

Forum: The Economic and Social Council

Topic: Addressing Food and Water Scarcity Caused by Desertification in the Sahara Region

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Introduction

Food security and access to clean water are major concerns for countries in the Sahara region. The most severely affected communities are in Sahel; the semi-arid transition zone located between the Sahara Desert and the more fertile regions of sub-Saharan Africa. Certain countries such as Mauritania, Mali, Niger, Chad, Sudan and Burkina Faso often face recurring droughts, land degradation, and irregular rainfall, placing pressure on agriculture, livestock and local water supplies. Most of Sahel's population depends on farming and herding to collect income and to survive, creating a direct threat to millions of people.

Desertification is the leading cause to issues such as overgrazing, deforestation, excessive cultivation, poor irrigation practices, and the overuse of water resource. Climate change also plays a role in the increased pressure by reducing rainfall and make droughts more severe. As the soil dries, losing its nutrients and ability to hold water, crops become more difficult to grow. Also, grazing land disappears, and communities become more dependent on food imports and humanitarian assistance.

Water scarcity is closely related to this environmental decline. Ground water is the main source of water for many deserted countries, although wells were established to gather water more efficiently and faster. Women and children are generally in charge for collecting household water, reducing extra time for education or paid employment.

Rural communities also do not receive enough money or support, and political conflict make matters far worse, as farmers may not be able to reach their land, local markets may close, and aid organizations may struggle to deliver food and clean water. Climate change could push another 13.5 million people in the Sahel into poverty by 2050 if urgent climate adaptation measures are not implemented. To combat desertification, countries need to restore damaged land, improve farming and water systems, support rural communities, reduce conflict, and work together across the region.

This is issue is closely related to the AMMUN theme Moderating Morality, countries in the Sahara-Sahel region must make fair and responsible choices when dealing with food shortages, water scarcity, and desertification. Governments need to ensure that limited resources such as water, food, and grazing land are shared fairly between farmers, herders, and rural communities. Moderating morality means finding a fair balance between different needs and

making decisions that protect vulnerable communities. This way countries in the Sahara-Sahel region an reduce conflict while improving food security and create a secure future.

Definition of Key Terms

Desertification

Desertification is the degradation of land in dry humid areas which is caused by climate change and various human activities. It reduces the soils efficiency and uses for the economy. Desertification does not directly refer to the expansion of a desert; it generally revolves around a piece of land becoming less fertile, and less capable of supporting agriculture.

Sahara region

The Sahara Desert is in North Africa. It spans 11 countries and territories, including Algeria, Chad, Egypt, Libya, Mali, Mauritania, Morocco, Niger, Sudan, Tunisia, and Western Sahara. Around the edges of the desert is where most farming and permanent settlements occur, particularly near rivers, oases, groundwater sources, and the southern edge of the desert.

Sahel region

South of the Sahara Desert in the transitional zone, called the Sahel region. It stretches 6000 Kilometres across regions in Africa including Senegal, Mauritania, Mali, Burkina Faso, Niger, Nigeria, Chad and Sudan. This region generally experiences short rainy seasons, high temperatures, and frequent droughts.

Food Insecurity

Food insecurity is when people do not have access to sufficient, safe and nutritious food. It may be temporary but is mainly impacted by drought or conflict. It is considered to be chronic when communities experience food shortages over long periods. This can be fatal.

Water Scarcity

Water scarcity happens when there is not enough accessible clean water to fulfil the needs of communities, including agriculture, businesses, and the natural environment. It is generally caused by low rainfall, pollution, or unequal distribution or available water supplies.

Land Degradation

Land degradation happens when land becomes less healthy and less useful for farming, plants, animals, and people. It can be caused by soil erosion, loss of nutrients, removal of plants, salt building up in the soil or damage to natural habitats. In dry areas, if this occurs for a long period of time, the land may eventually turn into desert.

Ground water

Ground water is stored under the earth's surface in soil or rocks. It is accessed through wells and boreholes, and it is one of the most efficient and important water sources in the Sahara–Sahel region due to the limited number of permanent rivers and lakes. Ground water must be carefully extracted to avoid excessive extraction.

General Overview

Origins and Background of the Issue

The Sahara Desert is one of largest and hottest deserts in the world, covering a significant part of North Africa. Although, about 5,000-11,000 years ago, parts of the Sahara were full of rivers, fresh grass, and wildlife, with time, climate changes caused shifts in rainfall patterns, which contributed to the Sahara becoming drier. The people living in the Sahara and Sahel are heavily dependent on livestock farming, small-scale agriculture, and trade. Farmers would grow crops that are able to survive dry conditions, such as millet and sorghum, while livestock farmers moved their animals between different grazing areas to find suitable conditions for them. These traditional methods allowed communities to survive even though rainfall was limited.

During the 20th century, as population increased, desertification became more serious. More pressure was placed on the land and water sources. The root causes of this issue include climate change, chronic droughts, rainfall, overgrazing, deforestation, poor farming methods, and overuse of water. The rising temperatures have dried out the soil, reducing the amount of water

available in rivers, lakes, and groundwater. Overgrazing also occurs when too many animals feed on the same land, preventing grass and plants from growing back. Trees are also cut down for firewood, farming, and construction, leaving the soil exposed to the wind and susceptible to erosion. Moreover, when farmers grow crops on the same land, this causes the soil to lose its important nutrients, while badly managed irrigation can lead to slat build up in the soil. Finally, a leading cause is conflict, poverty and weak infostructure deepen the issue because communities may not have the money to support and protect the land and manage water properly. As land production becomes less efficient, and water becomes harder to access food production decreases and desertification continues to spread.

Economic Impacts of Desertification and Water Scarcity

Desertification plays a huge economic role because agriculture is one of the most important sources of employment and income in the Sahara-Sahel region. As soil becomes less fertile, farmers start producing smaller harvests and earn less money from selling crops. Farmers also lose money on seeds, fertilizer, tools, and labour. For small-scale farmers one failed harvest can place an entire family under financial pressure. Livestock farmers are also impacted when grazing water land becomes limited. Animals can become weak, produce less milk, or even die because they do not have enough food or water. Farmers may be forced to sell their animals for very low prices before their condition worsens. Since livestock is a form of savings for many families, losing animals can mean losing both their current income and their financial security for the future.

Lower agricultural production also causes food prices to rise. When fewer crops are available in local markets, families must spend more of their income on basic food. Countries may also need to import more food from other regions, which can be very expensive, especially when global food prices are high. Families with lower incomes may start buying cheaper and less nutritious food, which can negatively affect their health and diet. The problem does not only affect farmers. Agriculture also supports transport workers, food sellers, equipment suppliers, and many other local businesses. When farmers earn less money, they also spend less in local markets. This reduces the income of other businesses and can weaken the entire rural economy. Governments may also collect less tax money while having to spend more on food aid, water projects, and emergency support.

Water scarcity can also slow down development in other areas, not just agriculture. Businesses, schools, hospitals, and factories all need reliable water and electricity. Governments may have to spend large amounts of money on wells, pipelines, water treatment facilities, irrigation systems, and desalination plants. However, many countries in the region already have limited budgets and may depend on international support, making it difficult to solve these problems quickly.

Social Impacts of Desertification and Water Scarcity

In terms of social impacts, people may need to travel long distances to find water, which reduces the time they have for education, work and farming. Women and girls are often responsible for collecting water, meaning that water shortages can have a greater effect on their education and future job opportunities. Food shortages can also lead to malnutrition, especially among children and pregnant women. When families cannot grow or afford enough nutritious food, children may experience poor growth, weaker immune systems and difficulty concentrating in school. Unsafe water can also spread diseases such as diarrhoea and cholera. These illnesses become more severe when people are already weakened by malnutrition.

Education is also affected. Children may miss school because they need to collect water, care for animals, help their families earn money or move with their families in search of better land. Schools may struggle to remain open if they do not have enough clean water or proper sanitation facilities. Around 18.7 million children in the wider Sahel region are out of school, although conflict, poverty, displacement and environmental pressures also contribute to this number.

When farming is no longer sustainable, families may move from rural areas to towns and cities in search of employment, food and water. This can make cities overcrowded and place extra pressure on housing, hospitals, schools, transport and water supplies. Many families may also end up living in informal settlements where access to clean water, sanitation, and stable employment is limited.

Current Challenges Faced and Major Developments

One of the largest projects created to address desertification is the Great Green Wall Initiative. It was launched by African countries to restore degraded land across the Sahel. The project includes planting native vegetation, improving farming methods, restoring soil, creating jobs and helping communities manage water more effectively. The initiative aims to restore 100 million hectares of degraded land, remove or store 250 million tons of carbon and create 10 million green jobs by 2030. So far, almost 18 million hectares have reportedly been restored and around 350,000 jobs have been created. However, progress remains slower than required, and the project faces challenges involving funding, political instability, coordination and the long-term maintenance of restored land.

Even with such developments, communities still lack the funding, technology, training, and political support they need to apply these solutions on a larger scale. Conflict also worsens the issue as some projects cannot safely reach the areas that need the most help, due to tension. For this reason, solving food insecurity and water scarcity requires more than simply planting trees or restoring damaged land. Countries must also improve farming methods, irrigation systems, roads, schools, healthcare, clean-water systems and local businesses. Governments also need to cooperate, since rivers, underground water sources, deserts and livestock routes often cross-national borders. Stronger cooperation could help reduce disagreements over natural resources and allow countries to share knowledge, technology and funding.

Major Parties Involved

Niger

Niger is one of the main countries affected by desertification, food insecurity and water scarcity in the Sahel region. A large part of the population depends on farming and livestock for income and survival, making people especially vulnerable to droughts, irregular rainfall and the loss of fertile land. When there is not enough rain, crops die, livestock struggle to find water, which causes local families to struggle to survive. According to the food and agriculture organization of the United Nations, In Niger, farmers and herders lose almost 100,000 hectares of land every year to degradation. Niger has been working with international organizations to

restore damaged land, improve farming methods and help communities become more resistant to future droughts and climate shocks.

Mali

Mali is another country strongly affected by desertification, drought and food insecurity. Agriculture plays a huge role in the country, around 80% of Mali's population works in agriculture. This means that when droughts, floods or land degradation damage crops and farmland, millions of people can be affected. The problem has also become worse because of armed conflict and political instability, which can prevent farmers from reaching their land and make it harder for food and humanitarian aid to reach certain communities. Mali works with international organizations and regional programmes to restore degraded land, improve food production and help rural communities become more resilient to climate change.

Chad

Chad is highly affected by drought, floods, desertification and water shortages. Much of the country is dry or semi-arid, meaning communities depend heavily on limited rainfall to grow crops and raise livestock. Chad regularly experiences climate shocks such as droughts and floods, which make existing poverty and food insecurity far worse. The country is also connected to the Lake Chad Basin, where communities depend on shared water resources for farming, fishing and livestock. As water and fertile land become more limited, competition over these resources can increase.

Mauritania

Mauritania is largely covered by desert and has an extremely dry climate, making water scarcity and desertification major concerns. Rural communities often depend on livestock and agriculture, but repeated droughts, rising temperatures, and degraded land can make it difficult to grow enough food or find suitable grazing areas. The World Food Programme works in Mauritania to support communities facing food insecurity and climate change through food assistance, support for small farmers and projects that build long-term resilience. Mauritania is also involved in land restoration projects across the Sahel. These projects aim to restore damaged

land, improve access to natural resources and reduce people's dependence on emergency aid in the future.

African Union (AU)

The African Union is one of the most important regional organizations involved in addressing desertification across the Sahara and Sahel. In 2007, the African Union launched the Great Green Wall Initiative, a major project created to combat desertification, restore damaged land and improve the lives of people living in affected communities. The project originally focused on creating a belt of trees across Africa, but it later developed into a much wider programs involving land restoration, sustainable agriculture, and climate-resilient development. The African Union also encourages countries to work together because problems such as droughts, water scarcity and desertification do not stop at national borders and cannot be solved by one country working alone.

Food and Agriculture Organization (FAO)

The Food and Agriculture Organization is a United Nations organization that focuses on improving agriculture, food security, and the sustainable use of natural resources. In the Sahara and Sahel regions, the FAO helps farmers use better farming methods, manage water more carefully and restore land damaged by desertification. The organization also supports the Great Green Wall and runs programs such as Action Against Desertification, which works with local communities to restore dry and degraded land. Over 20 African countries are involved in the wider Great Green Wall Initiative. The FAO is important because it focuses on long-term solutions rather than only providing emergency help when a food crisis has already happened.

World Food Programme (WFP)

The World Food Programme is a United Nations organization that provides food assistance to people affected by hunger, conflict, drought and other emergencies. In countries such as Niger, Mali, Chad and Mauritania, the WFP provides emergency support while also helping communities become less dependent on aid in the long term. Its projects include restoring degraded land, improving access to water, supporting small farmers and helping families become better equipped for future droughts and climate shocks. The WFP has been

running a wider resilience programme across the Sahel since 2018, including work in Mauritania, Burkina Faso, Chad, Mali and Niger. This makes the WFP important because it deals with immediate hunger while also addressing some of the environmental problems that contribute to food insecurity.

Timeline of Events

1968–1974	The Great Sahel Drought caused serious damage across the Sahel region. Vegetation disappeared, grazing land was degraded, and large numbers of livestock died, leading to famine and food shortages. This drought made desertification a major international concern and showed how drought, overgrazing, and deforestation could seriously damage the environment and threaten food security.
1977	The United Nations held the UN Conference on Desertification (UNCOD) in Nairobi. During the conference, countries officially recognised desertification as a major global environmental issue. They introduced the Plan of Action to Combat Desertification, which encouraged countries to work together to protect drylands, farmland, and natural resources.
1980s	Repeated droughts continued to affect countries such as Mali, Niger, and Mauritania. Farmland was damaged, water supplies decreased, and many livestock died. This caused severe food shortages and made many communities more dependent on international food aid.
1990s	Scientists began noticing that some parts of the Sahel were becoming greener again as rainfall slowly improved. This phenomenon, called the “Sahel greening” encouraged governments and communities to look at new ways of restoring damaged land and managing natural resources instead of only depending on emergency aid during droughts.
2007	The African Union launched the Great Green Wall Initiative to fight desertification by restoring land across an approximately 8,000 km

	long, and 25 km wide, belt of land stretching from Senegal to Djibouti. The project aimed to restore farmland, increase vegetation, and support communities affected by drought and land degradation.
2010s	Environmental projects started moving away from simply planting long rows of trees and began using methods such as Farmer-Managed Natural Regeneration (FMNR) and food forests. These methods protect existing trees and combine trees, shrubs, and crops to improve soil quality, reduce erosion, and help the land hold more water.
Mid-2010s–2020s	Communities increasingly began using water-harvesting methods such as half-moon-shaped basins. These structures collect rainfall and allow water to soak into dry soil instead of quickly running away or evaporating. This helps crops and vegetation grow in areas where rainfall is limited.
2020s–Present	Communities and governments have focused more on practical local solutions, such as restoring grazing land, improving water storage, building pastoral ponds, and managing shared land more effectively. These solutions can also help reduce conflict between farmers and nomadic herders who compete for limited land and water resources.

Attempts to solve the issue

The Great Green Wall Initiative. Assembly/AU/Dec.137 (VIII)

The Great Green Wall Initiative was launched by the African Union in 2007, with support from the United Nations Convention to Combat Desertification (UNCCD). It asked countries across the Sahara and Sahel region to work together to reduce desertification and restore damaged land. The initiative supported the idea of creating an 8,000 km area of restored land across Africa, from Senegal in the west to Djibouti in the east. Countries such as Mali, Niger, Chad, Sudan, and Mauritania took part in planting trees, restoring farmland, and improving soil quality. This helped encourage African countries to work together to protect the environment, improve food security, and support communities affected by drought and land degradation.

United Nations Convention to Combat Desertification (UNCCD) – 1994 A/AC.241/27

The United Nations Convention to Combat Desertification was adopted by the United Nations in 1994, with a special priority given to countries in Africa affected by drought and desertification. It asked countries across Sahara-Sahel region to create national action programmes to identify he causes of desertification and to introduce new solutions. The convention supports sustainable management to land and water resources and encourages governments and communities to work together when planning and taking action on these solutions. This helps countries improve food security and protect the limited water supplies and support communities.

Possible Solutions

Sustainable Irrigation Systems

One possible solution is improving irrigation systems. Many farmers in the region depend heavily on rainfall, which is becoming less reliable because of droughts, and climate change. When rainfall is low and or unpredictable, crops may die, and families may lose their main source of food and income. Governments may invest in more efficient irrigation methods. For example, drip irrigation. Drip irrigation is a method that delivers water directly to the roots of plants instead of spreading large amounts of water across a field. This helps reduce water waste and allows farmers to grow more food using less water. For this solution to work, governments must offer farmer training, financial support, and affordable equipment. If managed correctly, better irrigation can make farming more reliable, and reduce the risk of crop failure, and help communities rely less on emergency food aid.

Rainwater Harvesting and Water Storage

Another important solution is to gather and store rainwater during the short rainy season and use it later in dry periods. In many areas of the Sahara and Sahel, rain could fall heavily for a short time, but most of this water is lost through surface runoff or evaporation. Communities may build small dams, reservoirs, underground tanks, and water storage ponds to capture the

water before it disappears. They could also use traditional methods like Zai pits. These are small holes dug into dry soil to collect rainwater and organic matter which helps crops grow even in poor conditions. Stone barriers can be placed along the field to slow down the water movement, reduce soil erosion, and allow more water to soak into the ground. These methods are especially useful because they are often cheaper and easier to maintain than larger projects. Local communities can also participate in building and managing them. However, water storage systems must be properly maintained and protected from contamination so that water remains safe for farming, livestock, and household use.

Restoring Damaged Farmland Through Agroforestry

Another strong solution is Agroforestry, as it combines farming, planting, and protecting trees. Rather than clearing all vegetation from farmland, farmers could grow crops alongside trees and shrubs. This practice can help restore damaged soil since tree root are what holds the soil together which will reduce erosion and improve the water retention of the soil. Trees also provide shade; this lessens water loss, protecting crops from extreme heat. Some trees may boost fertility by adding nutrients back into the ground which would make it easier for farmers to grow crops without relying on costly fertilizers. Agroforestry may also create additional income sources as tress could produce fruit, animal feed, firewood, and more. With this diversification, farming communities will be more financially secure and less reliant on crops. However, this solution does take time, farmers may need training and support to see significant results. Governments and international organizations could supply seedings, technical advice, and financial incentives to encourage more farmers to adopt agroforestry. Over time this will help restore degraded land, improve food production, protect water resources, and strengthen communities against droughts.

Guiding Questions

1. How is your country affected by the food insecurity, water shortages, or desertification in the Sahara-Sahel region?
2. What are the key reasons desertification is worsening in the Sahara-Sahel region?

3. Which countries are suffering the most from food insecurity and water scarcity caused by desertification and why does this make them venerable?
4. How does desertification affect farmers, livestock owners, women, children, and people living in these rural areas?
5. What steps are being taken place by your country to improve access to food and clean water?
6. How can methods aiming to solve this issue improve access to food and clean water?
7. What impact have projects that have been taking place made on improving the access to food and clean water?
8. How can support from more developed countries help improve access to food and clean water?
9. How could countries working together help tackle the issue of access to clean food and water?
10. What are long term actions that can be taken place to prevent the impact of desertification from causing more issues such as poverty, food shortages, migration, etc.?

Appendix

- Great Green Wall Initiative: https://www.unccd.int/our-work/ggwi
- Drylands Forests and Agrosilvopastoral Systems: https://www.fao.org/sustainable-forest-management-toolbox/modules/drylands-forests-and-agrosilvopastoral-systems/2/en?tabInx=0
- World Bank Sahel Irrigation Strategy: https://documents1.worldbank.org/curated/en/099070725122032185/pdf/P506141-787b28dd-1284-4882-8009-2d4259591321.pdf
- Climate Change, Water and Food Security**:** https://www.fao.org/4/i2096e/i2096e.pdf
- Restoring Degraded Lands and Expanding Agroforestry: https://www.fao.org/3/cd1211en/online/src/html/restoration-degraded-lands-agroforestry.html
- Desertification in North Africa: A Growing Threat to the Environment, Economy and Daily Life: https://www.greenpeace.org/mena/en/desertification-in-north-africa/

- African Development Bank Report on Desertification and Land Degradation: https://www.afdb.org/en/topics-and-sectors/topics/desertification-and-land-degradation
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