisals were carried out 2 days later by villagers from Missira-Samoura, who went to the rider's town, Naime (Mauritania).

The governor of Koulikoro, the Malian province, including Missira-Samoura, and his counterpart from the Hodh region (Mauritania) visited both villages together to de-fuse tensions and apologize in each community. The governments of both states deployed patrols along the border to maintain order. According to the president of the Association, Mauritanienne des Droits de l'Homme, the event was related to the problem of relations between farmers and herders, who usually brought their herds to Mali during the dry season and brought them back during the rains. Although farmers and nomads generally have good relations, there are tense situations due to poverty and a feeling of revenge (Herders farmers clash along border, 1999).

4.1.10 African Nations Disputed the Island of Zambezi (1999–2000)

Bulleted This conflict is about the territorial dispute of Sedudu Island in the Chobe River, which ended up being resolved in 1999 with a ruling by the ICJ that gave the reason to Botswana in its claims of border location and access to water (ICJ, 1999; Pacific Institute Water Conflict Chronology, 2021). This island is called "Kasikili" by Namibia and "Sedudu" by Botswana. The river that borders these states is the Chobe, also called the When River, which, at a specific point, splits and leaves Sedudu Island in the middle (Lesotho, 2021).

To understand the conflict, we must go back to the stage of colonialism, specifically the Heligoland-Zanzibar Treaty of 1890, which established borders and limits. Then Namibia was a German colony called Southwest Africa, and Botswana a British protectorate called Bechuanaland. In the English text, the boundary along the Chobe River was defined as the center of the main channel instead of the German text that fixed the central channel trough. This generated contradictory technical interpretations, which generated the conflict. Over time, the Masubia tribes of the eastern Caprivi, that is, of the African colony, practiced agriculture in the floodplain of the Zambezi. During the dry season, they dedicated themselves to the cultivation and care of livestock in the area, and with the rains, they went to a higher area. The authorities of the British protectorate of Bechuanaland did not object to this. The I GM changed the possession status of the area after years of German colonization. In 1914 the surrender to the United Kingdom took place, and until 1921 it was under British martial law, remaining under the jurisdiction of Bechuanaland. In 1921 all Southwest Africa was controlled by South Africa, following the mandate of the UN. The South African colonial administrator Trollope had a prominent place in the dispute between the South African and British governments over ownership of the island of Kasikili. He had numerous discussions and correspondences with his British counterparts. Trollope's intransigence caused him to antagonize the recently elected National Party government in South Africa, and he was eventually dismissed (Alexander, 1999).

In 1984 the Botswana Defense Forces (BDF) fired on the South African Defense Forces (SADF), which were patrolling by boat south of the island of Sedudu. The maps used by the SADF showed the border limit in the southern channel, while the BDF maps showed it in the northern channel. After the incident, the governments of both countries agreed to resolve the conflict through peaceful methods. However, it was not accessible due to a legal problem: the absence of international legal capacity to conclude international agreements concerning the borders of Namibia. Until 1966, South Africa had the power to make treaties thanks to its mandate on Southwest Africa, pro-vided

the Council previously approved it of the League of Nations. That year the UN ended this mandate relationship. In 1970 the UN Security Council declared the occupation of Southwest Africa by South Africa illegal, which was confirmed a year later by the ICJ (Alexander, 1999).

Following the shooting, Botswana held talks with the UN Council for Namibia President and with representatives of the Southwest African Peoples' Organization (SWAPO) at the UN. These international bodies were not reluctant to allow Botswana to talk with South Africa about the border issue. For this reason, a meeting was held between Botswana and South Africa to determine whether the riverbed was to the north or south of the island. Science played a fundamental role and showed that the depth of the north channel was greater than that of the south. South Africa did not re-spond to Botswana's requests for confirmation, and Botswana understood the minutes to be proof of intergovernmental agreement. South African troops withdrew from Caprivi at the end of 1989, as Namibia would become an independent state a few months later. Namibia alleged that in 1991 Botswana put the national flag on the is-land, while the latter claimed that it had done so previously. Namibia filed a formal protest. After a meeting between the two States, it was agreed to refer the case to a Joint Team of Technical Experts (JTTE) to determine the border according to the 1890 Treaty. After several meetings, there was no agreement, and it was recommended that the case be presented before the ICJ to make a final and binding decision to settle the conflict (Alexander, 1999; UN, 1999). The ICJ issued its ruling in 1999: it concluded that the border between Botswana and Namibia was set at the northern channel, which should be considered the main channel. That is why the island of Kasikili-Sedudu is part of the territory of Botswana. Likewise, the ICJ recalled that a mutual agreement had been reached so that there is unhindered navigation of tourist boats from both countries around the island if they are subject to the legislation of Botswana.

4.1.11 Regional Drought Increased Tensions in Ethiopia and Kenya (2000)

According to Ethiopia, the cause of the leading traditional conflicts over water points and access to pastures is regional drought. Added to this is the presence of the Oromo Liberation Front (OLF), an Ethiopian armed group that is said to operate from Kenyan territory near the border (NRC, 2002; Pacific Institute Water Conflict Chronology, 2021). The conflict is part of a series of armed at-tacks in the northeastern Wajir district of Kenya that led to the displacement of herder communities in 1998–2000. The attacks occurred in four locations within a 20 km radius: Tuli, Buthutha, Jerar, and Tularoba. The December 2000 attacks drove more than 25,000 Kenyans to flee the Wajir border area. The events began with a massacre in October 1998 in the Wajir district. It had caused the displacement of shepherds from the regions heading towards security centers along the remote roads of the desert savanna. A dawn raid targeted the Degodia community, a Somali clan living in the northeastern province of Kenya. The event occurred within a 20 km radius in the four villages mentioned above. The attackers supported the Ethiopian rebels of the opposition OLF.

Until then, there was an alliance between the Degodo and the Borana, but grazing problems and intrusions, together with the proliferation of weapons, led to killings. Later, in December 2000, new attacks caused thousands of people to flee Wajir towards the interior, fearing the Ethiopian militiamen. Tabaqa militiamen killed eleven Kenyans living in the border areas between Kenya and Ethiopia. The enmity between the Garre and Ajuran clans of southern Ethiopia spread to Kenya, with hundreds of Kenyans killed during 2000 (NRC, 2002). In November 2000, militiamen attacked again, killing 12 other Kenyans in a border town. It was clear to the provincial commissioner that Ethiopian militiamen had carried out the attack. For Ethiopia, this insecurity was created by the presence of the OLF. In turn, the regional drought had exacerbated traditional conflicts over water supply points and access to pastures.

4.1.12 Violent Clashes Over Water in the Somalia Region (2006)

We have commented on the border problem between Somalia and Ethiopia in previous conflicts, which has even resulted in wars, such as the Ogaden one. On this occasion, on the border between Ethiopia and Somalia, there were clashes over the dis-pute over water and pastures in the border village of Yamarug (Ethiopia) (Jama and Mourad, 2019; Pacific Institute Water Conflict Chronology, 2021). The clashes took place in February 2006, exacerbated by a drought that would worsen in the following months. Parts of Somalia were experiencing the most severe drought in 4 decades. The incidents occurred between the Marehan and Majereteen factions of the Darod clan. Before February 17, an official assured that, despite the deaths, the fighting had not ended. Ethiopia sent a fact-finding mission to the area. The traditional Marehan leader in Abudwaaq claimed that the elders of both groups were in continuous communication to try to end the fighting (Menkhaus, 2003). According to experts, both factions have coexisted peacefully for years despite the tense situation, but the situation has worsened with the onset of the drought.

4.1.13 Clashes Over Water in Kenya and Ethiopia (2006)

These conflicts are rooted in southern Ethiopia -the Oromo region- and in north-ern Kenya -Marsabit district- (Raleigh and Kniveton, 2012; Pacific Institute Water Conflict Chronology, 2021). In 2006 clashes took place over livestock and grazing lands. Ethiopian bandits raided a border village in northern Kenya, where conflicts over limited resources are widespread. They then attacked a settlement in Bale-Saru and stole more than 2,000 sheep and goats. These armed attackers killed five people from a village in northeastern Kenya in the Marsabit District. Finally, the police killed the attackers. The towns in this area asked the government to grant more preferred protection at the border. The government ended up sending its security forces to the border area to deal with the numerous incidents of cattle theft. Such thefts and conflicts over land are frequent in this pastoralist border area, where everyday struggles

over land and water. In southern Ethiopia, there was a confrontation between two rival clans over grazing and water resources that killed 30 people and injured 15 others. It all started with the Janjamtu tribe's attack on the Borana Oromo ethnic group in Hawassa, in a region south of Oromo. The local administrator noted that the Ethiopian government had decided to send more security forces to the area due to the growing wave of violence. Hundreds of soldiers were transferred. In total, these clashes resulted in a toll of 40 dead and more than 20 wounded, according to officials (Raleigh and Kniveton, 2012).

4.1.14 Dispute Over New Water Wells in Radio Shabelle SomaliaReport (2012)

This conflict occurred in the village of Waraq (Somalia), near the Kenyan border, due to the dispute over ownership of new water wells. The consequence was a confrontation between two ethnic groups from the Lower Juba region (Pacific Institute Water Conflict Chronology, 2021). These two clans be-long to opposing factions, and their armed militias disagreed over the ownership of the newly created water wells (Mkutu, 2007; Radio Shabelle, 2012). Traditional local elders made an appeal for peace and order in the area.

4.1.15 Violent Conflict Between Kenyan and Ugandan Herders (2012)

Most studies on the link between climate, water, and conflict in East Africa focus on violence related to livestock. Herders from the Kenyan Pokot people (the Pokot people located in the westernmost part of Kenya and the eastern region of Uganda) crossed the border to find water and pasture. Given the violent situation, Uganda sent 5,000 soldiers to control the violence between the herders of both States (Mkutu, 2007; Pacific Institute Water Conflict Chronology, 2021). Indeed, due to the theft of livestock and the proliferation of weapons in the border area between Kenya and Uganda, tension increased, and Uganda sent security forces to contain the situation, control the entry of Kenyan Pokot herders crossing into Uganda searching for water and pasture for their animals in the Kanyerus area, fighting cattle thieves and seizing illegal weapons. The West Pokot County Commissioner (Kenya) announced the government's intention to open an administrative police camp in Katimor to monitor attacks and assaults on livestock in the common border area. In September 2012, Uganda released some of the animals seized from Kenyan Pokot herders in the new cattle raids (Bii, 2012). This conflict is associated with increased live-stock-related violence in, for example, Kenya and Uganda and armed conflicts in Ethiopia, Somalia, South Sudan, and Sudan.

4.1.16 Clash Over Water on the Mali-Burkina Faso Border (2012)

This conflict confronted two ethnic groups: the Dogon and the Fulani nomads. The precedent is the revocation of the agreement established to share water and pastures, which left at least 30 dead on the border between Mali and Burkina Faso (Xinhua, 2012; Pacific Institute Water Conflict Chronology, 2021). The deaths occurred in Sari, a city in Mali located 15 km from the border with the neigh-boring country, in May 2012. The governor of the northern region of Burkina Faso indicated that the herders of Burkina Faso could lead their cattle to the grasslands of Mali based on a prior bilateral agreement. A significant cause of this incident was the March 2012 Coup in Mali that overthrew President Touré, who allowed Fulani herders to enter Mali through special corridors. However, after the coup, there was a lack of control, and more than half of the country was occupied by Tuareg rebels and Islamist militants (Reuters, 2012). The governor mentioned above considered that it was a deliberate act of the Dogon since they had always opposed the opening of the corridors mentioned above, so they took advantage of the government crisis to attack the Fulani settlements. The Dogon claimed that the Fulani cattle frequently damaged many of their crops. In addition, it was not an isolated event, but there have been others, such as that of 2019, when a group of Dogon attacked a Fulani village. A month earlier, a group of Fulani had killed 41 Dogon. One of the most notable recent events occurred in March 2019, when 160 people were killed in a Fulani village. Currently, there is violence of great magnitude in the region, and it does not seem that it is going to diminish (Mizrahi, 2019).

4.1.17 Egypt and Sudan Allegedly Target the Great Dam of the Ethiopian Renaissance (2012)

This conflict involved Ethiopia, Sudan, and Egypt. Under a secret agreement be-tween Egypt and Sudan, the former would build an airbase in Sudan to attack the Great Ethiopian Renaissance Dam (GERD), given Egypt's concern that its flow would be reduced by the construction of the dam in the upper part of Sudan, on the Blue Nile. Egypt denied this, but according to leaks, Sudan would allow Egypt to attack if a diplomatic agreement between Ethiopia and Egypt was not reached. The source of the allegations was a 2010 email published by Wikileaks (Pacific Institute Water Conflict Chronology, 2021). This conflict is related to two that we have discussed previously: the conflict between Egypt and Sudan over the Nile (1958) and Egypt's threat to Ethiopia over the Nile plans (1978 onwards). Let us also recall as an immediate precedent the signing in 2010 of the Entebbe Agreement, which established a new distribution of resources, which Egypt and Sudan opposed. Subsequently, Ethiopia announced the GERD construction project, which would expand the acreage and generate more hydroelectric capacity, which Egypt radically opposed.

According to Egypt, the leaks were intended to hamper its relations with Ethiopia, although as we noted in 1979, President Sadat said that "the only issue that could lead Egypt to war again is water." Egypt has always sought to control the river and has prioritized it as a national security policy. At that time, Sudan and Egypt monopolized 90% of the river's water based on the agreements signed during the colonial era, but seven countries demanded that this model be changed. Uganda, Rwanda, Tanzania, Kenya, and Ethiopia classified these agreements as unfair. For its part, Ethiopia announced that the size of the GERD would be even more significant than initially stipulated, but the death of the dam's great promoter, Ethiopian President Zenawi, coupled with a lack of funds, has slowed the project. In addition, Egypt and Sudan could be pushing internationally for foreign investors to stop financing the project. The present from Egypt

Morsi visited Ethiopia in the framework of the tour of Africa as a gesture of good neighborliness; It should be remembered in this regard that Mubarak has not visited Ethiopia since 1995 (Swain, 1997).

Although there have been several negotiations and meetings and some compro-mises reached, no agreement has been reached between Ethiopia, Sudan, and Egypt. In January 2021, contacts were held on the operational rules of the GERD, but Egypt confirmed that there had been no progress. Ethiopia noted that, whether there was an agreement, they would carry out the second water filling of the dam in summer, which took place in July 2021 (Kahsay et al., 2018). In the most recent conflict, we found the death of more than 170 militiamen from Sudan who would attack the dam. Ethiopia confirmed that among the victims were members of the Popular Front for the Liberation of Tigray, a group at war against the Ethiopian government in the north (Aljefri et al., 2019).

4.1.18 Conflict Over Access to Water Between Herders and Farmers Near the Kenyan-Ethiopian Border (2019)

This conflict caused eleven deaths, two wounded and four missing due to an am-bush near the border between Kenya and Ethiopia (Pacific Institute Water Conflict Chronology, 2021). It occurred in Marsabit County due to a confrontation over access to water between Kenyans and Ethiopians. Officials noted that the violence was initiated by the attack by Ethiopian bandits on the border village of Ulan (Kenya), which killed Kenyan shepherds (Gakuo Mwangi, 2006). This confrontation took place when the area leaders met for peace talks to resolve disputes over pasture and water. These confrontations are common in the area and are frequently related to water (Galaty, 2016). Indeed, Ethiopian rebels tricked the citizens of Ulan into attending a peace meeting over a dispute over a well and then shot them. According to the superior chief of Maikona, the attack happened days after the inhabitants of Ulan, a few km from Forole village and a neighboring Ethiopian village, had a dispute over a Kenyan cattle watering hole on the border. The meeting never occurred, but everything was false and ambushed (Okumu, 2010). Thus, the Tullow Oil company negotiated with the Turkana government in Kenya to exploit several wells and dedicate them to oil extraction. This would be a problem since it is necessary to use water for the project in a region where it is scarce.

5 DISCUSSION AND CONCLUSION

After analyzing all the conflicts (which reinforces the school of thought of the wa-ter wars within the hydro political literature), paying particular attention to their origin, evolution, and eventual resolution, or their possible future escalation (in the case of the conflicts that were not fully resolved), we can conclude that Sub-Saharian Africa is a region very prone to conflict over water. Moreover, its capacity to create conflicts was underestimated as we can see that in most cases, given the regional con-text where the relations between the states are not oriented towards cooperation but conflict, the regulation of the conflicts did not follow any clean-cut course of action, lacked cooperation and flexibility and, thus, resulted inefficiently and required more time and human resources to, at least, diminish conflict intensity (Espinosa, 2021; Wang et al., 2021). Despite comprising only five states, Sub-Saharian Africa saw many conflicts in 60 years (1958–2019) in which water played the role, in whole or in part, of a trigger. The basis of the conflicts varied, although in all of them, an inevitable clash of interest propelled different groups toward conflict. Furthermore, all conflicts involved two or more states or actors (communities, groups) from different states. All these conflicts also revealed the strategic value of water in the region. As a result of the analysis, we can group the concrete causes of conflicts:

1. The clash of interests between the upstream countries rich in water and the downstream states, which have a constant lack of water, which they get from their water-surplus neighbors.
2. Unsteady electricity and water supplies. At the same time, the upstream countries have cut off the water flow whenever they find it necessary to defend their interests.
3. The shortage of land apt for living and agriculture is determined by access to water. The scarce furtive soil resources are mainly found in many areas, which has been the scene for numerous clashes due to its multiethnic population (many areas are officially divided among two or more states).
4. Shared water resources and water systems. The points of contention are generally the following: irrigation canals, pipes, dams, reservoirs, and hydropower plants.

The present article has illustrated the direct and clear connection between the conflicts in Sub-Saharian Africa and water. Water played an essential role in the relations between the countries of the Sub-Saharian African region. Therefore, what was, in qualitative terms, the real capacity for the direct and indirect generation of conflicts of water as a resource with tremendous strategic value due to the unequal distribution of water in a region like Sub-Saharian Africa, whose states are not oriented towards cooperation but towards conflict, in the period of 1958–2019? We conclude that in the years 1958–2019, in a regional context such as Sub-Saharian Africa, where the re-lations between the states are not oriented towards cooperation but conflict, the unequal regional distribution of water has made it a natural resource with tremendous strategic value and that in qualitative terms has had a very high real capacity for the direct and indirect generation of conflicts.

6 RECOMMENDATIONS

Finally, we will propose some recommendations on resolving water conflicts in Sub-Saharian Africa, based on the lessons drawn from the events in the region. These recommendations can also apply to other regions with similar characteristics.

We will point out the following general and contextual recommendations, which are interrelated:

a) The creation of a cooperative context and truth-based relations between the regional states. Organizations including African Ministers Council on Water (AMCOW) and programs such as Cooperation in International Waters in Africa (CIWA) did not play a role in alleviating the water conflicts in the region.
b) The consolidation of more robust and more responsible governments will prevent the negotiations between the states from coming to deadlock or collapsing.
c) The clear border demarcation between the states.
d) The fight against environmental destruction led at the regional level.

Now, we will point out some concrete recommendations that refer directly to conflicts over water:

a) The drafting of adequate legislation in water management (particularly for shared water resources and water systems) and its compliance by all the states in the region.
b) Achieve steady electricity and water supplies to the region's states.
c) Ensure that this exchange provides greater water availability for the most water-deprived countries, human consumption, and, above all, agricultural use.

DATA AVAILABILITY STATEMENT

The original contributions presented in the study are included in the article/Supplementary Material, further inquiries can be directed to the corresponding authors.

AUTHOR CONTRIBUTIONS

All authors listed have made a substantial, direct, and intellectual contribution to the work and approved it for publication.

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