WHAT IS THE FUTURE FOR THE SAHEL?

GCCA+
THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE
Funded by the European Union

No. 8 - November 2021

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Editor: Francesca Predazzi

My wealth is your wealth: when communities team up with nature

Geraldo Carreiro

"Nature-based Solutions provide interesting alternatives for addressing the challenge of climate change while, at the same time, bringing other benefits."

Climate change, environmental degradation and biodiversity loss are all linked and can have devastating consequences on health, social welfare and economic systems. As mainstream media report more and more frequently on heatwaves or massive forest fires, diluvian rains and devastating floods, we have a growing awareness of these multiple challenges. Longer-term phenomena, such as erosion, rising sea levels, degrading soils and water scarcity, are other scars on our ecosystems which are further depleting nature's resilience mechanisms. These are long-term processes and we have already witnessed an ever-increasing number of people being impacted. The Lancet publication in February 2021 revealed that about half of the world thinks that humanity is simply doomed. Young people are the most sensitive to this anxiety, which does not only concern privileged countries: 84% of young Filipinos say they are worried.

The European Green Deal sets a window for action: before 2030. So, it is time to act for positive change, but the question is: how?

The World Economic Forum's Global Risks Report 2019 specifically recognised the economic risks posed by biodiversity loss and ecosystem collapse and the need for nature-positive business solutions. Furthermore, the International Union for Conservation of Nature (IUCN) considers that 62% of the population in rural Africa depend directly on healthy ecosystems and the services they provide.

Faced with these observations, **nature-based solutions (NbS)** provide interesting alternatives for addressing the challenge of climate change while, at the same time, bringing other benefits, including ecosystem restoration, food provision, water supply and socio-economic development. NbS are 'actions to protect, sustainably manage, and restore natural or modified ecosystems to directly address societal challenges in an effective and adaptive manner, while ensuring human well-being and producing benefits for biodiversity,' according to the IUCN. These solutions are an umbrella term that includes approaches such as ecosystem-based adaptation and ecosystem-based disaster risk reduction.

A simple approach NbS is to use categories of landscapes and ecosystems, such as:

- **Forestry**, including the planting of new forests, allowing forests to recover and grow, and better forest

"Yet, the potential of nature-based solutions for climate change has still to be unleashed."

management. Restoring natural forests in upper catchments can help to protect communities downstream from flooding;

- **Wetlands** need conservation and restoration, including peatlands and coastal wetlands with mangroves;
- **Agricultural areas**, if and when they are related to restorative/agroecological practices, notably those that limit soil disturbances and enhance soil carbon sequestration, such as low or no tillage, maintain soil fertility, crop rotation, agroforestry;
- **Oceans** and marine ecosystems, including coral reefs, also need restoration to increase biodiversity action and carbon sequestration;
- **Urban areas** require green and blue areas to limit water and air pollution, lowering both flooding risks and greenhouse gas (GHG) emissions, and reducing the urban heat-island effect, while also providing recreation and health benefits;
- **Coasts** need buffer areas to protect them from erosion, while the coastal economy can also be affected by land degradation.

Yet, the potential of NbS for climate change has yet to be unleashed. First, the growing costs of actual production systems, in the form of environmental degradation leading to greater risks of non-linear changes and systemic collapses and the exacerbation of social inequalities, still need to be recognised. Furthermore, assessing and acknowledging the contributions of NbS to climate change adaptation and mitigation, together with all other related benefits, is still a work in progress.

In addition, the conditions under which NbS should be implemented in order to deliver full benefits are not always well described. For instance, afforestation measures without studying tree species may not result in a fully biodiverse environment associated with multiple ecosystem services. Also, the lack of agreement with surrounding communities on access to products from the newly forested areas may lead to social tensions over the available resources. Existing inequalities concerning access to natural resources, such as water, land and forest products, could be exacerbated by the overprotection of NbS sites. Although green areas make cities more sustainable, they also increase the price of living in their immediate surroundings, making them unaffordable to the majority of people and exacerbating any existing inequalities.

So, yes, NbS are climate smart when implemented with the aim of achieving restorative environmental functions, socio-economic development and fewer inequalities. Further, if we really are in the 'Anthropocene' – an era when human activity dominates the influences on climate and the environment – it is our full responsibility to make the necessary transformations in our energy, land, urban, industrial, agricultural, and communication systems to support biodiversity and people and yield desirable climate futures. This is all the truer in vulnerable areas like the Sahel, the region of the world to which this issue of our magazine is dedicated.

"Afforestation measures without studying tree species may not result in a fully biodiverse environment."

EU GCCA+ Impact and Sustainability Report

The first Impact and Sustainability Report describes direct and indirect impacts achieved by 21 projects supported between 2009 and 2017 by the Global Climate Change Alliance Plus (EU GCCA+). It provides a comparison of actual and expected impacts, a description of the levels of sustainability as well as drivers of successes and failures in terms of impact and sustainability. A useful tool for managers and implementers, it also includes recommendations for the design and implementation of future projects. Specific country reports on The Gambia, Mali and Senegal provide insight into GCCA actions in the Sahel over the last decade.

www.gcca.eu/resources

Climate forward

The future of the Sahel

"Shorter rainy seasons, longer dry seasons and desertification compound conflicts over limited and unevenly distributed natural resources."

"The African-led plan to build a Great Green Wall for the Sahel, initially based on tree planting, has evolved to include a complex set of ecological, social and economic tools."

The 3 000 km² land mass immediately to the south of the Sahara, the Sahel region and the countries that border it occupy one of the poorest and most environmentally degraded strips of land on earth. The Sahel stretches from Senegal to Eritrea and Djibouti on the Red Sea. In this semi-arid zone, climate change is already a reality and future temperature increases are projected to be 1.5 times higher than the global average. The climate vulnerability of impoverished populations is compounded by their high dependence on rain-fed agriculture for food security and livelihoods.

The region is already enduring chronic humanitarian crises due to recurrent drought, flooding, food insecurity, epidemics, and violent conflict. Shorter rainy seasons, longer dry seasons and desertification compound the conflicts over limited and unevenly distributed natural resources. In July 2021, the United Nations High Commissioner for Refugees (UNHCR) stated that intensifying conflicts from Ethiopia to Burkina Faso had driven 3 million people to flee their countries. In the Western Sahel, a further 2 million are internally displaced in Burkina Faso, Mali and Niger alone. In August 2021, the World Food Programme warned that 14.5 million people in these three countries required immediate food assistance.

Through programmes such as the EU GCCA+, the European Union has provided significant support to build social and environmental resilience to climate change. In addition, the region has put the hope of a sustainable future in a bold, African-led plan to build a wall of vegetation the length of the Sahel. The Great Green Wall (GGW), which started in 2007, was initially based on tree planting. It has evolved to include a complex set of ecological, social and economic tools and partners whose aim is to develop a 'mosaic of resilient land-use systems' with the capacity to adapt to uncertainty and climatic extremes. The EU has pledged at least EUR 80 million to support the restoration of 100 million hectares of degraded land, to sequester 250 million tonnes of carbon, and to create 10 million new green jobs.

In 2020, the United Nations reported just 4 million hectares of the GGW's 2030 land-restoration objective had been achieved. The lack of finance and insufficient scale are key challenges. At the One Planet Summit in January 2021, donors pledged to raise USD14.3 billion (EUR 11.8 billion) over the next five years to implement a continental shift towards integrated sustainable land management. Better agricultural and rural development, food security, biodiversity conservation and more sustainable resource use will also reduce some of the key drivers of conflict and migration – making its successful implementation a priority not just for Africa, but for the world as a whole.

Jane Wilkinson

Case study

Mauritania: one country against the Sahara

Country:	Mauritania
Vulnerability (CRI Index):	84th most vulnerable country
EU GCCA+ Project:	*Triggering a process of resilience in the field of food security in Mauritania*

"The fight to hold back the desert requires a two-dimensional approach: prevention and rehabilitation."

"The second GCCA+ phase will further strengthen resilience by bridging the gaps between climate change, agriculture, and the vulnerability of local communities."

The first thing you see when you land in Mauritania's capital, Nouakchott, is sand. Sand is everywhere: from the air, you can see the long stretch of desert that encroaches upon Mauritanians' daily lives and businesses. While mysterious and fascinating, the desert's march has swallowed up homes, livestock and livelihoods across the country. Decades of persistent, severe drought have damaged the vegetation that holds sand dunes in place, releasing them to bury homes and fields. Three-quarters of Mauritanian territory is now covered by the Sahara, and the remaining one-quarter is a Sahelian zone.

Mauritanians suffer from a vicious cycle of poverty and desertification: severe droughts have forced people to cut down forests to access land for pasture. Livestock overload is further degrading the land, which the UN estimates is costing nearly USD 200 million annually in potential revenue losses and healthcare expenses.

The fight to hold back the desert requires a two-dimensional approach. First, prevention, through the sustainable management of forests, range lands and natural resources. Second, the rehabilitation and restoration of forests and oases, by stopping the sand from blowing on to the degraded soil and replanting.

The government has incorporated both dimensions into a suite of national sustainable development strategies and four action plans covering the Nouakchott Green Belt Project: sand fixing projects; sand encroachment prevention programmes and the development of agricultural projects; and oasis development projects. Mauritania recognises its role in implementing the continent-wide Great Green Wall initiative and plans to build botanical gardens in the capital Nouakchott, to select adaptable species for the GGW initiative, and to improve residents' living conditions.

In 2014, the EU GCCA+ began implementing a project designed to build vulnerable populations' resilience to climate change by developing specific climate-related services that boosted adaptive capacity and improved. At project end in 2018, over 200 farmers and ranchers, half of whom were women, had been trained to adapt to increasing climate variability – for example, by managing a cropping calendar. Six agrometeorological stations and 500 rain gauges were installed to facilitate the collection of more accurate climate data and integrating it to improve farming practices. The second GCCA+ phase will further strengthen resilience by bridging the gaps between climate change, agriculture, and the vulnerability of local communities. Local interventions will aim to link with nationally determined contribution priorities to help stem the steady advance of the mighty Sahara.

Monica Bonfanti

Case study

Senegal: fragile coasts need integrated climate action

Country:	Senegal
Vulnerability (CRI Index):	120th most vulnerable country
Eu GCCA+ Project:	*Integrated management of Senegal's coastal areas: in-depth assessments and concrete measures for responding and adapting to climate change*

"Climate change is threatening Senegal's littoral zone with coastal erosion, flooding of low-lying areas, salinisation of soils and groundwater, reduction of mangroves, loss of arable and grazing land."

"The second phase of the GCCA+ started in 2019 and aims to strengthen integrated climate action in Senegal."

Senegal has 700 km of coastline, as well as two major river systems, where three-quarters of the population live and most economic activities (including agriculture, fisheries, industries and tourism) are concentrated. Recently, the Senegalese economy as a whole has witnessed improvements. However, climate change is threatening the country's littoral zones and dynamic areas with higher rates of coastal erosion, flooding in low-lying areas, salinisation of soils and groundwater, reducing the number of mangroves, the loss of arable and grazing land, and less water availability.

Coasts are a particularly fragile space that require proactive protection against the risk of erosion. The growth in economic activities and the construction of numerous infrastructures, including industrial ones along the Senegalese coast, have only aggravated this phenomenon. The mangroves in the regions of Sine-Saloum and Casamance are exceptionally valuable to the locals. They protect birds and act as fish hatcheries, thereby providing food and timber for energy purposes, income-generating activities for women, and protection from storm surges and rising sea levels. Due to their extraordinary capacity for carbon sequestration, up to four times more than traditional forests, mangroves can bring extra income through international carbon markets.

In 2013, initial support from the GCCA helped to lay the groundwork for Integrated Coastal Zone Management (ICZM) to effectively combat coastal erosion and to prepare several concrete coastal protection actions, including dikes and soft protection works. The project evaluation has shown that the ICZM approach is appropriate for addressing coastal climate problems.

The second phase of the GCCA+, which started in 2019, aims to strengthen integrated climate action in Senegal, in line with the socio-economic issues and natural hazards persisting in coastal areas. It proposes to support institutions in their climate actions, particularly in ICZM; improve local climate resilience through field actions (Petite Côte, Sine-Saloum and Casamance) to be implemented by civil society organisations together with communities and local authorities; and improve and manage knowledge and communicate on climate issues, with a focus on coastal areas.

The project is aligned with Senegal's policy on adaptation and, to a lesser extent, mitigation of the effects of climate change, as set out in the nationally determined contribution, which includes a specific focus on coastal areas. Coastal protection measures should be initiated by the local authorities themselves and should also reinforce local ICZM strategies. This project is being managed with the Ministry of the Environment and Sustainable Development and more specifically the Directorate for the Environment and Classified Establishments.

Geraldo Carreiro

Story

Harvest of hope: spirulina from Lake Chad

"Spirulina has been used for centuries as a traditional food by indigenous peoples in both Africa and Central America."

"Solar panels provide energy to irrigate the fields, helping to cultivate not only spirulina but also fenugreek, aubergines, chillies, onions, carrots, tomatoes and beetroot."

"Spirulina processing is part of a EUR 8-million EU GCCA+ project to help communities in Chad adapt to the impacts of climate change."

On the shores of Lake Chad in Central Africa, a group of women and girls are working in the shade of a solitary tree. Temperatures here regularly soar past 40 °C, yet the women work tirelessly to harvest and process the blue-green algae known to health-conscious consumers all over the world as spirulina. Nearby, a cage contains racks of drying spirulina paste which, when turned into tablets, can sell for up to EUR 20 a pack in Western health stores.

As well as being an eco-friendly, nutrient-rich dietary supplement for both humans and animals, spirulina is being promoted as a possible solution for food insecurity and malnutrition in developing countries. However, this is no modern-day food fad – spirulina has been used for centuries as a traditional food by indigenous peoples in both Africa and Central America.

In that sense, these young women are transforming a traditional practice – work historically done by women from the Kanembu tribe – into a much-needed source of jobs and income. Climate change and a rapidly expanding population has caused Lake Chad to shrink by 90 % since the 1960s, so creating more jobs is crucial to both protecting the shrinking lake and addressing the wider humanitarian crisis in the Sahel.

Spirulina processing is part of a EUR 8-million project by the EU's flagship climate change programme GCCA+ to help communities in Chad adapt to the impacts of climate change and develop renewable energies. Aitambodou, one of the young women in the group, demonstrates how, using a grinder, she transforms the blue-green algae into a dry powder which she then mixes with water to form a thick paste. Nearby, her friend Tayrah scoops handfuls of the bright green paste from a plastic bucket and moulds it for drying in a specially-built rack.

Solar panels provide energy to irrigate the fields, helping to cultivate spirulina as well as fenugreek, aubergines, chillies, onions, carrots, tomatoes and beetroot. Given that Chad is highly vulnerable to climate change, using solar-powered irrigation systems helps farmers to deal with unpredictable rainfall patterns.

In recent years, there has been a drop in agricultural productivity which, in turn, means less income and greater poverty for the farmers and their families. Now, farmers are getting together to buy and install cheap solar motor pumps and are learning how to maintain them correctly. Permanent access to water allows them to harvest at least three crops a year instead of one. Thanks to this simple, climate-friendly technology, Aitambodou and her friends can earn enough money to care for their families and educate their children.

Martin Atkin

Story

Women at the heart of development in Niger

"EU GCCA+ activities to recover degraded land often go hand in hand with social progress."

"The women undertake to reclaim the land and receive food support while the work is under way. The reclaimed site is then secured through donations or loans."

"Assisted natural regeneration is an agroforestry and reforestation technique that provides a low-cost alternative for regreening fields."

With agriculture in the Sahel under threat from desertification, soil degradation is one of the greatest stresses on the environment and life in the region. It is reflected in declining soil fertility and productivity, but also in the loss of biodiversity. In some countries of the Sahel, such as Niger, more than 50 % of agricultural land degradation is due to an extensive agropastoral system that is destroying the soil.

The Climate resilience for sustainable agricultural development support project (PARC DAD), funded by the EU through the GCCA+, is being implemented in Niger in the provinces of Zinder and Dosso. The project's activities to recover degraded land often go hand in hand with social progress.

Among its activities in rural areas, the bio-reclamation of degraded land stands out because of its experimental component. Implemented by the International Crops Research Institute for the Semi-Arid Tropics, this involves the application of a series of agricultural techniques on degraded lateritic soils that have become unsuitable for agriculture. Assisted natural regeneration is an agroforestry and reforestation technique that provides a low-cost alternative for regreening fields. This involves protecting naturally growing woody species to prevent them from being destroyed by crop farming and grazing, and to encourage their growth (selection of strains, grafting of high-yield varieties). Over time, the presence of bush or tree cover acts as a windbreak and helps improve soil structure.

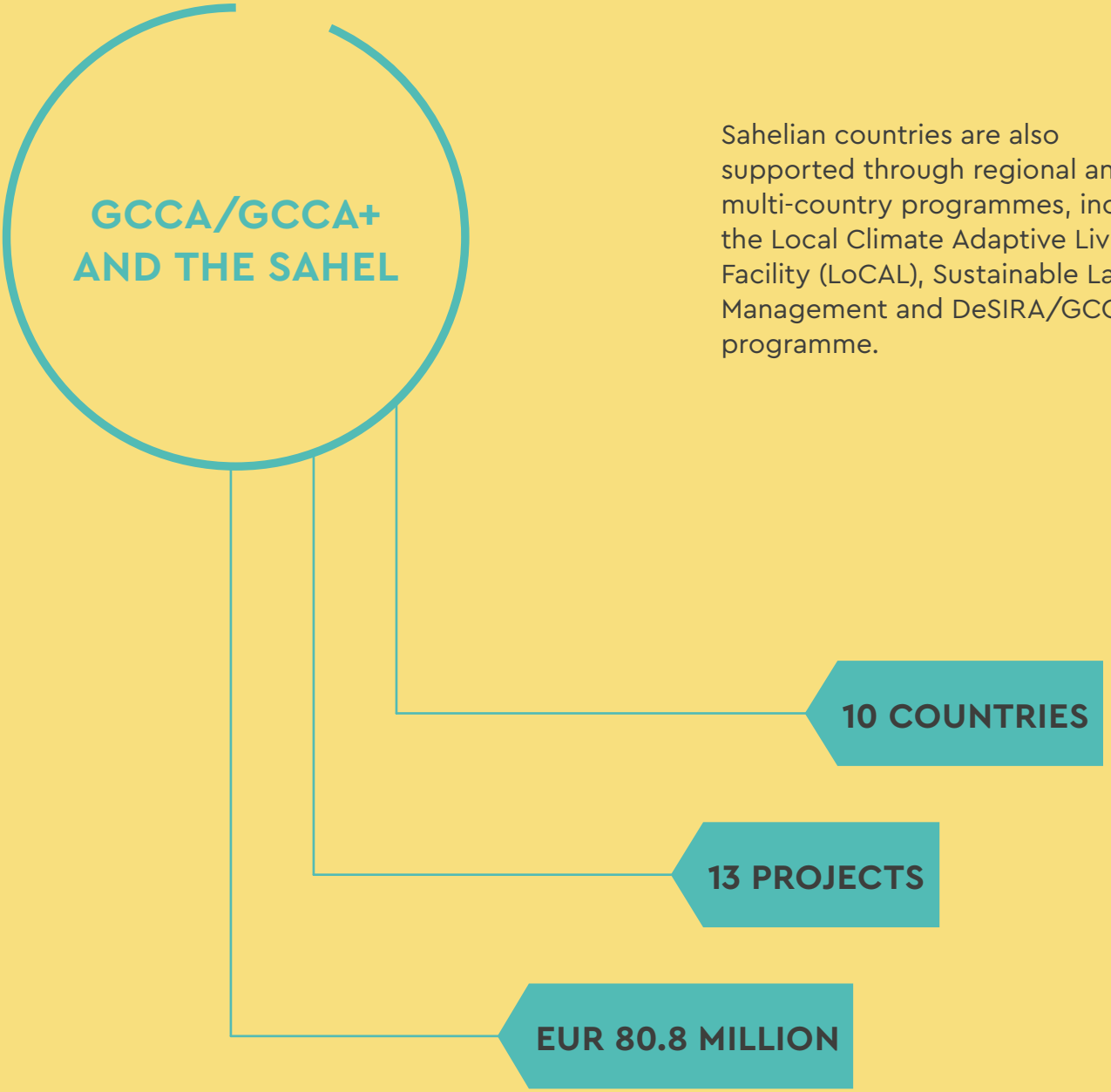
Targeting female beneficiaries, the activity begins by establishing social-engineering actions aimed at ensuring cohesion and a shared vision among a group of women who have volunteered to carry out the activities and development work. These women undertake to reclaim the land and receive food support while the work is under way. The reclaimed site is then secured through donations or loans.

Depending on the organisation of the work, the land they reclaim is treated with organic manure until sowing or planting can begin with the first rains. Moringa and jujube ('pomme du Sahel') seedlings from the nursery can be planted in the holes prepared for this purpose in half-moons and trenches. Okra, Lucena, sorrel, chilli and other seeds are planted in the Zaïs holes.

Philippe D'Aout

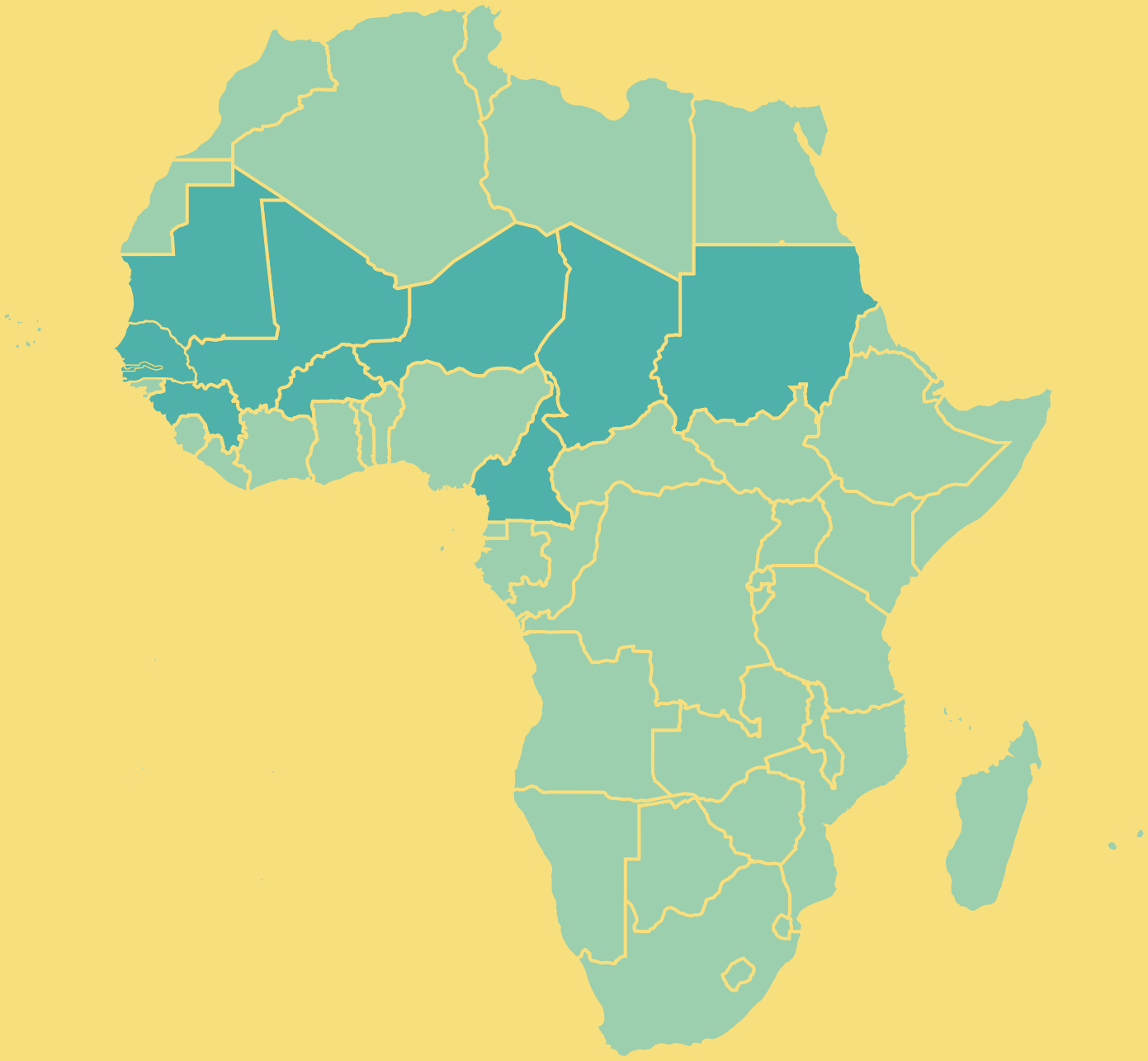
EU Delegation in Niger

THE EU GCCA+ BAROMETER



Sahelian countries are also supported through regional and multi-country programmes, including the Local Climate Adaptive Living Facility (LoCAL), Sustainable Land Management and DeSIRA/GCCA programme.

COUNTRIES OF INTERVENTION



BURKINA FASO, CAMEROON, CHAD, GUINEA, MALI, MAURITANIA, NIGER, SENEGAL, SUDAN, THE GAMBIA

EU GCCA+ ACTIVITIES SUPPORTING THE SAHEL

Projects	Action	Countries
Support to the Sahel area		
10	**ADAPTATION**	BURKINA FASO, CAMEROON, CHAD, GUINEA, MALI, MAURITANIA, NIGER, SENEGAL, SUDAN, THE GAMBIA
9	**MAINSTREAMING**	BURKINA FASO, CAMEROON, CHAD, GUINEA, MALI, MAURITANIA, NIGER
Main sectors		
7	**AGRICULTURE SECTOR**	BURKINA FASO, CAMEROON, CHAD, GUINEA, MAURITANIA, NIGER, SUDAN
5	**FORESTRY**	BURKINA FASO, MALI, THE GAMBIA
5	**LAND MANAGEMENT**	BURKINA FASO, MALI, MAURITANIA, NIGER, SUDAN
5	**NATURAL RESOURCES MANAGEMENT**	MALI, NIGER, SENEGAL, SUDAN
4	**COASTS ***	SENEGAL, THE GAMBIA
4	**FISHERIES ***	SENEGAL, THE GAMBIA

* Interestingly, coasts and fisheries were also quite popular, recognising this comparative advantage on landlocked countries.

The Best of Practice

EU support for the Sahel

Definitions of Sahel countries differ and often include countries that border the Sahel or have Sahel-like conditions. The Sahel 'proper' stretches all the way from Senegal on the Atlantic coast in the west through The Gambia, Mauritania, Guinea, Mali, Burkina Faso, Cameroon, Niger, Chad and Sudan, to Eritrea on the Red Sea in the East. Since 2009, the EU GCCA+ has delivered EUR 80.81 million to 13 national projects in 8 of these countries. Building adaptive capacity and climate resilience lies at the heart of most projects along with actions to mainstream climate action in national planning, policies and budgets. Actions focus on agriculture, land management and forestry, natural resource management, coastal zone management and fisheries.

In addition to these national projects, the EU GCCA+ has supported two phases of LoCAL, a multi-country local adaptation financing initiative that encourages private-sector-focused performance-based financing, including in Mali and Niger. In 2019, Cameroon joined the ranks of EU GCCA+ partners through another multi-country initiative supporting sustainable agri-food systems. Of the Sahel countries, only Eritrea does not host a GCCA+ programme.

EU GCCA+ programmes have undergone significant evaluation to extract best practices. However, as the most recent Global Evaluation in 2014 highlighted, many of the projects were only just coming to fruition then, making a proper assessment of their results and impacts an impossible task.

In 2018, the GCCA+ Support Facility began an **Impact and Sustainability Study** of 21 EU GCCA projects that had been closed for at least one year, including three in the Sahel region. Although sustainability and impact levels varied across the 21 projects, key factors for success did emerge and have universal application:

- Building strong ownership and commitment from stakeholders by using participatory approaches, tailoring objectives to address beneficiaries' key priorities, combining short-term and long-term benefits, and understanding the social and cultural context of actions;
- Aligning and integrating actions with existing government policies and programmes;
- Working with the right implementing agencies – ideally, with strong government institutions. If these do not exist, working with partners who know the country context and have a long-term presence is essential:
- Combining higher-level policy/ institutional work with field-level pilot projects and working to ensure that field-level lessons feed back into policy work;
- High-quality intervention requires thorough research and analysis before work commences, including vulnerability assessments, value-chain analysis, and analysing appropriate technology options;
- Strong knowledge management and learning processes support buy-in and knowledge, including visits between communities, toolkits, and high-quality communication material;
- Support for legal frameworks encourages long-term implementation.

Jane Wilkinson

EU GCCA+ THE ALLIANCE FOR A CHANGING WORLD

The **Global Climate Change Alliance Plus (EU GCCA+)** is a flagship initiative of the European Union helping most vulnerable countries respond to climate change. It started in 2007 and has become one of the EU's major climate initiatives with a worldwide scope, with over 80 programmes in Africa, Asia, the Caribbean and Pacific region.

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NOVEMBER 2021