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PROTECTING PARADISE IN THE DOMINICAN REPUBLIC

10 December 2020

It's another beautiful day in Miches on the northern coast of the Dominican Republic, but the sun-drenched, pure white sandy beaches are nearly empty. Despite the island staying open for visitors, Covid-19 has taken its toll on the tourism industry, with visitor numbers down and the economy predicted to shrink by 6.5 percent in 2020.

However, it's not the pandemic which worries Yonattan Mercado as he strolls through his hometown. He's more concerned about the impacts of climate change and unsustainable development, and in particular the devastating hurricanes which increasingly batter the coastline.

"When the town was hit by Hurricanes Irma and María in 2017, people saw for themselves the raw power of nature," says Yonattan. Hundreds of homes were destroyed, and thousands of people displaced, after Hurricane Maria struck Miches bringing a storm surge which caused the Yeguada river to burst its banks. "The flooding was worse than anything they had seen before. But people have very short memories, and they continue to build in vulnerable areas despite knowing what could happen."

Yonattan, who has lived in Miches his whole life, now works for the Ministry of Environment and Natural Resources in the Dominican Republic, looking after two local protected areas as wildlife refuge, the Laguna Redonda and Limón and Los Manglares de La Gina. "They are home to dozens of wild species, but they also provide income for many local families," he explains. "We're experiencing the local impacts of climate change on the mangroves, beaches, coral reefs and other key ecosystems. Higher temperatures, shorter rainy seasons, degraded coral reefs and constant coastal erosion are all taking their toll. Some communities have already been abandoned because the beaches have washed away."

"The Ministry of Environment, as the focal point before the Global Environment Facility (GEF) and the UN Adaptation Fund, is committed to strengthening our commitment to the most vulnerable populations of the Dominican Republic adapt to the climate change adverse effects", said Dominican Minister of Environment Orlando Jorge Mera, recalling the situation of the island.

"Accelerated climate change is a problem that our country has had to face not only because of its condition as an island state, in which we share half of the island's territory, but because of our geographic location in the tropics. All the storms, cyclones, hurricanes, droughts, pests and diseases severely impact us when they are enhanced by the focus of our economic development model and, of course, by our individual actions.

The EU flagship climate programme Global Climate Change Alliance Plus (GCCA+) aims to enhance the resilience of Miches and the surrounding area of El Seibo to climate change and natural disasters.

After an initial pilot, the five year, five million-euro programme will be rolled out across the country. "El Seibo is one of the poorest and least developed provinces in the Dominican Republic, and the population is extremely vulnerable to climate change impacts," says Friederike Eppen, project coordinator for the German development cooperation, GIZ, the EU's implementing partner. "The local economy depends on having healthy ecosystems. It's really important that we work with the local communities, farmers, fishermen and those working in the tourism industry to hear their experiences and involve them in the solutions."

Yonattan agrees. "For the climate smart agriculture programme to work, it is essential to speak directly with the farmers, to discuss their problems, their weaknesses, how they work the land and the condition of the soil. Then you get good results."

The programme will integrate climate smart agriculture with ecosystem-based solutions for increased food security and disaster risk reduction. "By focusing on the services provided by ecosystems, we can ensure healthy agricultural land, as well as conserving the mangroves and coral reefs that protect the coast," says Friederike.

On Esmeralda beach, luxury holiday cabins and beach bars are dotted among the palm trees and sand dunes. Building work has recently started on two new resorts which are due to open in 2022, and Yonattan worries about the impacts that tourism is having on his hometown. "We need more sustainable economic growth," he says. "At the moment everything is focused on tourism, and the environmental, cultural and social aspects get forgotten. Everything in Miches smells of tourism."

But beyond the newly-built resorts, Miches – described by the New York Times as an "Instagram goldmine" – is still one of the poorest towns in the Dominican Republic. Squeezed between the Cordillera Oriental mountains and Samaná Bay, people here have traditionally relied on subsistence farming and small-scale fishing for their livelihoods. But water shortages, soil erosion and over-use of pesticides have all taken their toll on the delicate coastal ecosystems.

Despite these challenges, Yonattan's passion for his hometown and the local ecosystems remains undiminished. "This is where I was born, raised, studied and still live. Everywhere I go brings back childhood memories. I don't want to live or even go on holiday anywhere else!" He is not alone. "We have lots of activities dedicated to keeping our natural resources in good condition," he says. "There are dozens of women, girls, men and boys who, like me, give their all for a better Miches. The healthier the local ecosystems are, the better they will withstand climate change."

<https://gcca.eu/stories/protecting-paradise-dominican-republic>



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BUILDING CLIMATE RESILIENCE IN THE SHADOW OF THE HIMALAYAS IN NEPAL

03 November 2020

Suraj Bahadur Kunwar stands in front of a newly-constructed concrete building in the remote village of Narayanpur in Western Nepal. "Climate change has increased the risk of flooding. So we constructed this building for our security. Now we feel secure," he says.

"Heavy rain triggered flooding and landslides causing nearly 400 deaths and displacing 1250 families. With the Himalayas – source of thousands of rivers and glacial lakes – dominating this mountain landscape, fears of catastrophic flooding and landslides are very real. However the Narayanpur shelter – built with the fund from the EU-funded Nepal Climate Change Support Programme (NCCSP) – is designed to withstand the increasingly severe flooding brought on by torrential monsoon rains.

The programme of 16.5 million euros – 8.6 million from the European Union and 7.9 million from the British Department for International Development (DFID) – was designed to help the poorest, most vulnerable and remote farming communities in the mid and far western region of Nepal, one of the world's most mountainous and inaccessible regions. It can take a week just to reach some of the villages on foot. The programme supported these communities to design and implement their Local Adaptation Plans of Action (LAPAs), which are community-based approaches that take a "vulnerability first" approach to climate change adaptation. In practice, through the implementation of these LAPAs, a total of around 600,000 people have benefitted from clean water supplies, irrigation systems, flood shelters and solar energy systems.

A 500km, 15 hour drive away from Narayanpur lies the village of Shreepur. Jeet Bahadur Tharu

points to an impressive wall of giant wire cages filled with stones, known as gabions. "Before these gabions were built, the floods just destroyed everything," he says. "They provide a double benefit – not only do they protect us from landslides and erosion, but we have created a dam using gabions which supplies irrigation water. Without this technology, we wouldn't have been able to harvest rainwater into the dam."

It took nine years to build a canal to power a hydro-electric generator in Tripurasundari, but in 2017 it took just a few minutes for a landslide to destroy it, leaving the villagers without electricity for more than a year. Once again the community was left in darkness. However, with the help of the NCCSP, a new 100m canal was constructed, together with gabions to protect it. "Light is supplied from 5pm to 10 pm, with additional hours in the morning for studying during major exam times," says the report. "With the electricity, a small mill for grinding is in use in the village, forest depletion has been stopped (as wood was used for lighting) and a few locals have started saw mills."

It was a similar story in Chungwang, a village with no electricity at all until NCCSP stepped in. "We were living in darkness," says Sunita Pun, a mother and one of the 54 households affected. "Our children lacked sufficient time to study in the evening and women had to cook before sunset. We would finish our chores and go to bed early."

"When the sun shone, we had to choose between working in the fields or doing household chores," she says. "At night, using the latrine was difficult as there was no electricity. Now I can spend more time in the field during the day, and cook in the evening. My children can study when it's dark. Older people and children can use the latrines safely at night. The village has woken up. People listen to the radio, and they use cell phones to call their families."

Climate change has resulted in increased monsoon rainfall and decreased winter rainfall, leading to crop losses from both droughts and floods. A major plank of the NCCSP was to help local people manage climate risks and become more resilient. One of the aims of the programme was to develop a local ownership of the interventions and it significantly contributed to build confidence among people about ways to cope with any kind of disaster and reduce the risk of climate change. They are now able to solve the problem for themselves – that's the most significant impact."

In Shivapur, Durga Sapkota proudly shows visitors around the community information centre, where brightly-coloured posters about climate change adorn the walls, and groups of men and women sit and discuss ways to make their community more resilient. "After the community information centre was established we have learned how to reduce the risk of climate change," says Durga. "We have gained a lot of knowledge."

Food security is high on the agenda in these remote communities. Floods and landslides destroy farm land, and some crops are no longer viable. Eighty percent of the young people in Tribeni Nagarpalika – where much of the valuable agricultural land has been washed away – have left the village to search for work in India. But the NCCSP has shown that with the right interventions, people can earn a decent living from the land.

"Previously there was no water storage facility, and we were compelled to bring water from far away," says Ganga Saud, a farmer in Dullu Municipality. "Now we have water for both irrigation and drinking. The irrigation system means I can grow vegetables such as cabbage and cauliflower. I earned Nepalese Rupees 192,000 (€1400) through the sale of vegetables."

<https://www.gcca.eu/stories/building-climate-resilience-shadow-himalayas-nepal>



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IN MADAGASCAR SCHOOLS ARE TEACHING STUDENTS TO TEACH THEIR PARENTS

20 October 2020

A field in the central highland region of Madagascar is hardly a conventional classroom, but the students working up to their knees in rice plants are learning valuable lessons about sustainable agriculture – lessons they will pass on to local farmers. As an old Malagasy proverb says, 'education is the most beautiful heritage.'

Around 2 000 students from 12 Collège d'Enseignement Général (CEG) schools in Vakinankaratra province have benefited from a new climate-smart agriculture project known as Manitra 2, funded by the European Union's flagship climate change programme GCCA+. 'We introduced agro-ecology into the school programme to give children experience of sustainable farming from an early age,' says Rivosoa Vero Dina Ramanankihantana, a teacher at the CEG in the remote community of Ambohimandroso.

More than 3.5 million hectares of forest has been destroyed by slash-and-burn farming in the past two decades, while heavy rain causes soil erosion and flash flooding. Highland farmers traditionally grow irrigated rice, but suitable land is scarce and the rice paddies handed down between generations are becoming increasingly inadequate. Rain-fed rice varieties, which can grow on the steep hillsides, could be one solution.

Head teacher Franc Coeur Sousoukou hopes that new farming methods pioneered by the students – including the use of natural mulch made from maize or beans – will lead to a dramatic increase in rice yields. 'We covered the first plot in mucuna beans and estimate we could get around 5.5 tonnes per hectare – that's a significant increase.'

Half an hour's drive away in Antsoatany, teacher Harson Andrianiaina teaches conservation agriculture theory and practice to 5th-grade students. 'After visiting our test plots, the farmers have been convinced,' says Harson. 'Some of them have already replanted their fields and sown mucuna seeds. One of them who lives only a few hundred metres from the school has sown mucuna on half a hectare of land.'

Local farmer Lalaina Eric Arthur Vonjisoa says he has learned a lot from the experimental plots planted by school students. 'Even if it is uncultivated land, as soon as rain-fed rice has been planted and fertilised by mucuna, the harvest has been impressive. Passers-by who have seen the rain-fed rice notice that the yield is better compared to irrigated rice fields nearby.'

Rakotondramanana says one of the main benefits of the schools programme is that students are more open to new ways of farming. 'They are really enthusiastic. They discover that what they are learning is different to the way their parents work. That means they can influence their parents. For the most part, these students are the sons of peasants, and there is a good chance that most of them will go on to become farmers after their studies, so they need to know about preventing soil degradation.'



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ETHIOPIA: THE LONG LASTING BENEFITS FOR GONJI KOLOLAH HILLSIDES

28 September 2020

Prior to the GCCA project, the Gonji Kololah micro-watershed in the Banja district (woreda) had been severely degraded. Grasslands were overgrazed and denuded with deep gullies caused by soil erosion so that livestock could not cross them. For the community of 299 households (~1,120 persons), mainly livestock farmers, the degradation of the micro-watershed and surrounding lands was an economic catastrophe. Women walked up to 15 km to fetch water, and cooking was done using wood, which had bad respiratory effects. The community was too poor to school their children, purchase clothes, and lived from season to season. Much of the topsoil had disappeared leaving the basalt rock beneath exposed.

The GCCA supported the rehabilitation of the Gonji Kololah hillsides, providing inputs and training for the community to:

- Enrich the forest at the top of the hill which today is densely planted with 10–15 meter trees;
- Compost using microbes, which is still being practiced;
- Build biophysical structures covered with forage and planted shrubs to stop run-off when rain falls and wind from blowing away soils – these have been maintained
- Plant a variety of trees up the hillside. These include *Acacia saligna*, *Acacia decurrens*, *Grevilia robusta*, *Cordia africana* and *Cypripedium lusitanica*. It was evident that tree planting is ongoing with trees at different stages of maturity ranging from saplings to more mature trees of 3–5 meters, through to areas, including gullies, that are densely planted with mature trees too thick to walk through;
- Enclose animals so that grasses could recover.

Microclimates have emerged. Grass fed bulls raised in this village usually fetch 50% above the market average. Water pumps installed by the project were all still in use and had improved the lives of women who no longer had to walk for miles. Fuel-efficient cook stoves supplied by the project were still in use and had reduced foraging for wood and smoke in houses. The villagers also produce poultry and chicken and eggs are on the menu. Crops have been diversified and include fruit trees, while yields have improved across the board.

Among the most telling impacts of this development progress, all of the children in the village are able to attend a newly built local school that was partially supported by WWF. Using a revolving village fund, villagers support one another in making vital purchases, including a communal flourmill. With these steps, villagers have new dreams for the future: a large irrigation pump, a tractor to plough the land. Dreams that just a decade ago were beyond imagination.



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CHAD: SOLAR ENERGY BRINGS WATER TO PEOPLE AND HERDS

22 September 2020

Biney Moussa rides his horse leading his cattle to the pastoral pond in Adoumossou. Nearby, little Fatimé and other children watch their mothers who are lifting water onto a donkey. Solar panels are pumping water into the pond, this is what makes it possible for local farmers to have access to clean water for their livestock and households. The panels are neatly fenced off near the pond, a solar technology that brings water to the Salamat region, allowing farmers to substantially shorten the long way to provide water for their cattle.

The lack of drinking water storage facilities has become more severe due to climate change and has forced people to travel for kilometers before being able to benefit from this vital resource. As a response, the Global Climate Change Alliance Plus (GCCA+), an initiative funded by the European Union (EU), has enabled the installation of solar panels for clean energy development and established veterinary pharmacies, trained veterinary doctors, providing medicine for livestock adaptation.

In the area of Salamat, described by the World Bank as one of the poorest regions of the world, livestock is the base of the economy. Salamat is one of the 23 regions of Chad, located in the southwest of the country and bordering the Central African Republic. The management of livestock is met with difficulties such as the lack of reliable water sources, the disruption of inter-community conflicts on certain routes, and the lack of pharmaceutical products for the treatment of animal health.

Sakine Issa, the pharmacist of Khach-Kacha, checks the shelf of medicines in the pharmacy, before joining the members of the management committee of the Djoula veterinary pharmacy. Through the project "Adaptation to the Effects of Climate Change and Development of Renewable Energies" in Chad, farmers in the region have been able to make use of the clean water, clean energy, and veterinary services for their livestock and households in their daily lives.

The Republic of Chad is faced with extreme climate events that take the form of increasingly severe droughts or increasingly devastating floods, depending on the season and the bioclimatic zone. Climate change impacts are felt in multiple areas such as agriculture, livestock breeding, fisheries, health, housing and more.

Solar panel systems providing water based on a motor pump can make a difference. The next watering hole is the pastoral pond in Areba, a herder prepares drinking water for his camels, while members of the Pond management committee hold their meeting under the shade of a tree.



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LES SERRES DU SUD IN MAURITIUS

24 August 2020

The morning was cold and misty in the south of Mauritius. Les Serres du Sud is found in the middle of L'Union Sugar Estate, surrounded by a peaceful field of green sugar canes. Les Serres du Sud consists of approximately two acres of greenhouses and six acres of open fields, where peppers, lettuce, tomato, butternut squash, and many other vegetables and fruits are cultivated.

At six o'clock sharp, Armand, the manager responsible for the operation and the supervisor of 35 workers (of which 23 are women), can already be seen greeting the farmers and starting the daily activities of the day. Kareen, the internal consultant providing support to the Smart Agriculture diversification project, joins him shortly.

After a few minutes, the sun rises up with occasional little droplets of rain, and the day begins. Two farmers water the fields before a bigger group starts to make holes in the soil for the lettuce seedlings. After completing this task, they are then diverted to different fields and greenhouses, where they observe the plants and do the weeding.

Geeta, one of the field workers accompanies us through the fields. "I have been working here for over 12 years now, and I feel satisfied the moment my finger touches the fruits of the plants – which we grow with our own hands every day." Geeta is one of the 23 women trained and employed under the project, where 65% of its 35 staff members are women.

The greenhouses shelter vivid yellow and red peppers, tomatoes, and butternut squashes growing healthily in the hands of the affectionate workers. Every day, they finish their job by one in the afternoon and return home after a hard day's work.

The insular and tropical context of Mauritius makes vegetable production and fight against pest and diseases of crops complex, and has led the planters to use pesticides excessively. This situation has been aggravated by the observed effects of climate change such as an acceleration in the growth and propagation of pests and disease carriers, as well as a decrease in the soil humidity. As a means of addressing those challenges, the Mauritius Chamber of Agriculture, in collaboration with the Food and Agricultural Research Extension Institute has set up the Gender Empowerment and Climate Smart Agriculture project. The project is financed by the Global Climate Change Alliance Plus (GCCA+), a European Union (EU) initiative, amongst other funding bodies.

Through a structured and collective approach that is inclusive of women, this project proposes to redesign the cultivation systems of agricultural producers through a stepwise process and empower the economic well-being of women farmers in the community. This project is based on the hypothesis that the transition from the current agricultural systems to agro-ecological systems will increase the resilience of our agriculture in the face of climate change, shared by the scientific communities. These changes will also, in the long term, mitigate the negative impacts of climate change on the environment while supporting the economic empowerment of women in the community. The agro-ecological transition of these systems should also help in reducing the use of pesticides on cultivations, therefore diminishing the sanitary risks which is linked to the spraying of pesticides and the subsequent consumption of these vegetables.



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RAINWATER HARVESTING IN BANGLADESH: BUILDING RESILIENCE, SAVING LIVES

02 July 2020

With funds delivered to local governments through the LoCAL mechanism, rainwater is captured and stored in giant tanks, providing an abundant and disease-free source of fresh water that is improving residents' health.

"We faced problems with collecting and purifying the polluted pond water as we could not afford to buy purifying chemicals," explained 28-year old villager Hanufa Aktar Salma, who no longer spends hours each day carrying and fetching water for her family.

For decades, the population of Manikkhali have been drinking the water from natural ponds that surround their village, which lies some 334 km south of Bangladesh's capital city Dhaka. But climate change and rising sea levels mean that the ponds are regularly flooded with sea water, making them too salty to drink while in the dry season, the un-flushed ponds would become polluted with a host of water-borne diseases, including cholera and typhoid.

LoCAL is a global mechanism, that is flexible and can be adapted to local needs, priorities and limitations. In Bangladesh this means that the LoCAL mechanism has been embraced as part of the Local Government Initiative on Climate change, known briefly as LoGIC. The LoGIC project is funded by the Swedish Development agency SIDA and the European Union, with some input from UNDP and UNCDF, uses LoCAL's system of Performance Based Resilience Grants to channel additional resources to local governments and support their locally identified projects with technical support and capacity building.

Community leaders and social workers identified the lack of clean water sources as the primary development issue facing their community some two years ago. Following a series of climate adaptation assessments, a Performance Based Climate Resilience Grant of US\$ 11,428 was approved to fund the rainwater harvesting project and to save lives in Manikkhali. Implementation began in February and was completed in time for this year's rains, which began in March.

To date there are 30 rainwater harvesting systems, each with a capacity of 1,000 liters of water. With a mere investment of US\$ 25 per family, more than 450 poor families have now access to drinking water for the next ten to fifteen years.

Women and girls no longer have to walk hours each day to collect clean, drinkable water – nor risk sexual assault or violation on their journey.

The families benefitting from the water harvesting tanks came to an agreement with the local government, or Union Parishad, to ensure the system is maintained through a joint maintenance committee, which has been provided training on how to do that.

Now that the villages are no longer using the ponds for drinking water, they are increasingly being used for fish farming, providing a valuable boost of protein-rich food for the community. The rainwater harvesting system has proved so popular that other families not part of the original community action, are planning similar initiatives using personal funds.

LoGIC has been a major step forward for this community, building climate change resilience by working with the community and Union Parishad to identify needs and deliver on them in a sustainable manner.

LoCal is supported by the European Union through the Global Climate Change Alliance Plus (GCCA+) initiative.



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HARVEST OF HOPE: SPIRULINA FROM LAKE CHAD

14 June 2020

On the shores of Lake Chad, a group of women and girls work 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, once turned into tablets, can sell for up to €20 a pack in western health stores.

As well as being an eco-friendly, nutrient-rich dietary supplement for humans and animals, spirulina is being promoted as a possible solution to food insecurity and malnutrition in developing countries. But 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 percent since the 1960s, and creating more jobs is crucial to both protecting the shrinking lake and addressing the wider humanitarian crisis in the Sahel.

The spirulina processing is part of an €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 from the group, demonstrates how she transforms the blue green algae into a dry powder using a grinder, 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 not only spirulina but also fenugreek, aubergines, chilies, onions, carrots, tomatoes and beetroot. Given that Chad is highly vulnerable to climate change, using solar powered irrigation systems helps farmers 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 to learn how to keep them well maintained. 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.



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WOMEN ARE DECISION MAKERS IN THE EAST USAMBARA PROJECT IN TANZANIA

04 June 2020

There are countless hidden gems to be discovered in the Amani Forest Nature Reserve, located 500 kilometres north-east from the capital of Dodoma. The area forms part of the Eastern Arc mountain ranges and is teeming with sunbirds, tree frogs, chameleons, colobus monkeys and African violets. Known as the Galapagos of Africa due to its rich bio-diversity, there really is nowhere quite like it on earth. It is here that the Integrated Approaches for Climate Change Adaptation in the East Usambara Mountains Project, funded by the European Union has been working alongside Muheza District and eight villages to implement climate-change adaptation activities, which all have a gender focus.

The project plans state that at least half the village participants must be women and activities carried out have seen women transform from being silent bystanders to having a voice in community decisions. The acting village chairperson in Mvambo village is a woman for example, and women are making their own decisions about how to invest money and spend it in the Village Savings and Loans Groups (VSLAs) that have been set up. What's more, all these interventions including income generating activities such as cultural tourism guiding, butterfly farming, dairy-cattle-keeping, poultry-keeping and conserving natural water sources within village water committees. They all aim to continue long after European Union support, which ended in March 2019.

The project initially provided books, cash-boxes, and training to set up the VSLAs and now the groups are running independently. There are two groups of 30 members in each village and villagers have been trained to set up more groups. Each member puts in between two to ten thousand Tanzanian shillings per week and can borrow up to three times the funds they have invested. Loans are guaranteed by two other members and no one in the groups have defaulted. Social capital is as important as financial capital in Tanzania so these groups function extremely well at village level.

In Mvambo village, Anna Hezron Sabini has been a VSLA member for three years, since its inception, and took a loan from her VSLA to buy a goat with the aim of becoming a fully-fledged breeder. Like most Tanzanians who live in rural areas, she is a farmer but Anna wishes to supplement the money she earns from selling vegetables with a goat-breeding business. Anna took out a loan of 200,000 Tanzanian Shillings (About 80 USD) to buy a goat costing 40,000 Tanzanian Shillings (About 15 USD) the remainder was used to pay off some household costs including school costs for her children. She has three months to pay off the loan at an interest rate of five per cent. Why didn't she approach a bank? Because in Anna's situation she has no collateral to show the bank and current bank interest rates stand at a staggering 12 per cent.

Making borrowing money unaffordable for at least 80 per cent of the population. That's why the VSLAs are a lifeline for many. In the past women were marginalized in this way as customary law stated that a woman can-not own land.

Thankfully this law has changed and women are now able to borrow money on the same grounds as men.

"We have been empowered by the savings groups. I involve my husband when we want to take a loan and involve each other on how to use the loan, which means we have to work together to pay back the loan", said Anna, who stated this is consequently done quickly and efficiently.

Halima Sheshe Idd, Acting Mvambo Village Chairperson was trained by the project to use good climate-smart agricultural practices, which given the unpredictable weather patterns, help her to irrigate her crops and gain larger yields. Halima constructed her own house from money generated by the VSLAs and has planted seedlings which include chilis, cardamom, cinnamon, cloves, black pepper and vanilla and banana and sugar cane. Due to a warmer climate in the mountains these spices now grow well at altitude, which would have been impossible a decade ago. Spices and crops fetch a good price and Halima has managed to construct her own house as a result.

"Participation of women in development issues and in making decisions in the village has increased, which is positive. In the VSLAs groups women decide by themselves how to use the money, no one is telling a woman to do something," said Halima.

Sustainable future. One of the most successful interventions in the East Usambara project in terms of empowering women with time-saving measures and health benefits, as well as climate change related activities and sustainability was the introduction of improved energy stoves. The project trained artisans to build the stoves in a record one and a half hours for each household and the impact has resonated further than the East Usambara Mountain villages.

"Other villages outside of the project area have adopted these stoves and as a result women are now fetching less firewood and consequently preventing deforestation and having more time in the day to pursue income-generating activities," said Elingikania Njuu, the Project Field Coordinator, who also stated that the health benefits have also been apparent with reduced smoke inside the home meaning less smoke-induced related illnesses particularly for vulnerable family members including children and the elderly. Women often bear the burden of caring for these community members so this improvement has truly been transformative in multiple ways.

The Muheza District Environmental Officer, Suleiman Gwaje echoes the sentiments of the community and project and reaffirms that women were encouraged to be actively involved from the beginning of the project, which ran for four years from 2015- 2019. "Taking loans and adding capital to other income-generating activities has been integral to women increasing their incomes and finding a voice in their communities," said Suleiman.

The district requires communities to submit reports on progress with follow ups by district officers.

"This is only the beginning," said Suleiman who is determined to continue supporting the community interventions. "Women form over half the population. They can no longer be ignored and under-valued".



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MADAGASCAR: A WORM'S EYE VIEW OF CLIMATE CHANGE

27 May 2020

« We started with just 250 grams of worms, now we have 20 kilos!» she smiles. "We have had great results with our worm composting – we can only use a quarter of what we produce so we sell the rest to farmers all over Madagascar."

- Rabebirinira Minompamonjy David known to everyone as Madame Mino – holds a handful of pink, wriggling worms in the palm of her hand.

Mme Mino is just one of 18,000 Malagasy farmers – half of them women – benefitting from a new climate smart agriculture project known as Manitra 2, funded by the EU's flagship climate change programme GCCA+. Building on a previous pilot, the project aims to conserve soil and forests in the Middle West and Highlands of the Vakinankaratra region.

"We don't have any cattle, so we were forced to buy huge amounts of manure in order to fertilise our fields," explains Mme Mino. "It was really painful for us because our income barely covered what we needed to buy fertiliser. Now, with the worm compost, we only need about a tenth of what we used before. Weeding is also much easier because the organic manure was full of seeds. Our yields are much better and the crops are more resistant to disease and drought."

- Mme Mino

Madagascar is one of the countries most vulnerable to climate change. Ninety percent of the population work in agriculture, which contributes 26% of GDP. Mme Mino's farm lies in Vakinankaratra, an area which has should be fertile farm land but which has suffered from the impacts of climate change such as droughts and floods. The soil has been further degraded by bush fires, deforestation and deep ploughing. But thanks to worm composting, the fields are being brought back to life.

«You need to be dedicated and know what you're doing, but everyone can do it. You just need organic waste to feed the worms, and to make sure they have plenty of water and don't get too hot. Most of the work consists of separating the worms from the ripe compost. We get about 600 kilos of compost each month from our worms. We sell what we don't need – the biggest order we had was 1.5 tons, and we sell it for up to 1.000 ariary (€0.24) a kilo» says Mme Mino.

There's much more to Manitra 2 than worms, however. The project, delivered through GSDM, a Malagasy non-profit agricultural research and rural development organisation, has a target of planting 1.5 million trees and preventing 40,000 tons of soil erosion. Other activities include scaling up the use of bio-pesticides and improving grazing for dairy cattle by planting legumes and other types of forage crops.

« We used to rely on manure for fertiliser, but the declining number of cattle means there just isn't enough. One solution is to plant cover crops such as legumes and to use worm compost. Worm compost is a quality organic material and you only need a tenth of the amount compared to manure" says Rakoto Rakotondramanana, GSDM Director

Mme Mino's neighbour Razafindrakoto Emilson is also a big fan of worm composting.

"We built our first wormery following a farmer training session organised as part of Manitra 2," he says. "I'm only just starting to produce worm compost but already I've seen great results – my corn and rice are much better compared to what I had before. Now we have built five wormeries – we started with just 1kg of worms and today we have around 60kg. I use all of the compost myself – I find it more interesting to use worm compost than cattle manure, and I hardly use chemical fertilisers any more."

One of the main causes of soil degradation in Vakinankaratra is the high demand for rice, the staple food. There aren't enough irrigated paddy fields, meaning farmers are forced to cultivate more and more land to grow rain-fed rice varieties – from 2014-2015 the land under rice cultivation increased by an alarming 30 percent. Manitra 2 targets 17 rural communes where significant development of upland rice occurred during the last three years, with the aim of introducing climate-smart agriculture (CSA) to mitigate climate change and to improve food security..

Following his training at a farmer field school, Razafindrakoto has been quick to adopt climate-smart farming practices to regenerate the soil and reduce weed impacts.

"My harvests have doubled and my workload has reduced," he says. "My expenses have also decreased as a result because I no longer need to hire someone to plough my fields."

<https://www.gcca.eu/stories/madagascar-worms-eye-view-climate-change>



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YOUNG FOREST RANGERS PROTECTING THE AMAZON FOREST IN SURINAME

22 May 2020

Hovering above the immense canopy of Suriname's Amazon forest, a drone captures bird's-eye images of a group of young people as they prepare to enter the trees. Domitsio, Fransje, Fernando and Priscilla have all grown up in the nearby village of Pusugrunu on the Saramacca river, and they know this area well.

Now the four friends – who have all been trained as Forest Rangers – are using their local knowledge to help protect the rainforest. Today they will spend their time inspecting, measuring, and collecting data on logging in the forest. Johan, their trainer, gives them last details before they drive into the forest using the skills and the equipment they've acquired during their training.

The Forest Rangers are young men and women trained by the Amazon Conservation Team (ACT) through the EU's flagship climate change programme GCCA+. ACT aims to establish a conservation rangers programme across the Matawai Maroon territory to improve local monitoring and data collection.

Before leaving the village to go into the forest, the rangers make a stop at the local school where Fransje shows the students a documentary film about the traditions and lands of the Matawai people. The Matawai Maroons of Suriname, descendants of formerly enslaved Africans who fled into the rain forest, have lived in their ancestral territory for hundreds of years.

Then it's into the pickup trucks and the dense Amazon forest, where felled tree trunks can be seen on the side of the road, cut down by the logging companies working in this part of the forest. Fernando and Domitsio inspect, measure, and record the trees cleared to make a new road, while Priscilla writes down the data.

The youngsters come across a tree which has been cut down and pushed to one side by a logging company to create what's known as a 'skid trail' – a temporary road to give access to new timber clearing sites. The rangers are effectively the eyes and ears of the community's leaders, helping them to act more quickly when crises arise, such as illegal incursions by miners or loggers. Documenting the number, type and location of the felled trees is an important part of the Forest Rangers' training.

The ACT training programme aims to strengthen the government's capacity to collect data and monitor logging on the ground, and thus protect the remaining forest landscapes.

The Forest Rangers conduct regular reconnaissance and monitoring expeditions in the forest to understand Reduced Impact Logging (RIL) principles, protect biodiversity, deter incursions, and prevent environmentally destructive practices. Training local people taps into the communities' desire for sustainable development, income generation and food security. Once the training programme is complete, at least a third of the Forest Rangers will be young women like Fransje and Priscilla.

At the end of a long day in the forest, Priscilla heads back to Pusugrunu to be with her young children. Tomorrow the rangers will meet up again to discuss and review the data that they collected – and plan their next field trip.



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BEYOND TOURISM: HELPING PEOPLE AND NATURE TO THRIVE IN THE MALDIVES

18 May 2020

It's a sunny morning in the Addu Nature Park. The sky is blue, warm and humid, and although the season for migrating birds is over, the native bird call of the water hen and the cranes carry clearly across the waters of the largest inland protected area in the Maldives.

Home to an amazing array of biodiversity including 28 bird species, the Addu Nature Park includes the Eedhigali Kilhi and Koatthey protected areas. In the local Dhivehi language, koatthey means 'fortress' – and at 570 hectares it is the largest protected area of its kind in Maldives, a haven for migratory birds to rest and recuperate during the cold weather.

It's not just birds that have benefitted – the park has created much-needed livelihoods for many people in the local community. 76 year old Hussan Abdulla is one of several registered coconut collectors who come to the park every morning to collect fallen coconuts which have fallen from the palms. Back home, he removes the husk and sells them to local shops.

"I have been collecting coconut from this place for the last six years. It gives me enough of an income to meet my daily needs. And going to the park every day keeps me active, even at my age!"

The Maldives have long been a poster child for climate action – the archipelago's former president Mohamed Nasheed famously held a cabinet meeting underwater to draw attention to global warming a decade ago. The island nation, best known for its white sands, palm-fringed atolls and luxury holiday resorts, faces an existential threat from rising sea levels. One of the world's lowest-lying countries, more than 80 percent of the Maldives' land is less than one meter above mean sea levels, making its population of around 530,000 people extremely vulnerable to storm surges, sea swells and severe weather.

All of which points to the need for urgent climate adaptation and mitigation measures. Within the Addu Nature Park boundaries, land is leased to local communities on the condition they farm the land using both traditional and modern eco-friendly methods. Farmers grow bitter gourds, peppers, bell peppers, cucumbers, sweet melons and butternut squash – and once sold, some of the money goes back into the community.

Meanwhile on the eastern side of Addu Atoll, at the Hulhumeedhoo waste management centre, trash brought from the community is being sorted by the locals. Plastic is shredded for export, glass bottles are crushed into small pieces and mixed into concrete, while leaves, food waste and other organic material is composted and sold back to the farmers to fertilise their crops.

The waste management project in the Addu Atoll is part of the EU's flagship climate change programme GCCA+. Building on a previous €6.5 million EU funding through GCCA+ and other sources for wetlands conservation and coral reef monitoring from 2009–2015, the current €4million programme aims to increase ecotourism and environmental protection in the south of the Maldives.

Tourism is the Maldives' life-blood, but transforming it to be more environmentally-friendly is challenging. Addu Atoll attracts both local and international visitors, lured by the lakes, mangroves and scenic cycling routes, as well as the Bedhi bay area, famous for its red mangroves, baby stingrays and sharks. Local mother-of-two Saheema is a frequent visitor with her children.

"Since the nature park was created, the whole place looks better and cleaner. We love it and we often come here to snorkel. I am proud of having a place like this on my island."



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CONGO: PROTECTING THE FOREST FROM AN EARLY AGE

14 May 2020

'Batela zamba, tokobatela zamba, toloni nzete, tokobatela zamba' – let's protect our forests and plant trees – has become the new favourite song for children in Yangambi.

It is National Tree Day, an observance established in 1986 to commemorate the importance of trees for DRC's economy, society and environment. A special day to remind all citizens that the country's future is tied to the biodiversity and vitality of its forests.

Children and youth in Yangambi, the Democratic Republic of the Congo (DRC), learn to protect the forest and take care of the environment at school. An innovative environmental education programme, supported by the European Union through GCCA+, helps students in forest communities to understand the importance of using natural resources sustainably and encourages them to take action from young age.

'Environmental education should be part of the standard curriculum,' said Joelle Grandjean, who is responsible for the environmental education programme. 'From a young age, it is important for children to understand the relations between the forests and the livelihoods of their families and communities, and how to ensure that the generations to come can also benefit from all the resources that forests provide.'

The Center for International Forestry Research (CIFOR) has organised a dynamic workshop where the children learn to protect the forest and to take care of the environment. 'I love doing this. Children have so much energy and they are so eager to learn,' said Eric Basosila, one of the workshop facilitators and a recent graduate in sustainable forest management from DRC's University of Kisangani (UNIKIS). 'It gives me an opportunity to use what I learned in university to make a real change in communities,' he added.

'We have an environmental education team, formed by people who know the communities, forest experts and pedagogy specialists,' explains Jules Mayaux, the activity leader. This programme is part of an ambitious endeavour to transform the landscape of Yangambi – the Biosphere Reserve and its surroundings – into a place where forest conservation and scientific research contribute to improving the living conditions of the local populations. Financed by the European Union, the projects FORETS (Formation, Recherche, et Environnement dans la Tshopo) and YPS (Yangambi Pole Scientifique) have, since 2017, created over 600 direct jobs, trained over 220 postgraduate students, restored around 300 hectares of land, and planted 300 000 trees.



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RWANDA: THE LONG-TERM IMPACT OF LAND REGISTRATION FOR CLIMATE ACTION

25 March 2020

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.



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REHABILITATING THE CATTLE CORRIDOR OF UGANDA

23 January 2020

With a population of over 200,000 people, according to the 2012 Uganda National Census, the Nakaseke district of Uganda is renowned for farming and cattle keeping. People grow crops ranging from coffee, maize, beans, cassava, sweet potatoes, pineapples, etc. Earlier this year, the corridor, including the neighbouring districts of Nakasongola, was hit by a severe drought that left many cows dead and pastoralists looking for pasture and water.

This prolonged drought has affected farmers such as Ms. Teddy Nakaye who has a farm in the Ngoma sub-county of Nakaseke district.

Ms. Teddy is one of the members of St. Cyprian Ngoma Farmer Field School in Kololo Ward village, central ward Parish, Ngoma Town Council, which has been a beneficiary of the Food and Agricultural Organization (FAO) project funded by the Global Climate Change Alliance Plus (GCCA+), a flagship initiative of the European Union (EU).

"As a beneficiary of the farmer field school, my dream isn't only expanding my farm but also to extend knowledge and train more women about the benefits of improved pasture management practices,"

- Teddy Nakaye, member of St. Cyprian Ngoma Farmer Field School

Ms. Teddy has planted 15 acres of *Chloris gayana*, a species of grass native to Africa, which she is harvesting to make silage. Her farm is expanding and she has procured about 100 heifers, which are female cows that have not yet borne a calf or has only given birth to one calf. She plans to expand her farm with more livestock like cows, goats, etc.

In addition to the Farmer Field School, 15 valley tanks have also been constructed and 5 old ones have been rehabilitated in the cattle corridor of Uganda. The project was implemented in six districts that include: Nakasongola, Luwero, Nakaseke, Kiboga, Mubende and Sembabule.

Take for instance, the Rwenyana Valley Tank in the Rwenyana village of the Sikye parish in Nakasongola's Wabinyonyi subcounty.

This is a permanent tank, constructed by the project, that's very vital for both domestic consumption and livestock production, especially in dry spells. The tank serves about 15,000 animals during dry spells and 200 during the wet seasons. To access this valley tank, farmers come from as far as 7 miles.

The valley tank is a permanent and very important water source for both domestic consumption and livestock production particularly during the dry season when all the other water points have dried out. During the rainy season, because of abundant water source, it serves fewer households.

"We lost up to 30% of our animals during the long dry season. We didn't lose any animals last year. Before the valley tank was rehabilitated, we could go long distances in search of water. As far as 30 km for example to the Mukote subcounty between the Wabinyonyi and Kalungi sub-counties, Kakoge or Lubega sub-counties and Lugogo which is about 10km away."

- Kalangwa John, the LC1 chairman and a member of the water user committee

Another one of the valley tanks constructed is the solar powered valley tank in Katongole, Mubende district, which serves about 1,000 livestock during the dry spell and 300 during the wet season.

Charles Tebajukila, who has a banana plantation in the Mubende district, uses the water to irrigate his plants. The water is pumped from an underground water tank built conveniently at his home under the GCCA+ project. Rainwater is harvested from the roof to the underground water tank conserved for both domestic and livestock use.

"This underground rainfall harvesting tank has helped my family and neighbours a lot. We used to fetch water 7 miles away from a swamp."

It would take him at least 6 hours to fetch the water, because 3 to 4 villages fetched from the same water source. But after the project, he can now access water anytime he needs it, feeds his livestock, irrigates his garden and still provides his neighbours with water.



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SOUNDING THE ALARM AGAINST CLIMATE CHANGE IN MOZAMBIQUE

20 January 2020

The high-pitched sound of alarm sirens interrupts morning lessons at the community school in Xai-Xai, southern Mozambique. Students quickly but calmly evacuate their classrooms and are shepherded to safety by teachers wearing bright fluorescent vests.

The youngsters hold on to the shoulders of the child in front, forming an orderly file heading for the safety of higher ground. Officials from the National Institute for Disaster Management hand out water bottles as the students listen carefully to emergency instructions. Today it's a drill – but next time it could save their lives.

Many of the children are too young to remember the last time Xai-Xai and the surrounding province of Gaza was devastated by floods. In 2013, the Oliphants and Limpopo rivers burst their banks after heavy rain, and many residents became climate refugees overnight. Bridges were washed away and the town was completely cut off. More than 100 people died and 200,000 made homeless.

"When it rains the water accumulates, and it has to find a way out," says Chiduache Aderito Orjecuimica, a hydraulic engineer working with the local community. "If the rain keeps falling, it has to break through, and when it breaks, it causes enormous craters. That's the beginning of erosion. So if we prepare for it, we can avoid the worst impacts. It's one way of mitigating and adapting to climate change."

"To be honest, the community doesn't know much about climate change," says Chiduache. "I tell them climate change starts from me, it starts from you. But if you take the right actions using the right methods then you can adapt to climate change."

Further north in the coastal province of Nampula, many homes are not solid enough to withstand violent rainfall and flooding. Residents are being trained how to build using concrete and stone blocks instead of the traditional wooden construction.

"The main objective is to teach the community to build houses that can withstand heavy rains or strong winds, so they can continue to live in them," says Ramiro Domingos, a planning and infrastructure technician. "The objective is to reduce the vulnerability of the community."

The new houses have been allocated to vulnerable members of the community. "I feel great," comments Julia Fransisco, an elderly resident of Mutucute. "I don't get wet. It's different from my previous house, I haven't been flooded since I got here."

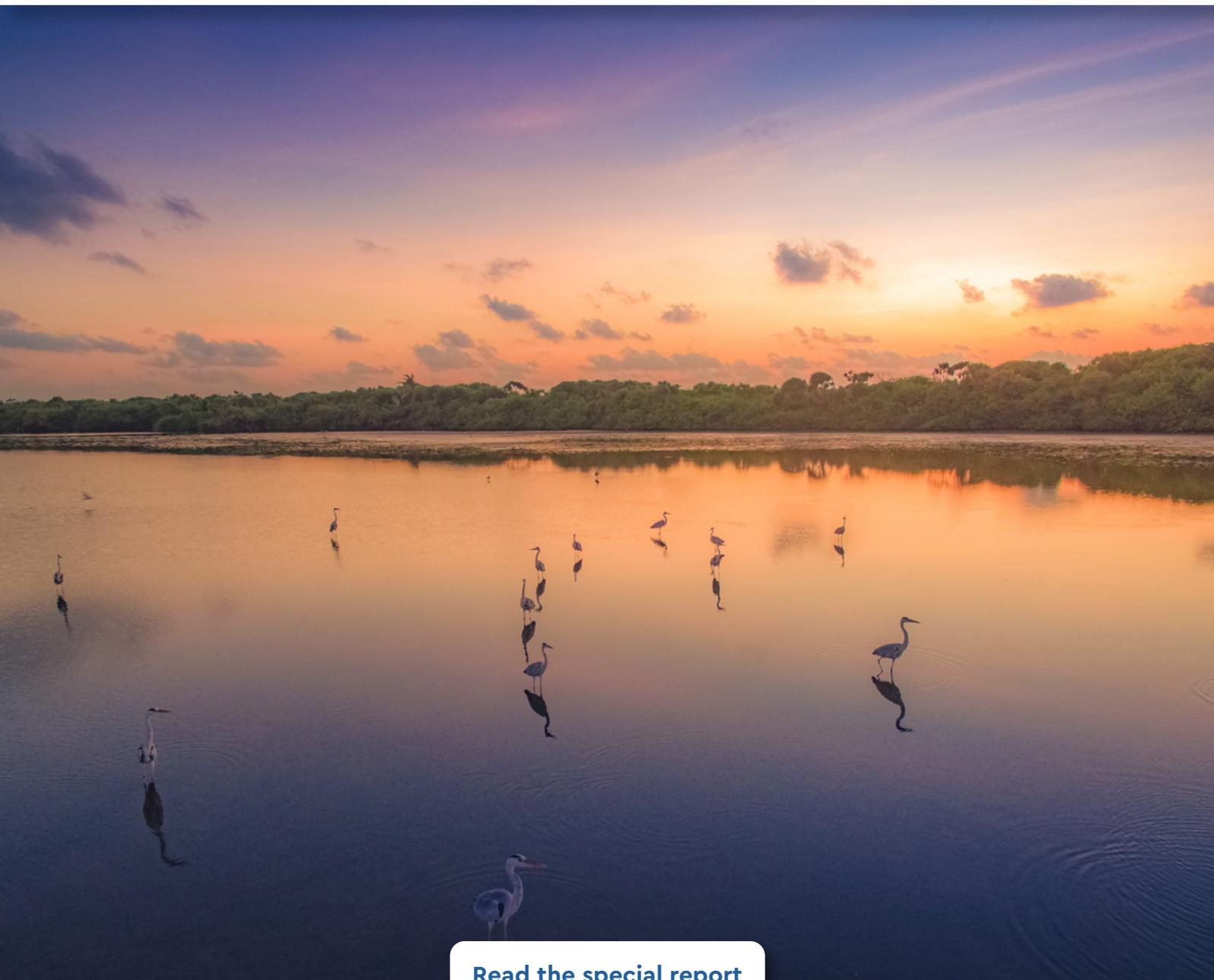
The EU's flagship climate change programme GCCA+ is focusing on building local climate change resilience through Mozambique's National Sector Support Programme (PASA), part of the government's five year plan to tackle climate change. The current phase, which runs until 2022, follows a successful €4.7 million programme which included the development of Local Adaptation Plans.

Paradoxically, Mozambique suffers both from too much and too little water – often in the same regions. The early flood warning system in Xai-Xai was installed after a series of intense tropical storms, but elsewhere it's drought that is the problem – and that needs a different approach.

200 km north of Xai-Xai, Farmer Balbina Josenacie sits with a group of other women listening to a talk on growing drought-resistant crops such as cassava and sweet potato. After the training, they head to the fields for a practical session. "Sweet potatoes are drought resistant, they can survive without water for long periods, says Balbina, from Cocoluane in Inhambane province. "We were given the seeds and the help of an expert. The expert explained how best to plant the crop. Now we are less impacted by drought and the yields have improved."

Drought is also a major concern for farmers in Gaza, despite the frequent flooding from the Limpopo river which runs through the province. As part of the Local Adaptation Plan, the village of Chitsuluine has installed two solar-powered water tanks for drinking and irrigation which serve more than 1300 people.

"Whenever the community got together for meetings, the complaints were always about the lack of water," says village leader Efrainme Anslmocossa. "So we built two tanks. Everyone was involved – residents, children, teachers, livestock farmers. I really think it brings people together, it creates a sense of unity among them."



[Read the special report](#)

ABOUT EU GCCA+

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 a major climate initiative with over 80 programmes in Africa, Asia, the Caribbean and Pacific region.

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