IS AFRICA BECOMING CLIMATE SMART?

GCCA+
THE GLOBAL CLIMATE CHANGE ALLIANCE PLUS INITIATIVE
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Climate Smart Africa: Harnessing the Growth and protecting the Gains

Jane Wilkinson

"Electrification provides opportunities for cleaner cooking, lighting to lengthen 'daylight' hours, and appliances to access the world"

As population growth slows in the rest of the world, Africa's large population coupled with a high youth population – 1.2 billion of under 15-year-olds, according to the 2016 World Population Review – means its development pathway is globally consequential. In particular, this is because the African content is home to some of the world's most striking imbalances.

Africa has a globally significant wealth of natural resources. The continent is home to the world's largest arable landmass and its second largest and longest rivers (the Nile and the Congo). The Democratic Republic of the Congo is home to the world's second-largest tropical forest and, according to the African Natural Resources Centre, the total value added of its fisheries and aquaculture sector alone is estimated at USD 24 billion. In addition, the African Development Bank confirms that about 30 % of all global mineral reserves are found in Africa.

At the same time, poor governance, historical and ongoing conflict and a low development base means that 33 of the world's 47 least developed countries are found in Africa. In Sub-Saharan Africa, around 70 % of the population depend on subsistence agriculture for their livelihoods and, because of high geographical vulnerability, are among the communities in the world most vulnerable to climate change impacts. While a new middle class is emerging in key cities across the continent, inequality is striking and persistent. According to the Organisation for Economic Co-operation and Development (OECD 2016), electricity only reaches about half of all sub-Saharans while 890 million still cook using traditional fuels.

Because African growth is incontrovertible, new partnerships are needed to harness and scale new technologies and approaches to leverage know-how and

"Africa has an opportunity to leapfrog high-carbon approaches through policy decisions and partnerships that prioritise clean energy"

"Through its GCCA+ Flagship Initiative, the EU is partnering African countries to take climate-smart action in diverse sectors across the continent"

finance while building new skill sets, to ensure that the gains of the last 30 years are not eroded. Through its GCCA+ Flagship Initiative, the European Union is partnering African countries to take climate-smart action in diverse sectors across the continent. Importantly, its triple-bottom-line approach means that GCCA+ support aims to bring better economic livelihoods, social inclusion and environmental sustainability.

The GCCA+ Regional Africa Conference 'Climate Smart Africa: Harnessing the Growth and Protecting the Gains', in Kigali in October 2019, showcased GCCA+ successes across the continent. Thus, in this GCCA+ review, we share some of the inspiring and diverse examples of actions that have been undertaken in African countries with GCCA+ support. Among other examples, in Rwanda, a land tenure reform programme encourages sustainable land management, while providing farmers with the means to access small financial loans – previously not possible. In Tanzania, climate-smart approaches are being trialled in ecovillages; in Comoros, digital aerial imaging anticipates climate risks; in Mauritius, the climate-smart approach is dedicated to coasts; whereas in Uganda, data collection is contributing to lower greenhouse gas emissions. We also consider emerging issues as Africa's demand for mobility options increases with prosperity, potentially adding millions of vehicles to newly built roads. We ask how should Africa's transport systems look in the future.

The lack of access to energy endured by so many Africans is possibly the continent's greatest poverty challenge and greatest development opportunity. Electrification provides opportunities for cleaner cooking, lighting to lengthen 'daylight' hours, and appliances to access the world. Africa has an opportunity to leapfrog the high-carbon approaches of the 19th and 20th centuries through policy decisions and partnerships that prioritise clean energy and avoid millions of tonnes of emissions. The GCCA+ stands ready to support African countries in their quest to grow their prosperity while avoiding future environmental damage.

GCCA+ awards go to Comoros and Tanzania
at the Africa Regional Conference

The **GCCA+ Communication Award** was won by GCCA+ Comoros for seven short films and a comic strip featuring a typical Comorian family.
'These videos are part of a wider publicity campaign using radio, the internet and local newspapers,' said Mohammed Ali Mlazahane, GCCA+ Project Director for Comoros.
'We wanted to get people to link their everyday actions with climate change. A lot of them don't really understand how it relates to their day to day life.' Awareness is increasingly important in the fight against climate change.

A second prize, for the **Best Market Stall**, was won by GCCA+ Tanzania for its stand featuring eye-catching handmade leather products, including footballs and high-fashion handbags.
'Local communities have already adapted to activities that increase their resilience and adaptation to climate change. They are now making leather goods as alternative sources of income,' said Francis B. Njau, GCCA+ Tanzania EcoACT project coordinator. 'The items are made mainly by women and youth groups who have benefited from the creation of a leather factory in Idifu village near Tanzania's capital, Dodoma.

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Climate forward

Rwanda: the long-term impact of land registration for climate action

"Once people have security of tenure and feel they own the land, they invest in protecting it"

"Today, Rwanda is ranked second in the world in terms of registering property and has an electronic land registry for 11.4 million parcels"

"Supporting land registration in Africa pays off. Tanzania and Zambia are good examples of countries well advanced in terms of preparation for a similar programm"

In a call for more support for land registration in Africa, the case study of Rwanda is emblematic: the Land Tenure Regularisation Programme (LTRP) is having a long-term impact on mitigation and adaptation to climate change by land owners. Today, Rwanda is ranked second in the world in terms of registering property (World Bank Doing Business Report 2019).

Once people have security of tenure and feel they own the land, they invest in the protection of that land. This enables them to put forward actions for climate change mitigation and adaptation, like planting trees, constructing anti-erosion measures such as using trenches and terracing, and gaining access to finance by using their land as collateral.

At the end of 2014, 10.67 million parcels of land had been demarcated and 8.6 million land titles issued to owners in Rwanda at a cost of USD 6 per registered parcel over a 5-year period. This was achieved through the LTRP which cost USD 70 million, of which EUR 4 million was contributed by the European Commission through the GCCA+.

Evidence from a pilot area in Rwanda showed that households which obtained land titles through LTRP were almost 10 % more likely to make or maintain soil-conservation investments in structures such as bunds, terraces and check dams.

All this started in 2000, when the Rwandan government adopted Vision 2020 which aimed to transform the country into a middle-income nation by 2020. Many reforms were required in all sectors, including the environment and land. In 2004, the government passed two major policies: the National Environment Policy and the National Land Policy. These policies proposed regulatory and institutional reforms and included programmes to ensure environmental protection and conservation, climate change, and included a green growth strategy as a top priority.

In 2008, a strategic roadmap for land tenure reform proposed how to implement the LTRP, through systematic land registration for all parcels in Rwanda, ranging from demarcation using aerial orthophotos to the issuance of printed land titles, ensuring significant participation from the community in this process, including many women.

Currently, a modern Land Administration Information System (LAIS) is used as an electronic land registry for 11.4 million parcels and handles all land-related transactions. It also supports other services such as banks for e-mortgage registration, the national identification system, a construction permit system, tax collection, etc.

Support or regularisation of security of tenure and land registration in Africa pays off because a long-term impact can be expected from landowners investing in climate change mitigation and adaptation measures. Tanzania and Zambia are good example of countries that are ahead in terms of preparations for a programme similar to that undertaken in Rwanda.

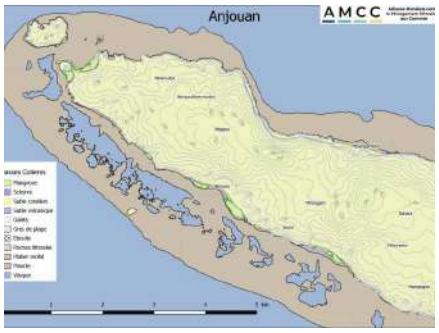
Didier Sagashya

Eng. Didier Sagashya was the deputy director general in charge of lands and mapping at the Rwanda Natural Resources Authority during implementation of the Land Tenure Regularisation Programme. He currently works as an independent consultant.

Case study

Comoros: Digital aerial imaging: keeping one step ahead of climate change risks

Country:	Comoros
Type:	Small Island Developing State (SIDS)
Vulnerability (CRI Index):	124th most vulnerable country
GCCA+ Project:	AMCC+ Comoros: Supporting the Comoros to build resilience against climate change



"The aerial images have allowed the production of the first-ever consistent dataset for all three islands"

"These important images will be of great value to Comoros across all key development sectors for the next 25 years"

Comoros is an archipelago situated off the coast of Mozambique in the Indian Ocean. Cyclones and other climate change-related weather events, of growing strength and frequency, are damaging business, government and the social infrastructure and taking a heavy toll on the poorest slum-dwellers.

The government, which has set a target of achieving emerging-market status by 2030, is just beginning to realise that it can only plan harmonious development, in time and space, if it has a clearer picture of future risks.

In late 2018, the country underwent an aerial photography campaign as part of the Global Climate Change Alliance's (GCCA) Support to the Union of the Comoros for strengthening resilience to climate change project. The campaign produced a set of high-resolution, orthorectified images with digital surface models covering almost all of the country's land and sea territory. With unprecedented precision (10 cm resolution, compared to almost 10 m), the images provide a more detailed map of the surface, ranging from buildings, roads, paths and other infrastructure to reefs, mangroves, watersheds and other geomorphological features that either offer protection from climate hazards or heighten their impact.

The aerial images have enabled the production of the first-ever consistent dataset for all three islands (Grande Comore, Anjouan and Mohéli) with documented calculations. For instance, mangrove coverage on Grande Comore has been adjusted from 3 ha to 87 ha, while the size of the Mohéli coral reef has been revised downwards from 18 400 ha to 3 917 ha and 25 m of coast disappeared in 15 years.

The images and data have also been used to produce new maps of housing, critical infrastructure and communication networks, showing vulnerability to different risks such as rising sea levels, flooding and coastal erosion. Housing maps were produced in 23 pilot areas by over 40 multi-sectoral officials who received training in the use of geographic information systems (GIS).

'These important images will be of great value to Comoros across all key development sectors for the next 25 years,' says Dr Anwar Maeva, a lecturer in GIS and remote detection who is using the images in his research into flooding in Hambou and Bambao, two heavily exposed areas of Grande Comore.

Rather than having to apply to the custodian institutions for access, the images have voluntarily been published in open-source format. The new risk maps could play a pivotal role in supporting national efforts to plan ahead and improve disaster-risk management.

Ali Mohamed Mlazahahe

Team Leader GCCA+ Comoros

Case study

Tanzania: Climate-smart agriculture in five ecovillages

Country:	Tanzania
Type:	Least developed country (LDC)
Vulnerability (CRI Index):	90th most vulnerable country
GCCA+ Project:	Global Climate Change Alliance in Tanzania

"Five ecovillage projects situated in different a gro-ecological zones in Tanzania helped build resilience against climate change and reduce poverty"

"Climate-smart agriculture alone is not enough. Income-generating activities are also vital to increase resilience to climate change"

What does it mean to be climate smart in Africa? Under the Global Climate Change Alliance (GCCA) Tanzania project, funded by the EU, an ecovillage approach was implemented in two phases (2010–2013 and 2015–2019) with the overall aim of helping communities to become climate smart within the context of ever-increasing erratic and unpredictable rainfall patterns. As a result, multiple climate-smart activities were introduced, including climate-smart agriculture and livestock-smart agriculture. A further project impact concerned encouraging communities to rely less on rain-fed agriculture and to start up other income-generating activities, including environmentally friendly small businesses.

Five ecovillage projects situated in different agro-ecological zones in Tanzania were set up with the aim of building resilience against climate change and reducing poverty. They carried out activities ranging from training farmers in how to conserve water and prevent soil erosion by creating terraces on farms situated on mountain slopes, using bio-fertilisation including farmyard manure, crop rotation, intercropping, building energy-saving stoves, natural resource management and enforcing by-laws to conserve water sources, among others.

However, due to the varying landscape (semi-arid regions, rainforests, small islands and the Maasai Steppe) and the nature of the project participants (farmers and pastoralists), each project experienced its own unique results. 'Climate-smart agriculture incorporates an integrated approach which ultimately helps with food security in an ever-changing climate,' said Sylvester Mziray, Assistant Muheza District Agriculture Officer who worked alongside the East Usambara project in eastern Tanzania. Mr Mziray has encouraged the planting of 'early maturing crops', including maize and beans which are pest- and disease-tolerant, as this helps with food security. These crops include clove and cinnamon trees, with black pepper grown and intertwined as a climber, followed by planting cardamom underneath the trees as this crop needs plenty of shade. This integrated approach helps create carbon sinks which are necessary for a healthy environment. Farmers have also been trained in post-harvest handling using proper chemical-free storage bags which keep grain edible for between three to five years to guard against future droughts.

'Climate-smart agriculture alone is not enough. The GCCA+ Tanzania experience has shown that with extreme droughts, even drought-tolerant seeds and other climate-smart agriculture practices will not be able to produce a yield so other measures are needed that enable households to diversify from their dependency on rain-fed agriculture,' said Joss Swennenhuis of GCCA+ Tanzania. Income-generating activities, including leather tanning, livestock and bee-keeping, and setting up village savings and loans groups to create small businesses are also vital to increase resilience to climate change and to become climate smart.

Joanna Martin

GCCA+ Tanzania Visibility and Communications Expert

Interview

Turning Mauritian coasts climate smart

Interview with Dr Sunita Facknath: Professor in Sustainable Agriculture and the Dean of the Faculty of Agriculture at the University of Mauritius

With a population of about 1.2 million people in 2017, Mauritius, unlike most regions in Africa, is heavily dependent on external agricultural inputs like fertilisers, agrochemicals, and the use of sophisticated irrigation systems, according to Dr Facknath who, for the past 20 years, has been working on climate change issues in relation to the agricultural sector.

In what way is GCCA+ support to Mauritius climate smart?

Mauritius is a small island developing state (SIDS) which benefits from the EU's flagship Global Climate Change Alliance Plus (GCCA+) project devised to enable farmers to transform unsustainable agricultural practices into climate smart agriculture, a term coined by the Food and Agriculture Organization (FAO) in 2010 at the Hague Conference on Agriculture, Food Security and Climate Change. The project provides coastal farmers with a training package that will help them to reduce the effects of farming along the coasts of Mauritius.

What are the main problems on Mauritian coasts?

To cultivate their crops, coastal farmers use high levels of agrochemicals, high inputs of fertilisers, and pesticides. All of these chemicals leach through the sand and ground, creating big problems for the thriving tourism industry which sees the direct effects of the chemicals leaching into the sea. The agrochemicals the farmers are using cause eutrophication or algae blooms – this is an excess of salt in water which creates a foul smell that you can imagine does not help the tourism industry.

So, what is the solution?

The project is training farmers to use compost to add a layer of mulch to the soil instead of using synthetic fertilisers. In today's world, we need the hybrid integration of technology-based solutions with nature-based ones, which I believe will be crucial for the survival of the planet and thriving communities. When you use a layer of organic mulch or even straw from debris left over from the previous cropping season, the nutrients do not go down through the sand. By introducing techniques like mulching and composting, the soil is able to retain more water that is usually lost through evaporation and can hold more nutrients.

And how will the knowledge be kept?

For the past year, the project has been training small-scale farmers in the region in how to use climate-smart farming techniques to improve their produce and minimise environmental degradation along the coast. A significant part of the project is to create a handbook that local farmers can refer to even after this project has ended. The goal is to identify local farmers who will become changemakers in their communities through practical, hands-on training.

Tracy Keza

Climate Trackers, Rwanda

Interview

Collecting data to lower GHG emissions in Uganda

Interview with Aggrey Ntakimanye, Technical Advisor in charge of Monitoring, Reporting and Verification in Northern Uganda Districts

By 2040, Uganda aims to transform into a middle-income country by promoting low-carbon emissions and more efficient and climate-smart production systems for farmers. According to the World Bank (2019), climate change poses one of the biggest threats to the development of most sub-Saharan countries like Uganda, particularly to their food security and healthy livelihoods. This is becoming particularly pronounced in communities that depend on natural resources for agricultural production, which is affected by unpredictable rainfall patterns, floods, landslides and the increased use of pesticides. Aggrey Ntakimanye is the technical advisor for GCCA+ in Uganda.

Where is the Uganda GCCA+ programme heading?

The main goal of this Global Climate Change Alliance Plus (GCCA+)-funded project is to support the environment by mainstreaming both climate change mitigation and data-collection training in northern Uganda. This will enhance the ability of local leaders to collect data on greenhouse gas (GHG) emissions resulting from agriculture. This is done by targeting and training 25 000 farmers who are organised into cooperatives to later become agents for change in their communities. The data collected from these farmers will aid local efforts to implement strategies that lower GHG emissions in Uganda and help it to reach its nationally determined contribution (NDC).

Does agriculture have a big weight in Uganda?

Since agriculture accounts for over 25 % of Uganda's gross domestic product and 70 % of the national labour force, according to ReliefWeb (2019), one challenge the country faces in achieving its NDC is high GHG emissions resulting from unsustainable agricultural practices that put more pressure on natural resources. We are specifically targeting the agricultural sector by monitoring these emissions and collecting data that we can use to advocate for the implementation of climate-smart cultural practices.

Implementing climate-smart agriculture techniques presents a unique set of challenges, particularly as regards human resource and capacity building to train local district government staff to collect data through both primary and secondary data-collection techniques. Once we have an efficient data-collection system, we plan to roll out the same processes and procedures throughout local governments in Uganda. This makes it easy for the climate change department to collect and assess data.

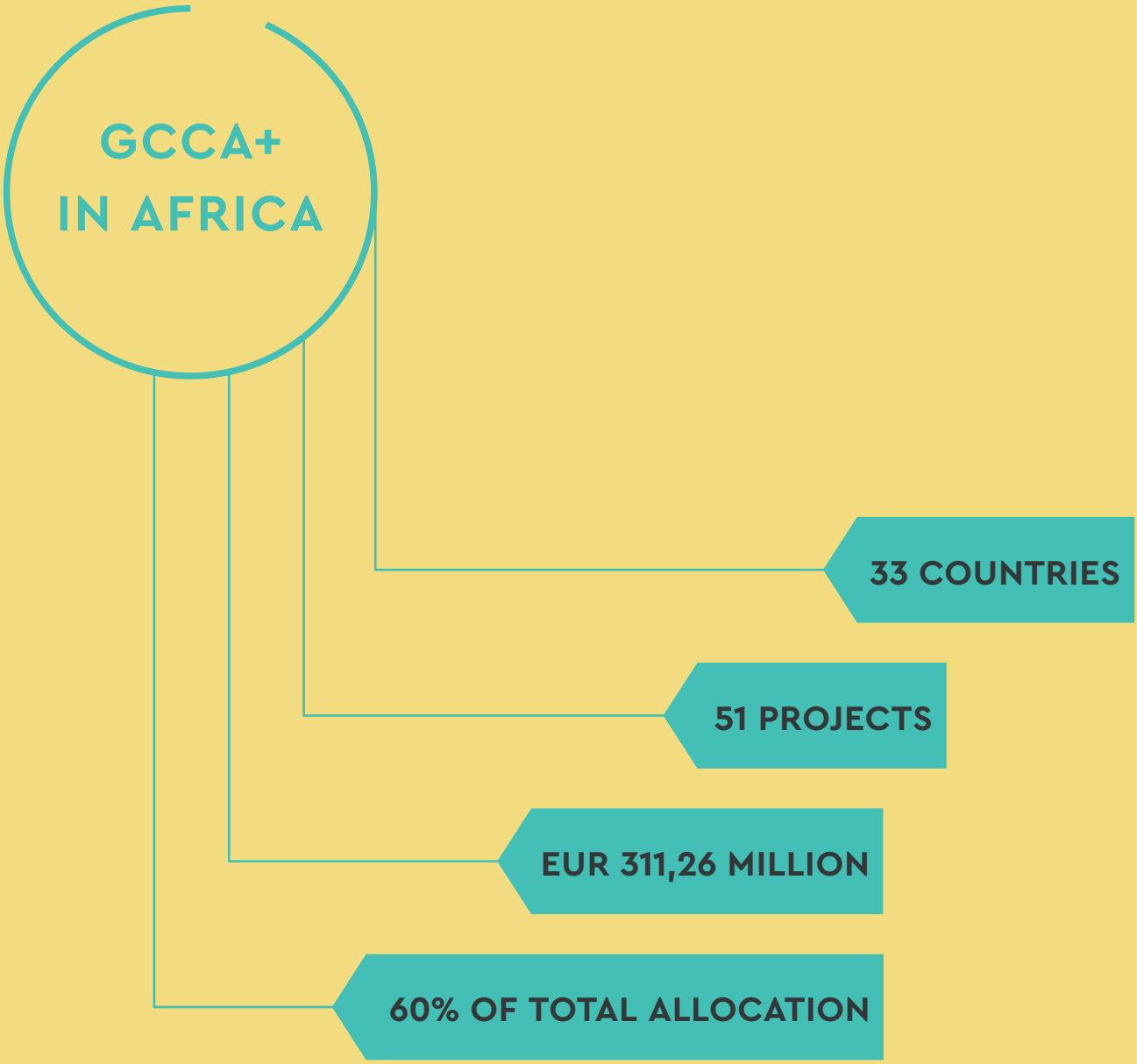
What is the specific importance of MRV?

Monitoring, reporting and verification (MRV) is a concept that came out of the Paris Agreement which requires all EU donor recipients to support climate change actions. One of the outputs of this project is to reduce the amount of GHG emissions released into the atmosphere, particularly from the agricultural sector. Another project output is to make the practice of climate-smart agriculture accessible to local farmers. While this project is still in its initial stages, where the focus is on recruiting and training local leaders, this alone is helping to create a data-collection database that stakeholders can reference in the northern Ugandan districts.

Tracy Keza

Climate Trackers, Rwanda

THE GCCA+ BAROMETER



GCCA+ IN AFRICA

BENIN, BURKINA FASO, CAMEROON, CAPE VERDE, CHAD, CÔTE D'IVOIRE, COMOROS, DRC, DJIBOUTI, ETHIOPIA, GHANA, GUINEA-BISSAU, LESOTHO, LIBERIA, MADAGASCAR, MALI, MALAWI, MAURITANIA, MAURITIUS, MOZAMBIQUE, NAMIBIA, NIGER, NIGERIA, THE GAMBIA, SAO TOMÉ-ET-PRINCIPE, RWANDA, SIERRA LEONE, SEYCHELLES, SENEGAL, SUDAN, TANZANIA, TOGO, UGANDA

GCCA+ SUPPORT TO CLIMATE-SMART DEVELOPMENT

Projects	ACTION	% of GCCA+ portfolio in Africa
47	TAILORED CAPACITY BUILDING IN TERMS OF TRAINING AND INSTITUTIONAL DEVELOPMENT	100
27	SUPPORT CLIMATE CHANGE MAINSTREAMING	57
26	SUPPORT TO AWARENESS-RAISING CAMPAIGNS	55
24	SUPPORT TO THE DEVELOPMENT OF SPECIFIC POLICIES AND STRATEGIES	51
22	PROMOTION OF CLIMATE-SMART AGRICULTURE, HORTICULTURE, LIVESTOCK AND FISHERIES	47
19	ECOSYSTEM-BASED APPROACHES AND ADEQUATE NATURAL RESOURCE MANAGEMENT	40
17	PROMOTION OF CLIMATE-RESILIENT INCOME-GENERATING LIVELIHOODS	36
17	SUPPORT FOR SUBSTANTIAL REFORESTATION/AFFORESTATION INITIATIVES	36
16	SUPPORT TO THE PRODUCTION OF RENEWABLE, CLEAN ENERGY AND TO ENHANCE ENERGY EFFICIENCY	34
14	WATER-MANAGEMENT MEASURES	30
8	SUPPORT FOR CLIMATE-SMART DEVELOPMENT THROUGH INTEGRATED COASTAL ZONE MANAGEMENT	17
11	SUPPORT FOR FOREST GOVERNANCE, MANAGEMENT AND CONSERVATION	23
5	SUPPORT FOR MITIGATION THROUGH SOLID WASTE MANAGEMENT PROGRAMMES	11

The Best of Practice

Transport: challenges and potential for climate-smart solutions in Africa

In 2018, transportation was responsible for 24 % of direct global CO2 emissions from fuel combustion (International Energy Agency – IEA 2019 Report). As home to some of the fastest-growing populations and rates of urbanisation in the world, what are Africa's mobility trends? Is there a growing green transport sector in African countries, and who is responsible for the transition? While some successful approaches are emerging, Africa's 54 countries are sharply diverse.

Cleaning up the transport sector has many benefits besides mitigation, ranging from public health and safety benefits to productivity gains from improved transport systems. Under its expanded scope, the GCCA+ has potential to offer technical support to partner countries to build green transport systems and to take measures to drastically reduce emissions per unit even in the face of growing demand for mobility.

The 2018 Intergovernmental Panel on Climate Change (IPCC) Special Report stressed the urgency of strong actions across all transport modes. Some EU cities, such as Berlin, Paris, Madrid and Athens, are working with different solutions to tackle transport emissions. However, given the vastly different circumstances, how can proven climate-smart transport solutions be replicated in Africa? We are talking about a continent where cars banned by EU rules are popular; where poor road safety creates dangerous conditions; and where many households cannot afford public transport fares and opt for decrepit polluting options.

There are many potential scenarios that could be developed in the future to support sustainable cities and communities. Reducing black carbon and other polluting particulates, while improving transport accessibility for all social groups, is a key lever for alleviating poverty and improving the quality of life.

The more-developed African states are already leading the way. South Africa is taking concrete action such as shifting freight from road to rail. According to the South Africa Department of Environmental Affairs, it is projected that this action will save almost 3 000 ktCO2eq. per year by 2050 (0.66 % of the total mitigation potential). Some East African cities have started to look at how they can scale up sustainable mass transport options across the region. Dar es Salaam, for instance, has implemented an excellent bus rapid transit (BTR) system that is now carrying around 200 000 passengers a day.

Across the continent, cities, in particular, can play a substantial role in catalysing a shift towards green transport systems. Interested countries should approach their EU Delegations and request GCCA+ support to reduce emissions from transport at the national and local level.

"As home to some of the fastest-growing populations and rates of urbanisation in the world, what are Africa's mobility trends?"

"Reducing black carbon while improving transport accessibility for all social groups is a key lever by which to alleviate poverty and improve the quality of life"

"Interested countries should approach their EU Delegations and request EU support to reduce emissions from transport at the national and local level"

Monica Bonfanti

ABOUT GCCA+

The **Global Climate Change Alliance Plus (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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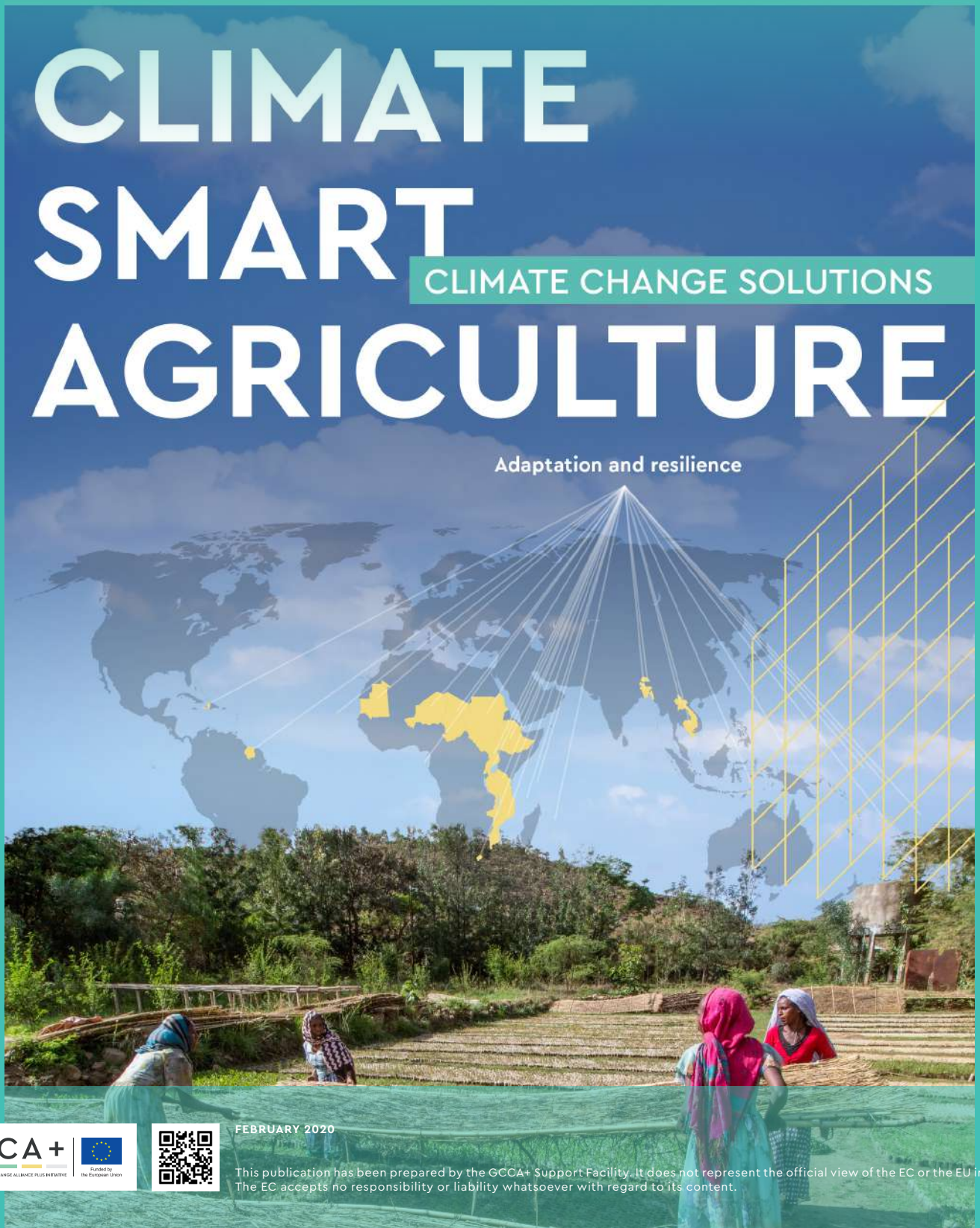

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