Environmental Security in Africa: Africa's Sahel region as a Model

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Abstract:

Environmental security has become one of the most significant issues on the global stage, particularly with the appearance of new security threats that have greatly affected the region's environment. Hence, we raise the following problematic: To what extent have environmental security threats in the African coast region been reflected in the non-achievement of environmental security?

Our study adopted the descriptive analytical and case study methods to describe and analyze the reality of the region's problems. The study concluded that the environmental deterioration on the coast is due to the effects of new security threats and the repercussions of climate change, which have greatly affected the non-achievement of environmental security in the region.

Keywords: *Environmental security, African continent, African coast, threats, environment.*

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. INTRODUCTION

The African continent, in general, and the Sahel region are regarded as one of the most complex and interrelated security spaces due to their containment of different threats. They are characterized by a unique political, environmental, economic, and social security aspect. Besides, they are among the most important areas witnessing political violence and severe environmental degradation. Political conflicts, civil wars, security and political instability, the fragility of governing political systems, ethnic conflicts, low living standards, poverty, corruption, noticeable population growth, and water scarcity or absence in some areas are prevalent in this region. Furthermore, it is also impacted by health epidemics resulting from these variables, which undoubtedly affect this region's fulfilment of environmental security. Consequently, the study aims to identify the most important security, political, social, and environmental threats threatening this region's security and stability and determine their most significant implications and impacts on the area based on a set of indicators capable of clarifying the environmental reality in the Sahel. Therefore, we have decided in our study to raise the following problem statement: ***To what extent have environmental security threats in the African Sahel region affected the achievement of environmental security?***

To answer this question and identify the key points raised by this issue, a descriptive-analytical method was utilized to address the data related to the African Sahel region by analyzing and describing the environmental reality in this region based on a set of indicators (such as the food security index and the fragility index of states). Moreover, a case study method was employed because of its scientific and methodological tools, enabling us to highlight the Sahel region, particularly regarding the climatic and environmental conditions it experiences, which will contribute to some extent to reaching scientific results.

2.1 Conceptual Approach to the Study:

1.1. Concept of Environmental Security:

Environmental security is regarded as one of the most significant terms today, given that environmental hazards and disasters threaten the

safety and well-being of individuals and the environment. The African Sahel region, like other conflict-ridden areas, encounters significant challenges due to political and military conflicts and environmental degradation, which inevitably affects the fulfilment of security and stability in the region.

The interest in environmental issues and concerns has appeared prominently following the end of the Cold War. This period witnessed significant transformations in international relations, leading to several reviews, especially in the concept of security and the nature of security threats faced by the international system. On the one hand, there has been a significant decline in the role of military factors, while the role of economic factors has escalated. This has given rise to new security threats (new asymmetrical), which today represent one of the most significant challenges encountered by developing and advanced countries. These threats possess particular features, being ambiguous in their origins, transcending borders and nations, and their occurrence cannot be predicted (i.e., they are unpredictable). Examples of such threats involve human trafficking, organized crime, climate change (global warming), the significant rise of terrorist organizations, as well as the phenomenon of illegal/irregular migration, commonly referred to as illegal immigration, and more. Consequently, most academic discussions in the field of security studies regarding environmental issues have been associated with the stages through which the concept of security has transformed from traditional security to soft security, leading to the introduction of the concept of environmental security.

Environmental security is a relatively new concept that appeared in the 1990s, particularly around 1989, when environmental issues gained special attention in international relations. This period allowed environmental issues to emerge as media topics, followed by a real and direct escalation of international conferences, initiatives, and agreements on environmental issues, such as the Earth Summit. The increased focus on the concept of environmental security can be attributed to two main factors: first, the significant increase in the severity and danger of environmental

threats, and second, the weakness of policies and the fragility of international mechanisms in managing environmental issues.(*Frédérick, 1993, Environmental Security: Elements of Definition*).

Therefore, defining the concept of environmental security took much work. However, there have been many diverse attempts to define it, including one by *Henri Leval* in an article entitled *" Environmental security: a combination of divisions,"* where he defined it as the proactive reduction of threats, mostly human-made or what Henri refers to as human threats, stemming from human activities, which threaten the functional integrity of the environment and all its components.

1.2. Specificity of the African Sahel Region:

The African Sahel region is regarded as one of the most vital areas in international relations. This region's most distinctive feature is its large energy reserves, which we will present in the following table*:*

Table 1: (Illustrates the top 10 oil-producing countries in Africa during the year 2021)

Country	Crude oil production/ratio/year 2021	Country	Crude oil production/ratio/year 2021
Nigeria	1.27 thousand million barrels per day	Ghana	176 thousand barrels per day
Angola	1.11 million barrels per day	Gabon	188 thousand barrels per day
Chad	70 thousand barrels per day	Guinea	71 thousand barrels per day

Source: Prepared by the researcher based on: Energy Research Unit, 2022.

Undoubtedly, Africa is regarded as one of the most attractive continents today due to different geopolitical, economic, and other considerations. Furthermore, the African Sahel region has become a focal point of interest for many international actors, particularly France, the United States, the European Union, and others, due to its geography, economy, and energy uniqueness.

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The Sahel region is one of the most ethnically diverse areas, representing a meeting point for various races and religions living different lifestyles (nomads, urban dwellers, farmers, etc.). The region can be divided into two parts: a southern part inhabited by Black Africans and a northern part inhabited by Arabs. Moreover, the Sahel region is volatile and plagued by several economic, environmental, and humanitarian crises and disasters at all levels. The poverty rates in this region are very high due to factors such as economic incapacity and weak distributive justice. Approximately eighty per cent (%) of Chad's population lives below one US dollar per day. Besides, the region suffers from economic indebtedness and dependency, with significant declines in growth rates due to reliance on extractive economies. Furthermore, this area is experiencing a crisis of national integration, manifested in the failure of political systems to build a national state and unify different loyalties towards it.

This situation has led to coups, conflicts, and very serious waves of political violence(*Ben Kita, Bouida, 2016, International Competition over the African Coastal Region and Its Reflections on French Strategic Interests", Dafater Al-Mutawassit Journal),* resulting in the appearance and escalation of different new security threats, particularly illegal migration, organized crime, human trafficking, arms and drug trafficking, as well as the alarming spread of terrorist organizations.

Table 2: (Illustrates the ranking of some African countries in the Fragile States Index for the year 2023)

Country	2023 classification/ according to global ranking	2022 classification/ according to global ranking	Estimate the classification according to its degree/high/medium/ very high
Somalia	01	02	Degree/high
Chad	09	09	Degree/high
Nigeria	15	01	Warning
Senegal	80	02	Degree/medium
Rwanda	44	03	Degree/very high

Source: Prepared by the researcher based on Dina Fathi Jamaa Abdel Azim, African Readings, 2023.

From a climatic perspective, the Sahel region is characterized by severe scarcity in rainfall volume and distribution spatially and temporally. It has been proven that this scarcity can lead to more heavy rainfall during the monsoon season. Sahel countries marginally benefit from these large and localized rains, which could cause environmental and humanitarian disasters. Desertification, drought, and climate change in the region constitute a ticking political and security time bomb for all Sahelian African countries (*Piodi, 2015, Desertification: A Time Bomb in the Heart of the Sahel," National Defense Review*).

However, these countries' contribution is only four per cent (%) of gas emissions, which causes several climate threats. Consequently, the Sahel region suffers from a range of environmental problems threatening the ecological system's safety. Natural phenomena such as global warming, drought, floods, extreme temperature increases, ozone layer depletion, and increased pollution in the area, in addition to the failure of agreements and policies regarding climate change to reach deterrent agreements, will inevitably lead to very dangerous environmental natural disasters that will reflect on the failure to achieve environmental security in the Sahel.

3. The Effects of Environmental Security Threats on the African Sahel Region.

2.1. Political and Security Effects of Environmental Security Threats on the African Sahel Region:

The environmental security threats encountered by the African Sahel region are a direct and inevitable result of Earth's changes at the climate level. These changes are accompanied by political and security factors directly affecting the region's security and stability, inevitably leading to a lack of environmental security.

Due to their closely aligned political systems, the security conditions and political situations in Africa in general and the African Sahel region in particular share many similarities. Most countries in the region are classified as fragile or failed states, raising a significant challenge to exercising sovereignty domestically and regionally. The political and security landscape has become fertile ground for different terrorist activities

closely related to a range of intertwined threats, such as organized crime and human and drug trafficking. These groups exploit a violent incitement discourse against the ruling elites, taking advantage of the region's social, political, cultural, and economic realities to lure young people into supporting them. These dynamics have enabled terrorist groups and organizations in the region to expand and strengthen their activities, making them key players in the political and security arena in most Sahelian countries. Among the most important manifestations of the repercussions of environmental security threats on the political and security levels in the African Sahel region are conflicts and disputes of a local or regional nature.

Many researchers describe them as environmental conflicts (such as conflicts over water resources or fertile land), becoming a major part of the wars in the region today (*Maghni, 2022-2023, Environmental Security and the Problem of Stability in Africa: The Sahel Region as a Model, University of Abu Bakr Belkaid, Tlemcen*)

Moreover, the Sahel region experiences political instability and security breakdown due to internal civil wars and conflicts. Many researchers attribute these conflicts to social, psychological, economic, and ethnic motives, climatic conditions, and their effects. Drought, desertification, floods, water scarcity, and high population growth rates exacerbate the situation. The security disturbances in the region have made it a shift point for organizations included in arms and human trafficking, among other challenges. All of these factors contribute to the region's inability to achieve political stability, directly affecting environmental security in the Sahel. These combined repercussions create a challenging dilemma, particularly regarding the fact that Sahelian African countries are fragile from a security standpoint and incapable of dealing with different environmental threats.

Table 3: (Illustrates the ranking of the ten (10) most affected countries by terrorism according to the Global Terrorism Index 2023 GTI):

Country	Ranking by year 2022	Country	Ranking by year 2022
Afghanistan	01	Pakistan	06
Burkina Faso	02	Iraq	07
Somalia	03	Nigeria	08
Mali	04	Myanmar	09
Syria	05	Niger	10

Source: Prepared by the researcher based on Global Terrorism Index, 2023, p20.

2.2. Economic and Social Effects of Environmental Security Threats on the African Sahel Region:

The world today is preoccupied with an important issue on the international and global stage, which is the phenomenon of climate change and the alarming rise in temperature levels. This has significant effects on global economies, as all the crises currently impacting the global economy, as confirmed by Edward Wilson, a biologist from the United States, are fundamentally linked to environmental issues. Environmental degradation and climate change pose a severe threat to the economies of the African continent. Although the African continent does not contribute significantly to global harmful emissions, its impact is substantial.

This is because the continent relies on natural resources such as minerals, agriculture, and livestock farming wildlife (*Karam,2022, "The Impacts of Climate Change on the Economies of Nations",https://2u.pw/nb7Krce*) as a source of its economy.

Accordingly, climate change significantly impacts both economic and social stability levels, due to the need for food resources, compounded by the fact that most Sahel countries experience what is known as security and military collapse or breakdown, not to mention ethnic and racial conflicts. All these factors contribute to some extent to serious health and environmental disasters. This region is one of the countries where the most dangerous and deadliest epidemics and diseases prevail, threatening the lives of thousands of Africans, particularly when discussing major infectious diseases prevalent in Africa, such as tuberculosis, AIDS (HIV), and recently, the coronavirus (COVID-19). These epidemic health diseases not only impact the health of the African individual but also have

consequences on the economy and development, as they may disrupt trade and commodity exchange, as seen in the COVID-19 health crisis, which could also affect global market prices.

Wars, conflicts, and disputes in the African Sahel region contribute to serious economic repercussions by raising the movement and number of refugees and lowering living standards. Furthermore, wars generally affect the region by freezing and halting economic development projects and plans across the continent.

Talking about the economy leads us to the Sahel region's crisis. Most countries in the region suffer from a clear lack of food and health security due to the linkage of climate threats to food security. Most Sahel African countries depend heavily on climate stability, leading the region's population to flee to safer areas from natural disasters, potentially impacting the region's internal social structure. The Sahel region is among the countries where the most serious and deadliest health epidemics and diseases prevail, threatening thousands of individuals, particularly when discussing prevalent diseases such as tuberculosis, AIDS (HIV), and recently, the coronavirus, affecting most countries worldwide. These health epidemics not only impact the health of African individuals but also affect the economy and development, disrupting trade and commodity exchange, which could affect global market prices.

Furthermore, the Sahel region suffers from a clear lack of food and health security, prompting the population to seek safer areas from natural disasters, potentially impacting the internal social structure of the region's inhabitants. In this context, we review the Global Assessment of Food Security and Nutrition presented in 2023, providing an overview of the world after the COVID-19 disaster and the repercussions of the Russian-Ukrainian war, which impacted food and energy markets.

This assessment indicates a significant increase in the prevalence of food shortages in the African continent from 2021 to 2022, driven mainly by increases in North and South Africa, with the number of individuals facing hunger (food insecurity) in Africa, which is called the continent of

opportunities, increasing by about 11 million people since 2021 and by more than 57 million people since the COVID-19 pandemic outbreak.

Based on this data, the African Sahel region is classified as one of the most significant areas in the world suffering from food insecurity. Many factors, such as climate change, contribute to this, which is regarded today as a challenge facing the African continent as a whole and the African Sahel region in particular. The African continent's inability to confront these challenges and changes indicates food insecurity.

Table 4: (Shows the ranking of some African countries for the Global Food Security Index for the year 2021)

Country	Ranking	Country	Ranking
Ethiopia	108	South Africa	70
Chad	99	Mali	76
Nigeria	97	Ghana	82
Senegal	89	Burkina Faso	85
Rwanda	101	Niger	88
Guinea	96	Ivory Coast	86

Source: Prepared by the researcher based on Faros Center for Consultations and Strategic Studies, 2022.

Environmental deterioration affected over 34 million people across Africa, including 19 million in West Africa in 2012, leading to over $1.3 billion in economic losses between 2011 and 2012. Statistics from 2018 estimate the economic damage caused by climate change in Africa to be around $0.67 billion annually, meaning that from 2011 to the present, the estimated damage amounts to $6.03 billion. Additionally, the destruction caused by hurricanes and drought waves in the continent, such as Cyclones Idai and Kenneth in 2019, constitutes significant losses compared to the fragile economic situation of the continent's countries.

Major powers have also contributed to environmental deterioration on the continent, especially in the African Sahel region. This is done either through wars and the use of advanced weapons or through exporting environmentally harmful materials like radioactive waste and nuclear waste by burying them in the continent, significantly impacting environmental

degradation overall and ecological system disruption, particularly in the Sahel.

The countries of the African Sahel are among the poorest in the world, according to the Human Development Report for the year 2014. Niger ranked last among 187 countries in the Human Development Index, while Chad ranked 184th, Burkina Faso 181st, Mali 176th, and Mauritania 161st. Additionally, the negative effects of environmental problems on the economy contribute to the global debt of Sahelian countries, coupled with a severe resource shortage. The traditional nature of economic activity in the region, mainly relying on agriculture, leads to decreased productivity and depletion of available resources, exacerbating poverty and threatening economic security. Environmental factors also contribute to food and water scarcity, increased poverty, malnutrition, and decreased employment opportunities. Since most communities in Sahelian countries have traditional agrarian characteristics, this reliance on agriculture further impacts the population's health and their ability to educate their children, provide adequate food, and maintain a decent standard of living, especially given the deteriorating environmental conditions.

4-Conclusion:

In conclusion, the magnitude of environmental security threats, their danger, and their repercussions vary from one region to another, particularly when discussing the African Sahel region. Despite the potential and natural resources abundant in these countries, they are among the weakest politically, economically, and socially. This is due to their unique political and security situations, the fragility of their infrastructure, and weak political systems, turning this area into a zone of conflicts and military wars where the necessities of life are absent. These conditions will inevitably affect the environment and security of African people.

The environmental instability in the African Sahel region can be attributed to different factors, involving internal ones like wars, conflicts, poverty, the spread of diseases, and military coups, as well as external

factors such as international competition for energy resources in the region. This competition will undoubtedly affect economic, social, political, and security levels. Furthermore, different other factors contribute to the lack of environmental security in the region, entailing the proliferation of new security phenomena such as illegal migration, terrorism, organized crime, human and arms trafficking, drug trafficking, and the spread of diseases and epidemics. Moreover, climate change has significantly contributed to environmental degradation in the region despite it being the least emitter of gases causing this phenomenon compared to major Western countries. Accordingly, fulfilling environmental security in the Sahel region requires global summits and initiatives and genuine African political will in a world based on self-interest.

Environmental security is a critical central priority for achieving security and stability for African individuals. This security can only be achieved with fundamental solutions to environmental problems in the region. Africa, as a continent, has yet to make significant contributions to the challenges of drought, desertification, and limited rainfall.

The security and stability of the African Sahel region are closely linked to the level of environmental security achieved therein. This can be achieved by facing all the challenges imposed by environmental security and attempting to adapt to them by implementing effective deterrent mechanisms capable of achieving this type of security.

As recommendations for the study, **we propose a set of suggestions, including:**

1. Encouraging international and regional cooperation among major countries to address climate threats by providing information and data to all countries, fragile ones that contribute minimally to global pollution.

2. Raising awareness among African individuals about the dangers of security threats and environmental problems through social media networks, audiovisual media, and activating electronic platforms or videos

to ensure their food, health, economic, and environmental security and stability.

3. Working on developing agricultural investment strategies, since agriculture is the primary pillar of the region, by providing it with modern irrigation technologies and improving water management, considering that this region has one of the lowest irrigated areas in the world.

4. Developing human resources interested in environmental security as it achieves long-term development goals.

5. Attempting to develop future strategies and plans to assess the environmental security sector in Africa in general and the African Sahel region in particular.

6. Monitoring major industrialized countries and enacting environmental protection and security deterrent laws.

7. Exploiting renewable energies as clean and friendly sources reduces the region's climate change phenomenon.

8. Activating the role of specialized scientific research centres in environmental security.

9. Activating the role of international organizations concerned with environmental protection and giving them mandatory authority in decision-making.

5. Bibliography List:

1. Ben Kita, Bouida (2016), "International Competition over the African Coastal Region and Its Reflections on French Strategic Interests, Dafater Al-Mutawassit Journal,Volume 03, Issue 01.

2. Frédérick, (1993)"Environmental Security: Elements of Definition," International Studies, Volume 24, No. 04.

3. Karam(2022) "The Impacts of Climate Change on the Economies of Nations," International Politics Magazine, cited from the website: https://www.siyassa.org.eg/News/18411.aspx

4. Leval,(2009) Environmental Security: How Many Divisions?" Thucydides Center for Analysis and Research in International Relations, Volume X.

5. Meghni, "Environmental Security and the Problem of Stability in Africa: The Sahel Region as a Model," Doctoral Thesis, Department of Political Science, Faculty of Law and Political Science, University of Abu Bakr Belkaid, Tlemcen, 2022-2023.

6. Piodi) ,2015) "Desertification: A Time Bomb in the Heart of the Sahel," National Defense Review, No. 783.

7. Trémoliéres, (2010) "Security and Environmental Variables: The Debate and an Analysis of Links in the Sahel," Ministry of Foreign and European Affairs.