



NAP
Global
Network

Photo Essays on
National Adaptation
Plan Implementation

CLIMATE RESILIENCE PERSPECTIVES



About the NAP Global Network

The NAP Global Network was created in 2014 to support developing countries in advancing their NAP processes, and help accelerate adaptation efforts around the world. To achieve this, the Network facilitates South-South peer learning and exchange, supports national-level action on NAP formulation and implementation, and generates, synthesizes, and shares knowledge. The Network's members include individual participants from more than 155 countries involved in developing and implementing National Adaptation Plans. Financial support for the Network has been provided by Austria, Canada, Germany, Ireland, the United Kingdom and the United States. The Secretariat is hosted by the International Institute for Sustainable Development (IISD). For more information, visit www.napglobalnetwork.org.

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Message from the Head of Secretariat, NAP Global Network



As the climate crisis worsens, adapting to climate change risks has become a defining challenge of our time. It is increasingly clear that concerted action is needed to safeguard lives, livelihoods, and our collective future.

National Adaptation Plan (NAP) processes are a key vehicle for scaling up effective and inclusive action on climate change adaptation. Almost every developing country now has a NAP process underway to articulate their national priorities for climate resilience. There is an urgent need for additional support to countries to implement those priorities.

The NAP Global Network has been an active, engaged partner in increasing the resilience to climate change of communities,

ecosystems, and economies. Since it was established in 2014 at COP 20, the NAP Global Network has supported over 80 countries to achieve this shared goal by promoting inclusive and effective adaptation planning processes, sharing knowledge and technical support, mobilizing capacity and resources, as well as tracking progress in countries' efforts to achieve their adaptation goals. To advance countries' NAP processes, the Network believes peer learning is central, which is why it fosters South–South peer-sustained learning and knowledge exchange while providing

valuable insights and support to encourage progression toward a climate-resilient future.

It is against this backdrop that the Network is supporting partner countries to tell their stories about their implementation successes and concrete actions on the ground to show why the NAP process is so important to the long-term sustainability of these efforts—to fund them, build the skills and knowledge needed to scale them up, and to help track progress at the national level. This collection of photo essays profiles just a few examples of how countries are implementing the priorities they have set out in NAPs to achieve their national development goals in a changing climate. These adaptation stories from Albania, Grenada, Kenya, Saint Lucia, and Tonga offer

a captivating glimpse into inspiring adaptation efforts underway in diverse contexts to confront the threats posed by climate change—and how NAP processes can help.

These essays profile how communities experiencing climate change firsthand are harnessing the power of collective action to work toward a climate-resilient future.

In Albania, ecosystem-based adaptation efforts are protecting a vital lagoon ecosystem that supports local farming, fishing, and tourism livelihoods and is visited by more than 200 species of migratory birds. In Saint Lucia, one community’s coral gardeners are fighting coral bleaching to secure local livelihoods. In Grenada, communities are restoring mangroves, sustaining living shorelines, and harvesting rainwater at high altitudes for resilient ecosystems and water security. In Tonga, communities are likewise harvesting rainwater and enhancing the adaptive capacity of ecosystems as part of their national target to plant 1 million trees. In Kenya, a wide range of community-led approaches are helping to build resilience to the prolonged drought the country is experiencing and supporting the achievement of water security, particularly in rural communities.

Partnerships and collaboration are at the heart of these stories. The adaptation stories shared

here have a wide range of funders (e.g., the Global Environment Facility, the World Food Programme, bilateral governments like the Republic of Korea) and implementing partners (e.g., UN Environment, UNDP, Deutsche Gesellschaft für Internationale Zusammenarbeit, among others). The progress achieved by these efforts through collaboration needs to be sustained, and the NAP processes of these countries are serving as a good vehicle to achieve this.

The NAP process provides a means to make these adaptation efforts a core feature of national development planning and budgeting. The NAP Global Network is committed and will keep supporting partner countries to move quickly and decisively from planning to implementation via concrete actions on the ground to address national adaptation priorities.

The NAP Global Network has supported the five countries profiled here with their NAP progress reporting—local stories are critical for such processes to be able to tell the human story of adaptation.

Climate change is a global crisis that demands a collective response. By scaling up local action through national adaptation planning, we can hope to prepare for the formidable climate challenges that lie ahead.



Orville Grey, PhD | Head of Secretariat, NAP Global Network
Ottawa, Canada



4

Climate Resilience
From Mountaintop
to Seafloor

GRENADA



20

Protecting
Kune-Vaini Lagoon

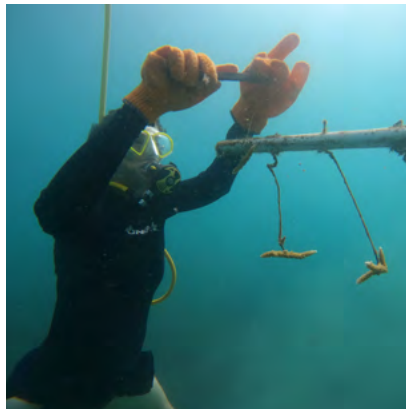
ALBANIA



30

Thriving in
Dry Times

KENYA



52

The Coral
Gardeners of
Saint Lucia

SAINT LUCIA



66

Sustaining Hope
and Harvesting
Rainwater

TONGA

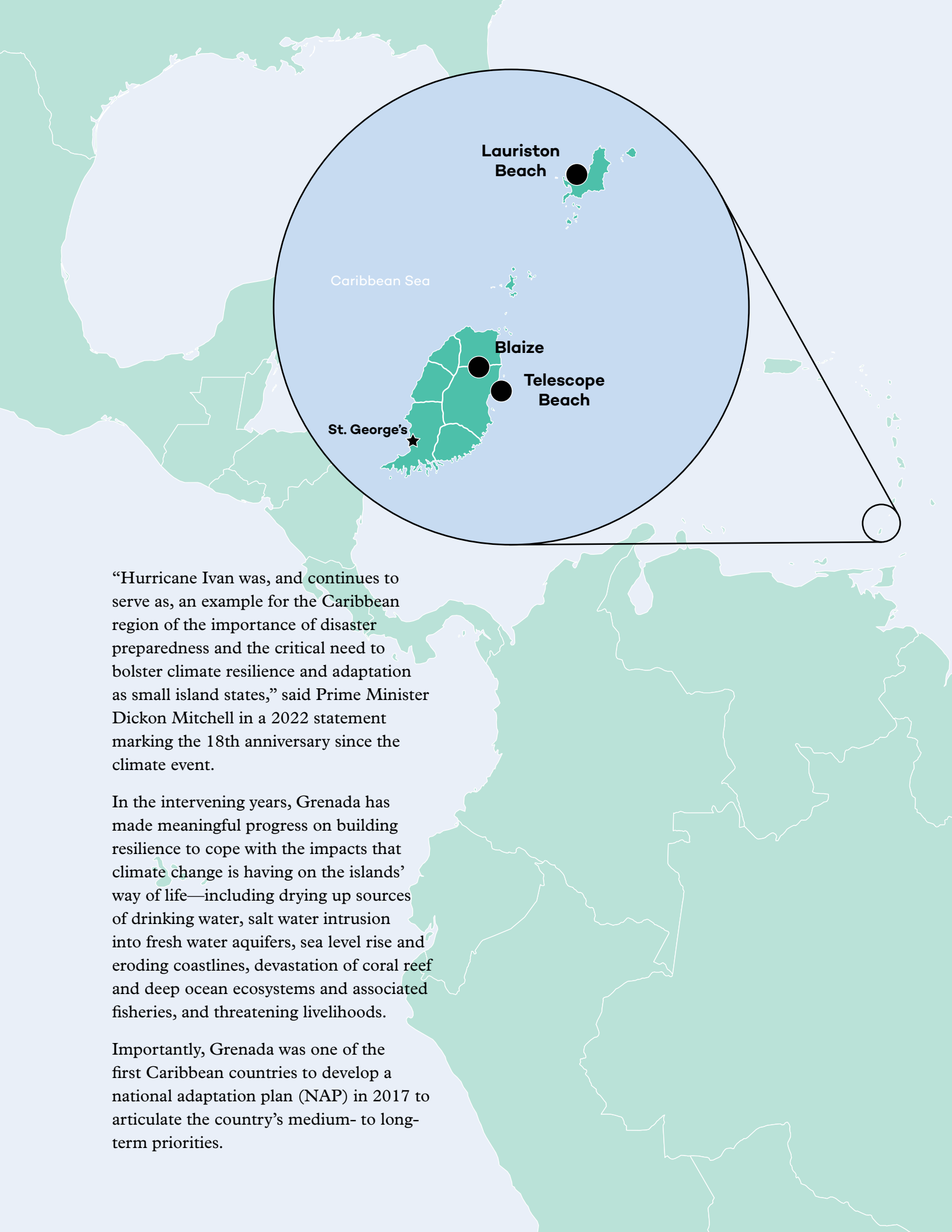
Climate Resilience

From Mountaintop to Seafloor

How three communities in Grenada are implementing
the national climate change adaptation plan

In 2004, Hurricane Ivan ravaged the tri-island state of Grenada, Carriacou, and Petite Martinique, claiming the lives of 34 people and causing damage worth twice the nation's annual economic output. As Grenadians rallied in the disaster's aftermath, the government made climate change resilience a national policy priority.





“Hurricane Ivan was, and continues to serve as, an example for the Caribbean region of the importance of disaster preparedness and the critical need to bolster climate resilience and adaptation as small island states,” said Prime Minister Dickon Mitchell in a 2022 statement marking the 18th anniversary since the climate event.

In the intervening years, Grenada has made meaningful progress on building resilience to cope with the impacts that climate change is having on the islands’ way of life—including drying up sources of drinking water, salt water intrusion into fresh water aquifers, sea level rise and eroding coastlines, devastation of coral reef and deep ocean ecosystems and associated fisheries, and threatening livelihoods.

Importantly, Grenada was one of the first Caribbean countries to develop a national adaptation plan (NAP) in 2017 to articulate the country’s medium- to long-term priorities.

Grenada's National Adaptation Plan

Following early, critical steps like the 2007-2011 Climate Change Policy and Action Plan, Grenada's 2017 NAP was developed through a consultative, Small Island Developing State-specific process that builds on existing policies and strategies.

The NAP put forward 12 programs of action and is an instrument to mobilize international financial resources for climate resilience. The NAP document also outlines specific vulnerabilities of sister islands Petite Martinique and Carriacou.

After 5 years of implementing the NAP, Grenada has gained hard-won lessons for how adaptation can be scaled up through the NAP process. This article looks at how three communities—Blaize, Lauriston, and Telescope—are part of country-wide efforts to reduce vulnerability and build resilience in a changing climate.

Hydration at High Elevation: Water availability in Blaize

Blaize is the location of one of Grenada's highest-altitude communities. Nested in the mountainous terrain of the St. Andrew's parish at 427 feet above sea level, the Blaize village is too far up the mountains to receive water through traditional plumbing.

Water availability had been a perennial problem for Blaize. For many years, community members fetched water from a spring—enduring steep muddy terrain for almost 2 miles.

“The spring where we originally used to get water started to dry up. When it started to dry up, we had to resort to alternate methods,” explains Blaize resident Ermine Thomas.

Several attempts to improve water access fell flat, including damming natural water sources to create reservoirs, introducing personal water tanks that would catch rainwater, and even weekly visits from water trucks sent by the National Water and Sewerage Authority (NAWASA).

In 2016, with support from the government and partners, Blaize completed a community rainwater harvesting system to provide the entire community with treated, gravity-fed water directly to villagers' houses through conventional modern plumbing.

However, due to decreasing amounts of rainfall, as well as issues with engineering and construction of the roof catchment system, the 50,000-gallon tank was never full, and often became empty—especially during Grenada's annual dry season period (January to May). Several alterations were made to the design, including expanding the roof catchment area and building wind barriers to prevent water from being blown off the roof before being captured by the guttering. All met with limited success.

In 2018, NAWASA and Japan's Grant Assistance for Grassroots Human Security Projects (GGP) collaborated to pump water from the nearby Carriere tank to the Blaize rainwater harvesting tank. Martin Thomas (Ermine's brother) was hired to operate the pump station and monitor and maintain water levels and water quality in the tank.

Today, the tank serves more as water storage than a rainwater harvesting system—for close to a year, the guttering that guides rainwater

into the tank has fallen away due to exposure to the elements. But despite the challenges, the tank has significantly helped ease the community's water challenges.

Blaize community members now enjoy water year-round—even during the difficult dry season. “We haven't been having any problems with water at all,” says Ermine Thomas.

Improved access to rainwater and water availability is one of Grenada's 12 programs of action in the NAP, which writes that rainwater harvesting “is not standard practice in Grenada.” Blaize's experience as the first community to adopt rainwater harvesting has provided important lessons as the country scales up such approaches in response to water scarcity issues that are worsened by climate change.

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and NAWASA are currently developing plans to reintroduce rainwater contributions to the tank, and are taking lessons learned from this Blaize project for implementation in other villages facing similar challenges as part of a USD 50 million project Climate-Resilient Water Sector in Grenada (G-CREWS) that contributes to the implementation of the NAP and is financed by the Green Climate Fund, the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) under its International Climate Initiative (IKI), and the Government of Grenada.





▼ Martin Thomas was hired to operate the Blaize pump station and monitor and maintain water levels and water quality in the tank. (Samuel Ogilvie)







Restoring Mangroves to Fight Erosion in Lauriston, Carriacou

Carriacou, known as the “Isle of Reefs,” boasts rich coastal ecosystems that have long captivated divers and nature lovers.

“Over the last 30 or so years, this area—Lauriston Beach and Lauriston Point in Carriacou—has really suffered a lot of coastal erosion,” says Tyrone Buckmire, Executive Director of the Grenada Fund for Conservation.

“[Our task] under this project is to do a restoration of mangroves and other vegetation along the coastline and within the mangrove ecosystem.”

The Grenada Fund for Conservation is working along with local communities, the Ministry of Environment, and the Ministry of Carriacou and Petite Martinique on the Lauriston Restoration and Rehabilitation Project, through which they have established a mangrove nursery to cultivate saplings of red mangroves and a small number of white mangroves.

Working with Environment Division and non-governmental organizations the Kipaji Development Initiative and the Kido Foundation, replanting efforts have aimed to



reverse the loss of coastal mangroves in order to stabilize the coastline and protect the rich local biodiversity. The mangroves act as natural buffers to shield the coast against erosion, storm damage, and sea-level rise.

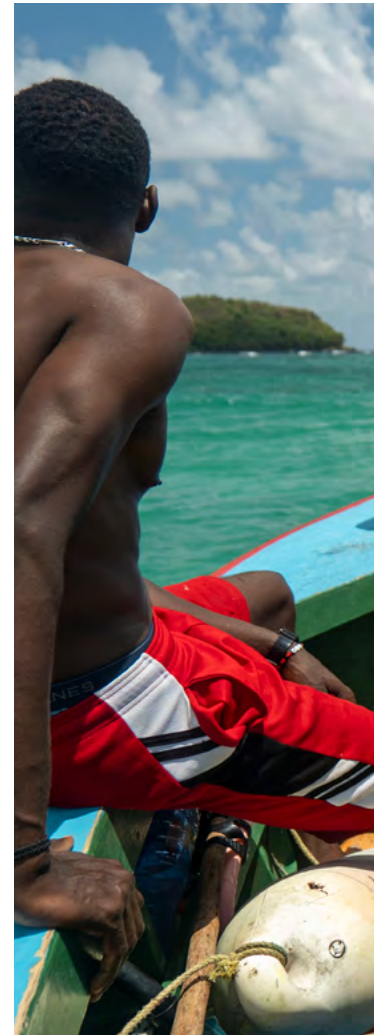
The newly planted saplings will take several years to take firm hold in the sand and soil, so the project team installed fencing and pens to prevent the saplings from being trampled by unsuspecting hikers. Signage marks established trails, and aims to alert and educate trekkers to avoid treading on mangroves.

As the mangroves take root Lauriston locals will continue to work to cultivate and maintain a healthier, more resilient coastline using coastal ecosystems.

The project's significance goes beyond the Lauriston community, aligning with Grenada's program of action on Ecosystem Resilience under the NAP, which sets the goal to "replant and replace the lost mangrove population island-wide" in Carriacou and Petite Martinique. These efforts to restore natural ecosystems to address erosion and deforestation provide lessons that can be replicated across the island, country, and region.







Taking the Long View: Creating a living shoreline at Telescope Beach

On the Atlantic side of the island of Grenada is the low-lying, coastal picturesque town of Grenville (also known by its French name La Baye). It is the capital of the largest parish in Grenada and is grappling with the alarming effects of coastline erosion, salt water intrusion, slow onset sea level rise while its coastal and marine ecosystems including mangrove islands, seagrass beds and vibrant coral reefs suffer from degradation and decline.

“We see a lot of erosion. That encouraged me a lot to restore some of our beach. We had a nice beach—and that’s gone,” says resident Donald Henry.

To address such climate threats, the Windward Islands Research and Education Foundation (WINDREF) is working with The Nature Conservancy (TNC) on the project “Innovative Nature-based Solutions to Enhance Community Resilience in Grenada” funded by the Caribbean Biodiversity Fund (CBF).

This project will use ecosystem-based adaptation approaches—including continuing coral reef restoration and coral outplanting, and mangrove replanting—to provide social, environmental, and economic benefits to local communities who have used this area for many generations. Stabilizing the shoreline will protect coastal roads that bring visitors and connect the community to the town, as well as allow local fishers to transport their catch and sea moss farming to harvest.





Coral reef restoration is a key part of this effort to protect the coast from erosion. The Intergovernmental Panel on Climate Change (IPCC) has warned that unless global carbon emissions are urgently curbed, the world could face a near-total loss of coral reef ecosystems at a spike of 2°C above pre-industrial levels.

Against daunting odds, a dedicated team of fishers who have trained part time as coral gardeners at Telescope Beach are fighting to safeguard coral ecosystems. This work has been based on scientific studies and modeling, as well as pilot projects that have successfully outplanted corals and tested models for dissipation of wave energy. For example,

the At the Water's Edge (AWE) initiative in the communities of Telescope, Grenville, Soubise, and Marquis provided evidence that re-establishing corals will help reduce wave energy and slow coastal erosion.

Coral gardeners, many of whom are local fishers, visit the local “in situ” coral nursery, twice a week to check on the growth of their harvested coral, regularly testing water quality and checking for bacteria. Diseased coral is quarantined and allowed to recover, while healthy corals are outplanted in the Telescope reef once they reach adequate size. The project team also aims to establish a full coral wet lab on land. Like the mangrove restoration in



Carriacou, this work is an outstanding example of ecosystem-based adaptation approaches prioritized under the NAP.

Community members are optimistic that restoring the coastal and marine ecosystems and creating a living shoreline will help combat the impacts of climate change observed along the coastline. By addressing erosion using biodiversity, the community hopes to inexpensively protect Grenville town, Telescope Beach and other coastal natural features from erosion made more severe by climate change.

“It is vital to ensure communities and vulnerable groups in Grenada can benefit from adequate, predictable, grant-based international climate financing to implement local adaptation action and so build national resilience to climate change.”

HON. KERRYNE JAMES, MINISTER FOR CLIMATE RESILIENCE, ENVIRONMENT & RENEWABLE ENERGY

Working Toward a Resilient Future

Grenada's NAP sets out priorities and provides a roadmap to guide how communities across the tri-island state can collaborate to scale up efforts to cope with and respond to climate change.

By working together, local communities across the tri-island state are working together and with government to implement the NAP—accessing resources including funding for adaptation action, undertaking ecosystem-based adaptation action and other novel approaches to address climate impacts, raising local awareness of climate change impacts, piloting actions, strengthening their skills and knowledge, and seeing results.

These important steps toward climate resilience need to be nurtured and protected. While local and national adaptation efforts in Grenada are crucial, they must be accompanied by global action to cut greenhouse gas emissions to prevent the worsening effects of climate change.

From the mountain ridges down to the coast—Grenada is taking decisive action to secure a resilient future in a changing climate.

Credits

PHOTOS, VIDEOS, AND INTERVIEWS Samuel Ogilvie

WRITTEN BY Samuel Ogilvie, Aria St. Louis, Christian Ledwell

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Protecting Kune-Vaini Lagoon

Scaling up ecosystem-based adaptation in Albania's oasis for migratory birds



The Kune-Vaini Lagoon System (KVLS) in northern Albania is an important ecological corridor for about 200 species of birds on their migration routes. Its rich ecosystems support local communities' livelihoods, especially agriculture, fishing, and tourism.

Because of climate change, this ecological wonder is under threat. But a project prioritized through the National Adaptation Plan (NAP) process to protect the lagoon is showing how working with ecosystems can help communities prepare for and cope with the impacts of climate change across Albania.

Albania's Climate Change Challenge

More frequent and intense flooding is one of the most serious climate change threats that Albanians face. Brahim Demi's family is one of many that has been farming in the region for over a century. In 2008, the Demi farm was inundated by one of the most devastating floods that has ever hit the region.

"That flood covered all the land here, the trees, and everything we had," he recalls.

Since 2008, the Demis have continued to suffer the effects of flooding. "As a result of the saltwater flood, we have been forced to change our crops several times. We used to have grapes and cherries here, but today they are gone, totally dried up. They should be replaced with other varieties that adapt to the new soil," says Demi, who is now experimenting with growing citrus fruits.

Violeta Nodca, a farmer from the neighbouring city of Lezha, has similarly endured multiple floods in recent years. "During the floods, the water destroys our crops, [and our livestock's] pastures," she says.

In addition to harming crops, Nodca says the floods have put pressure on the local tourism industry.

"If the state takes care of this lagoon, it will bring about a greater development for our village," she says.

Between 1997 and 2017, floods caused USD 218 million in damage in Albania. By 2030, a third of the country's coastal areas are expected to be regularly hit with flooding. Inundated farmland and increased salinity of the soil have already had serious impacts on agriculture and fisheries—sectors that employ over a third of Albanians.

Such disasters have spurred the Albanian government to find longer-term solutions. To respond to climate hazards like the 2010–2011 floods, Albania launched its NAP process in 2015.

Ecosystem-Based Adaptation

"Ecosystem-based adaptation" is a type of nature-based solution that has been defined by the Convention on Biological Diversity as: "the use of biodiversity and ecosystem services as part of an overall adaptation strategy to help people to adapt to the adverse effects of climate change. It aims to maintain and increase the resilience and reduce the vulnerability of ecosystems and people in the face of the adverse effects of climate change."

Convention on Biological Diversity. (2009). Connecting biodiversity and climate change mitigation and adaptation: Key messages from the Report of the Second Ad Hoc Technical Expert Group on Biodiversity and Climate Change. Secretariat of the CBD.



Albania's National Adaptation Plan: Prioritizing ecosystem-based adaptation

Led by the Ministry of Tourism and Environment, Albania's NAP sets out a strategic path for reducing vulnerability and accelerating efforts to build climate change resilience. The NAP document was developed in 2015 with a 20-year time horizon to 2035, and was submitted to the UNFCCC in 2021.

The country's first NAP sets out 15 priority actions, including a flagship EbA pilot project to protect the KVLS region's ecosystems and livelihoods.

The 40-square-kilometre KVLS region is recognized as a biodiversity hotspot.

"Experts have called it an oasis of ornithology in the Mediterranean for its diversity of birds," says Jak Gjini, an engineer and environmental expert who has spent much of his career researching the Kune-Vaini Lagoon region.

Gjini observes that the Kune-Vaini Lagoon was among Albania's first protected areas in the 1940s and that communities' livelihoods rely on the lagoon ecosystem. But the region has been under increasing stress, facing the combined effects of climate shocks, rapid population growth, growing poverty rates, and over-exploitation of the ecosystem's resources.

The Building the Resilience of Kune-Vaini Lagoon through Ecosystem-based Adaptation (EbA) project was implemented by UN Environment Programme (UNEP) with funding from the Global Environment Facility (GEF), co-financed with domestic budget. It was approved for GEF funding in 2013 and implemented from 2016 to 2020. Results are already showing.



Overcoming Challenges

The government’s first efforts to reach out to local communities to consult about the proposed EbA project were met with skepticism.

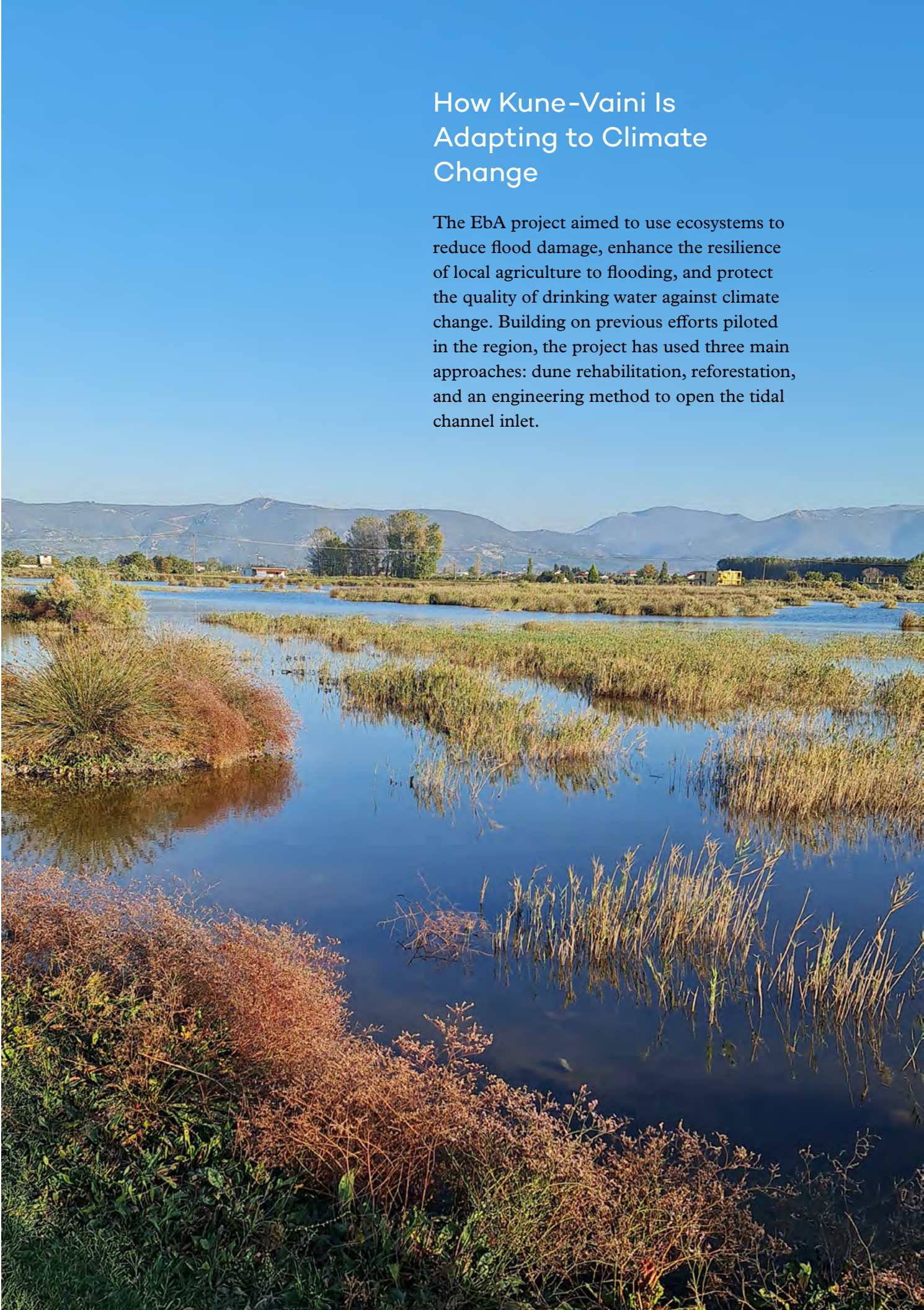
“Kune-Vaini is one of the most important protected areas in Albania,” says Eneida Rabdishta, a climate change expert working for Albania’s Ministry of Tourism and Environment, but says local citizens initially “were discouraged and the lagoon was almost destroyed.”

As the project consultations got underway, the project team also faced challenges in achieving gender balance in consultations—as many women had responsibilities that prevented them from attending and participating in workshops and round tables—in addition to the COVID-19 pandemic causing challenges for bringing community members together to discuss the project.

In overcoming these challenges, the project team designed an EbA project that drew on a careful assessment of social, ecological, and other factors.

How Kune-Vaini Is Adapting to Climate Change

The EbA project aimed to use ecosystems to reduce flood damage, enhance the resilience of local agriculture to flooding, and protect the quality of drinking water against climate change. Building on previous efforts piloted in the region, the project has used three main approaches: dune rehabilitation, reforestation, and an engineering method to open the tidal channel inlet.



Dune Rehabilitation

A thin strip of dunes separates the lagoon from the Adriatic Sea. These dunes were being rapidly eroded by rising sea levels and storms, which were also damaging the breeding sites of bird species. “The sea is advancing in a frightening way towards the territory,” Gjini says.

One of the project’s key strategies was planting vegetation that could reduce the wind speed over the dunes and help rebuild sand deposits.

The main species chosen for the rehabilitation was a native marram grass (*Ammophila arenaria* L.)—a perennial plant that can grow in sand and salty soil. The second species used in the restoration was marina (*Tamarixparviflora* DC.), a shrub-like plant that can reach up to 5 metres in height.

Through the EbA project, over 65,000 seedlings of the two species were planted in order to rehabilitate 2,000 metres of coastal dunes. Seedling survival rates have varied by area but overall have been positive.



▲ (UNEP)

Reforestation

Recent degradation of Mediterranean species of trees in the KVLS has affected biodiversity—threatening bird nesting and breeding mammals—as well as losing out on the forests’ benefits for flood resilience and water quality.

Over 14,500 seedlings of climate-resilient species—Aleppo pine, stone pine, four-stamen tamarisk, ash, and English oak—were planted across the KVLS, including close to the dwindling entry of the tidal channel. By protecting the ecosystem, this replanting aimed at providing a natural “green belt” buffer from storm inundation.

Reforestation efforts did encounter some challenges. Some tree saplings grew slowly, and many pines did not survive flooding. But many seedlings have thrived.



Opening the Tidal Channel Inlet

Gradually, less and less water has been flowing through the tidal channel that connects the Adriatic Sea and the Kune-Vaini Lagoon System. This reduced flow has had multiple negative effects—worsening water quality, increased pollution, harm to bird habitats, and major economic impacts on fish stocks and eco-tourism.

“The lagoon mouths were very unstable,” said Xhel Loshi, a local fisher. Loshi says if the tidal channel inlets close, “there is neither fish nor vegetation and everything changes.”

Though it deviates from a purely EbA approach, the project team chose to make use of an engineering solution: a sand dredger to remove the deposits of sediments from the channel’s bed.

“Over time, it was estimated that marine sediments would close this channel,” says environmental expert Jak Gjini. “Although this is an engineering intervention, its benefits are manifold because they generate a biological abundance throughout Vaini’s ecosystem and beyond.”



Promising Results: Flourishing fish and bird life

The reconstructed tidal channel between the sea and the Ceka lagoon restored free circulation of seawater helping to regulate the lagoon's salinity and build resilience in the region to absorb floods.

Environmental expert Jak Gjini says the tidal channel provides “enrichment of the lagoon with unpolluted marine waters [to] generate the biological abundance that this ecosystem should have.”

This flourishing biodiversity is good news for local livelihoods in agriculture, fishing, and tourism. Community members are recognizing these benefits, including Demi, who says the project is helping with flood prevention, though he notes continued efforts will be needed “to eliminate the flooding of the area.”

The successes achieved through this project also provide information for Albania's national approach to the urgent challenge of building resilience to climate change.

Local fisher Kadri Gjeltja has benefited from the intervention to open the tidal inlet. “We have noticed the multiplying of sea bass, kocë fish, and fowl. Saltwater is also good for eels because it increases their quantity. They are smaller but have a better taste,” said Gjeltja.

Local fishers have also seen the benefits for bird populations. “Now that fish have been increasing in number in the lagoon, the pelican is also present,” says Gjeltja. “And we see that the flamingos have also been increasing in number.”

▼ (UNEP)

Scaling Up Ecosystem-Based Adaptation Through the NAP Process

As a priority action in the NAP and an early win for Albania’s national adaptation efforts, the EbA project in the Kune Vaini Lagoon System has strengthened the systems, capacities, and institutions needed to adapt to climate change.

But with the scale and severity of climate change, no single project or action can ensure climate change resilience.

As climate change escalates, well-coordinated, well-financed, and sustained efforts to adapt will be essential to reducing vulnerability and building resilience. The NAP process has provided a mandate to replicate and scale up similar approaches across the country—key recommendations for doing so are outlined in an upscaling strategy developed based on the project.

Eneida Rabdishta recalls that at the beginning of the project, awareness of adaptation was a barrier: “People living in the lagoon were aware of the extreme weather events such as floods or high temperatures and they were noticing ... seaweeds growing all the time. But they couldn’t relate this to climate change.”

The pilot project raised awareness and built capacity, skills, and knowledge on adaptation among both local communities and national institutions.

“[EbA] was totally a new concept and there was a lack of knowledge in the central government institutions and also in the local units,” she says.

For Gjini, addressing these capacity-building gaps was one of the most important results of the project: “Above all, it was about increasing



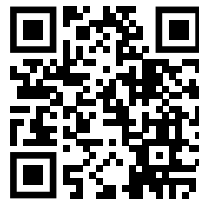


the capacities of the national and local governments and of the community to adapt to climate change.”

The Albanian government is working on new projects to scale up the EbA intervention in the KVLS region and replicate the experience in the Narta and Karavasta lagoons in southern Albania.

“It was definitely considered a very successful project. Now the Ministry of Tourism and Environment is also trying to implement this project in the other lagoons,” says Rabdishta.

For Gjini, the achievements so far provide compelling evidence for why EbA approaches matter. He reflects that with “well-researched and well-studied activities, which also need to be well-managed, we can achieve results.”



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Credits

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The ‘Building the Resilience of Kune-Vaini Lagoon through EbA’ project was implemented by the Albanian government and United Nations Environment Programme (UNEP) with funding from the Global Environment Facility (GEF). Read more about this project from UNEP at www.unep.org

Thriving in Dry Times

How Kenyan communities are working toward drought-resilient livelihoods through the national adaptation plan process



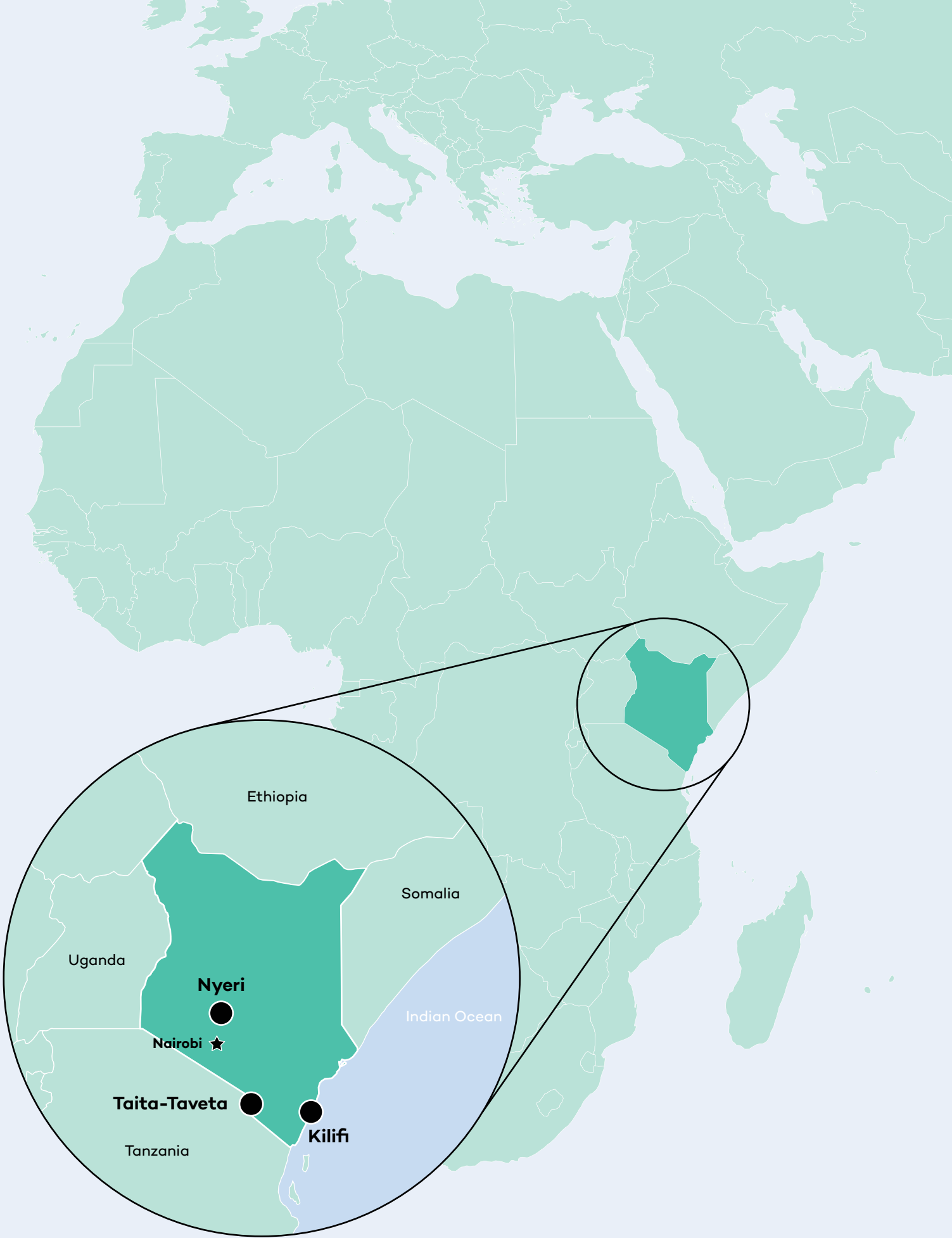
Kenya has been enduring severe drought since 2016.



In recent years, rain in Kenya has often come in the form of intense rainfalls that give rise to additional problems—flash flooding and desert locust outbreaks—rather than providing relief. The drought years have led to an estimated 4.2 million Kenyans in need of humanitarian assistance between 2019 and 2022.

As the climate crisis escalates, Kenyans are taking action to adapt to the impacts of climate change.

◀ Portrait of Salome collecting water from the Ndigiria water pan. (Charity Kishoyian)





▲ A woman herding cattle on the Njoro Kubwa Canal. (Charity Kishoyian)

In 2015, the Kenyan government launched the country's first national adaptation plan (NAP), which set out a vision for building a climate-resilient future. The NAP is delivered through 5-year National Climate Change Action Plans (NCCAPs), with recent plans including priority adaptation actions that aim to reduce risks from drought, increase food security, and ensure access to water. Kenyan communities have an established track record on implementing measures to adapt to climate

risk, including drought. Under the NAP process, the country is taking a coordinated approach to scaling up adaptation efforts and initiatives to address vulnerability and build resilience to climate change.

This article shares stories of how Kenyans are implementing adaptation, sharing the progress, challenges, and aspirations of communities as they adapt to the impacts of climate change under the NAP process.



▲ A cracked canal wall as a result of high water pressure flowing during heavy rain. (Charity Kishoyian)

Restoring the Njoro Kubwa Canal in Taita–Taveta

Njoro Kubwa Canal is a 12-kilometre irrigation canal in Taveta, Taita–Taveta County. Originally built in 2007, the canal transformed the lives of residents in the area, turning a semi-arid area into one of the most fertile regions in the country. Between 40,000 and 50,000 households rely on the canal for farming, boosting the local economy and making Taveta a rich food-producing region.

However, in recent years, the canal fell into disrepair. Cracks in some of the constructed canal walls were leading to water loss, reduced water flow, and blockages within the canal.

To address these and other challenges, the Kenya Climate Smart Agriculture Project (KCSAP) 2017–2023 was implemented by the Kenyan government through a World Bank concessional loan. It is a flagship national project for improving food security and agriculture.

Under the KCSAP, the government invested KES 11 million (USD 75,000) in 2019 to restore the Njoro Kubwa Canal. The rehabilitation works improved the resilience of the canal to extreme rainfall events while ensuring the community continued to have access to water for irrigation and household use.

The canal restoration is an important example of the progress made under the NAP process toward the NCCAP’s priority action on food security to “increase crop productivity through improved irrigation.”



▲ Man bicycling over the Njoro Kubwa Canal. (Charity Kishoyian)

▶ Local boys enjoy a daytime swim, jumping from the top of one canal gate that is used to control water flowing in farms to avoid flooding during heavy rainfall. (Charity Kishoyian)





▲ Faith Isaac is another community member who has benefited from the Njoro Kubwa Canal. She has been a farmer for about seven years and owns half an acre of land where she plants bananas and 'gogo' (also known as garden eggs). (Irene Saitoti)





▲ Local farmer Ruth Benedict welcomed the Njoro Kubwa Canal restoration. She has farmed in the region for 25 years, growing tomatoes, beans, maize and bananas, which she sells to Mombasa and to the residents of Taveta. (Charity Kishoyian)



◀ Christopher Kioko is a young farmer whose 2-acre farm benefits from the canal. Prior to farming, his family cut wood to produce charcoal. Kioko's farm now grows bananas, beans, eggplant, cucumber and maize. When canal water levels are low, the water is unable to reach their crops. (Charity Kishoyian, Irene Saitoti)





▲ John Karanja Wahome, Chairman of Aberdare Welfare Group, prepares feed for his cows. (Catherine Lengipa Lengip)

▲ (Left, previous page) Salim Rashid. (Charity Kishoyian)

◀ Salim Rashid grows rice, yams, sugarcane and bananas on his farm in Kitobo B. He says that the canal has helped with irrigation, making his crops less depending on rainfall. However, during periods of high rainfall, Rashid and neighbors have experienced their crops being flooded. (Charity Kishoyian)



Cattle, Dairy, and Aquaculture in Nyeri

In Nyeri County, the KCSAP provided critical support toward the NAP's and NCCAP's objectives to support small-scale subsistence farmers, including livestock farmers, to improve food security.

The Aberdare Welfare group accessed support under KCSAP for training on approaches—like adopting a “Zero Grazing” method where grass is cut fresh and fed to cattle. The new approaches enable farmers to keep livestock when drought destroys pastures, while increasing their cattle’s production of milk—the group saw production grow from 6 litres per day to 20 litres per day. The training also provided methods for keeping their cattle healthier, for using manure to boost crop yields, and for using manure to produce biogas as an alternative source of energy in a community that had relied on firewood, often illegally cut from local forests. The NCCAP 2018–2022 aimed to encourage 80,000 households to adopt biogas technology as a climate-smart agricultural approach that helps combat deforestation (a further priority under the NAP process). The Nyeri projects are helping to achieve this goal.



Members of the Nyeri-based Kiagi Self Help Group also accessed KCSAP funding to create a biogas unit. Biogas is now providing community members with an alternative to using illegally cut firewood for fuel. The use of biogas has also reduced indoor pollution that presents a health risks to the families. While modest, this achievement will add to other similar initiatives across Kenya in the achievement of the adaptation targets under the NAP and NCCAP. They have also accessed training on farming practices like crop rotation and dam building to harvest water to deal with inconsistent rainfall.

The Gakawa Integrated Group produces feed and mineral salts for cattle. In 2021, they accessed KCSAP funds to buy machinery, including a pelletizer, mixer, and mill to make pellets from grass—but soon ran into production issues due to the drought, with raw materials becoming more expensive and of poor quality. Despite the challenges, the Gakawa Integrated Group has managed to produce an impressive 45 tonnes of feed since January 2022 and is working to certify its products to start selling to the market.

▲ Rose Migure has built a water pan for her cattle and farm needs. (Esther Tinayo)

▼ Miriam Wothaya from the Kiagi Self Help Group checking her bio-gas chamber and cooking using bio-gas, an alternative to firewood. (Esther Tinayo)





GAKAWA INTERGRATED SHG
ANIMAL FEEDS PROCESSING PLANT

SUPPORTED BY:

KENYA CLIMATE SMART AGRICULTURE PROJECT NYERI





▲ Portrait of Jane Kimondo.
(Esther Tinayo)

▶ Kakahindi Wakimwele, a
member of the Jiinue Self Help
Group. (Charity Kishoyian)

Inland Aquaculture in Nyeri

Kenya’s NAP includes fisheries as a priority sector, aiming to expand both inland and coastal fisheries, highlighting inland fisheries through aquaculture is one approach for Kenyan communities to diversify their livelihoods and boost food security.

In 2018, Jane Kimondo accessed support to start an aquaculture business from the Aquaculture Business Development Programme (ABDP) 2017-2026 implemented by International Fund for Agricultural Development (IFAD) and Kenya’s Ministry of Agriculture, Livestock, Fisheries and Co-operatives (MALF&C).

Jane lives in Karioba village, Kihatha, Nyeri County, where an aquaculture program had previously been attempted in 2012 without success. The new program, however, is showing promising results. Through ABDP support, she was able to secure a pond liner, 1000 fingerlings, a cover net and four bags of fish feed.

Jane’s first sale was 20kg of tilapia and 60kg of catfish, which she sold directly to customers. She can now comfortably run her business and support her family.

The Kenyan government reports having helped establish over 11,000 fishponds by 2020, contributing to the NCCAP goal to “improve productivity in the fisheries through implementation of [climate-smart agriculture] interventions.”



Diversifying Livelihoods in Kilifi

Jiinue Self Help Group's Goat Initiative

Diversification of livelihoods is a key adaptation priority in Kenya, with the NCCAP setting out a goal of supporting over half a million households to adopt diversified livelihoods and strengthening food security.

The NAP, as the overarching framework for adaptation, promotes livelihood diversification for vulnerable groups in order to reduce rural–urban migration while enhancing access to the youth and women enterprise funds and establishing affordable and accessible credit lines for the urban and rural poor, youth, and other vulnerable groups. Two examples from Kilifi demonstrate how community groups are making climate-resilient livelihoods a reality.

In 2020, Kenya's National Drought Management Authority (NDMA) funded a community-based initiative put forward by the Jiinue Self Help Group in Kilifi County to diversify livelihoods by promoting goat farming. Prior to goat farming, many community members made a living from cutting down trees to burn for charcoal,



resulting in a significant loss of tree coverage in the area and increasing the community's vulnerability to drought.

The NDMA—through the Asset Creation Programme that was supported by the World Food Programme and contributed to the implementation of the Government of Kenya's Ending Drought Emergencies program—provided each of the Jiinue Self Help Group members with five goats (four “nanny goats” and one buck) to help the community begin shifting their livelihoods from gathering charcoal to goat farming. Selling goats, which could be sold for between KES 7,000 and KES 12,000 (approximately USD 50–80), offers a new source of income to help families pay for food, school fees, and other expenses.

◀ Karisa Masha, Fiki chairman of Jiinue Self Help Group, now has a herd of about 70 goats. (Irene Saitoti)

▼ Kakahindi Wakimwele, a member of the Jiinue Self Help Group. (Charity Kishoyian)

But shifting to farming goats has also brought challenges. Many goats died during the severe drought in 2021, and several more died from pneumonia and snake bites. Several were stolen due to desperation in the community driven by the drought.

Recognizing that the benefits of goat farming could be threatened if drought continues or worsens, the community has identified further steps to diversify local livelihoods. They have proposed accessing future support to raise a drought-resilient breed of chickens and dairy breeds of goats and to build a dam to improve access to clean water.





▲ Agnes Kiruru, Chairlady Nyumba Kumi Self Help Group, and her husband preparing food for their chickens. (Catherine Lengipa Lengip)

Ufanisi Youth Group's Chicken Initiative

The Ufanisi Youth Group originally had only five members. After participating in a training on financial stability offered by the NDMA in 2018, the group was asked by the NDMA to propose a livelihood diversification project. It requested support to take on broiler farming to diversify its small farms. By shifting to drought-resistant poultry breeds, the group members built resilience by creating an alternate income stream. They received 500 chicks and, through a livestock officer's guidance, managed to sell 98% of the broilers.

Having grown to 20 members when they received the broilers from the NDMA, the Ufanisi Youth Group agreed to split the profits, with 50% going to the group savings and 50% going to group members. In 2020, they decided to start a "Savings and Credit Cooperative Organization or Society" (SACCO) to pool resources and make loans available to members, partnering with 15 groups to form the "Mnarani Tupo SACCO." The SACCO grew steadily and, by 2021, had a total of 2000 members



▲ Nickson Tele in his chicken shed. The Ufanisi Youth Group allocated 25 broiler chicks to each member. (Charity Kishoyian)

with a total deposit of KES 8.5 million (approximately USD 60,000).

Though occasionally faced with challenges like low prices and difficulty accessing markets, the group members have achieved greater sources of income and gained knowledge on managing businesses profitably. In addition to raising poultry, Ufanisi Youth Group members also farm crops to sustain themselves and their families.

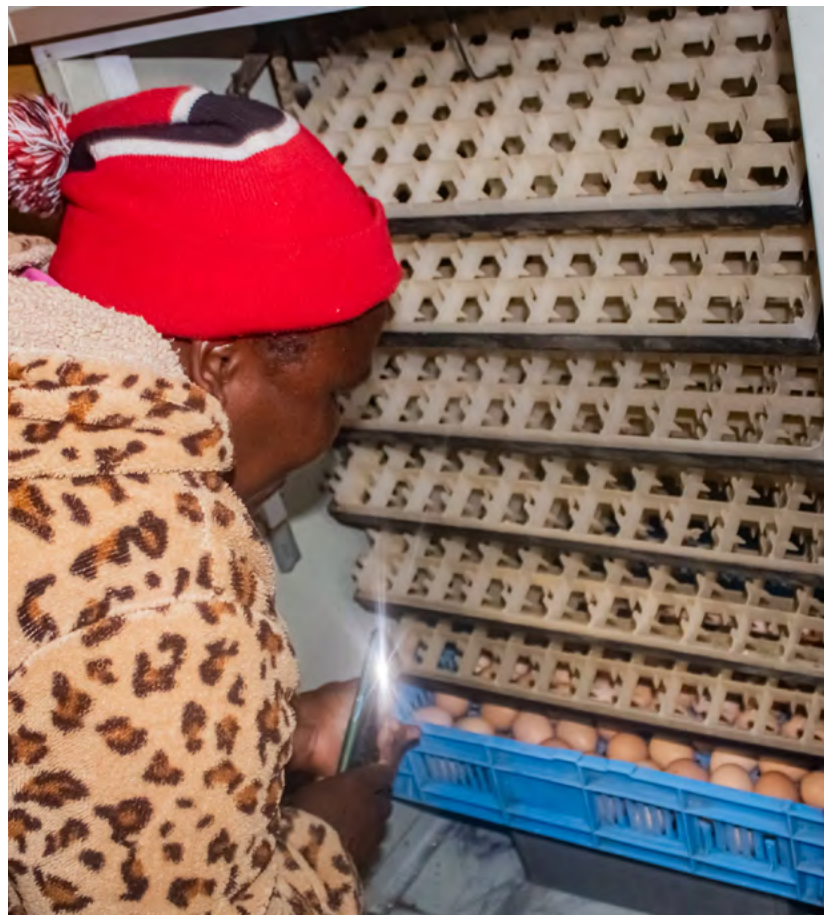


▲ (Catherine Lengipa Lengip)

In its NCCAP progress report for 2019–2020, the Kenyan government reports that 290,000 households had received support to diversify such enterprises for sustainable livelihoods and food security—with enterprises including “indigenous poultry, dairy goats, dairy intensification, tissue culture in banana production, and pasture seeds, among others.”



▲ The Thigi Nyumba Kumi Self Help Group accessed a KCSAP grant in late 2021 invest in an incubator machine, as well as chicklings, sheep, and kitchen garden seeds for members. The group members can breed more chicklings with the incubator and sell them in the market. (Esther Tinayo)



► Agnes Kiruru, Chairlady Nyumba Kumi Self Help Group. (Esther Tinayo)

► Riziki Katama lives in neighbouring Shomela, where a water pan was built in 2020. The pan has benefited Shomela, as they previously had to fetch water from distant locations. (Charity Kishoyian)

Water Pans in Shomela and Ndigiria, Kilifi County

Water pans are an important tool in Kenya’s toolkit as a water-scarce country fighting drought.

Water pans are a low-cost and relatively simple technology that can help communities—especially in semi-arid regions—to cope with climate change. They help communities harvest water for households as well as livestock and agricultural use and can play a key role in achieving the NAP’s and NCCAP’s goals on water availability and food security. They can also contribute to the NCCAP priority to “increase gender-responsive affordable water harvesting” by reducing the distances that women and youth need to travel for water.

Agnes, a community member who lives near the Ndigiria water pan that has been in place for several decades, explains its long-time importance to the community: “I was born, raised, and married in this village. I live here with my family. I am a maize farmer, and I also have a few chickens. We’ve depended on this water pan for farming and the household all our lives.”

However, water pans require ongoing support to avoid the negative impacts for the community if they fail.



“Sometimes the water dries up, and we can’t farm. It becomes a big problem around here to get water for drinking; children want to eat and go to school, but many people suffer a lot without water in this pan. I have benefited a lot, especially living near the water pan. I harvest and sell maize twice a year, but when the water pan dries, we won’t have any other source of income,” says Agnes.

In October 2022, the drought situation in Kenya worsened and affected 4.35 million Kenyans. Water pans across the Kilifi region were among many that suffered; not only drying up but also suffering infrastructural damage due to the drought, which worsened once the rains finally came. The Kenyan government has emphasized the importance of these water pans in helping Kenya achieve its adaptation goals, reporting in 2019–2020 the “annual [arid and semi-arid lands’] water



▲ Portrait of Agnes. (Charity Kishoyian)

harvesting and storage increased by 25%” through small dams and water pans.” The government reports that approximately 129 institutions and 196,262 households developed or strengthened water harvesting structures like water pans across Kenya, including in Ndigiria and Shomela in Kilifi county.

James Kalume, Chief Chairperson of the Ndigiria Water Pan, and Chengo Wanje Chile, Assistant Chairperson, also recount having faced challenges: “By bad luck, it rained heavily, and the water pan filled and broke along the edge on one side, and the water drained out. The water pan could no longer hold much water for long, and crops started dying ... after it broke, the edges no longer had a water source.” They emphasize that securing and maintaining the water

pan requires support from government and funders. The communities also need technical support in terms of ensuring climate proofing of infrastructure like dams. This calls for the engagement of technical experts.

Scaling Up Climate-Resilient Development Through the NAP Process

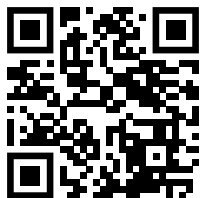
Kenyan communities are responding to the hardships of drought through an impressive and diverse range of strategies to establish climate-resilient livelihoods—from restoring a vital canal in Taveta, to diversifying livelihoods with poultry, goats, and aquaculture in Nyeri



▲ James Kalume, Chief, Ndigiria Water Pan Chairperson, and Chengo Wanje Chile, Ndigiria Water Pan Assistant Chairperson. (Irene Saitoti)

and Kilifi, these stories profile just some of the efforts underway to build climate resilience.

As climate change risks become worse in coming decades, alongside urgent efforts to cut greenhouse gas emissions globally, it is increasingly urgent to scale up national, county, and community efforts to adapt to climate change. Kenya's NAP and NCCAP set out adaptation priorities to guide action and face these risks, channeling support to community-driven initiatives to build resilience to climate change.



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Credits

PHOTOS AND STORIES BY

Charity Kishoyian, Irene Saitoti, Catherine Lengipa Lengip, Esther Tinayo, Claire Metito, Brian Siambi

This photo story builds on *Envisioning Resilience*, a joint initiative between the NAP Global Network and Lensational. In 2021, this initiative provided seven young Maasai women in Kenya with photography and storytelling training to develop visual stories that capture their experiences of climate change and visions of resilience. The photos were shared with national climate change decision makers to amplify underrepresented women's voices in adaptation planning processes. The stories presented in this article were collected and prepared by the alumni of this training program.

EDITED BY Christian Ledwell

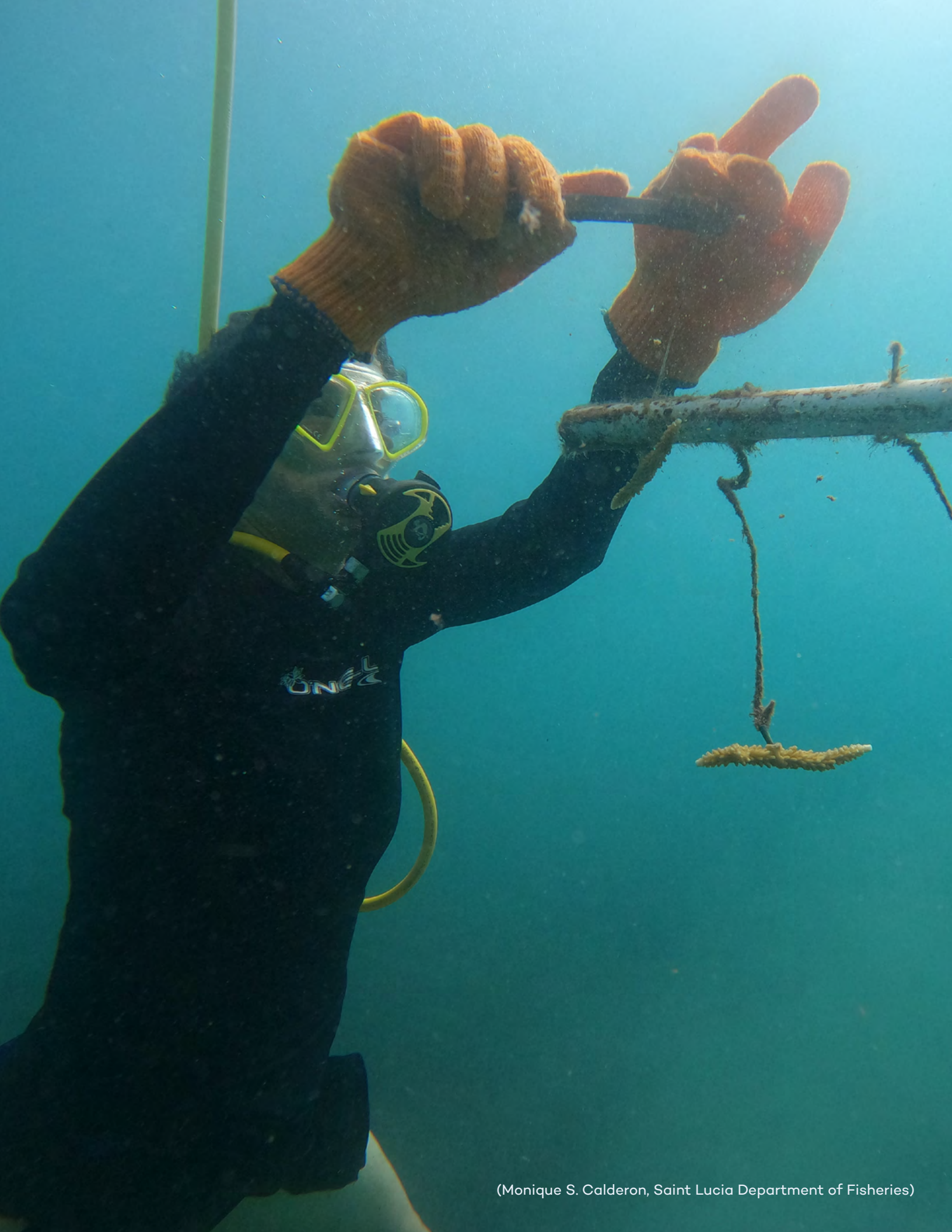
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L O C A L
H E R O E S
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B L E A C H I N G

The Coral
Gardeners
of
Saint Lucia

Coral gardeners in Saint Lucia are working together to save reefs from the devastating effects of climate change through a flagship project under the island's National Adaptation Plan (NAP).



(Monique S. Calderon, Saint Lucia Department of Fisheries)





◀ Chester Nathoniell telling his story.

A threat to the health of coral reefs is a threat to the culture and livelihoods of Saint Lucians.

“Anyone who says climate change is not real must be living under a rock. Our coral reefs are being decimated,” says Chester Nathoniell, co-owner of Action Adventure Divers.

“Coral bleaching, a result of warming ocean temperatures, is threatening our fundamental way of life.”

The world is in a state of climate emergency. Even if we successfully limit global warming to 1.5°C, the Intergovernmental Panel on Climate Change (IPCC) has warned, with “very high confidence,” that we stand to lose 70—90% of coral reefs.

Chester’s diving business relies on the vibrant colours and thriving marine life surrounding Saint Lucia’s coral reefs, attracting tourists

with the promise of an underwater Caribbean paradise. Coming from a fishing family, Chester knows that the abundance of fish—both essential for their livelihood and a contributor to the island’s food security—depends on coral reefs for nutrients and shelter.

In the coastal town of Soufriere, Chester leads a group of young individuals to protect coral reef ecosystems. They are part of the Coral Restoration Programme led by the Centre for Livelihoods, Ecosystems, Energy, Adaptation and Resilience in the Caribbean Limited (CLEAR Caribbean Ltd) and have turned it into a testament to the success of public–private partnerships for climate change adaptation.



▲ A group of Saint Lucia coral gardeners. (Donovan Brown)

These local heroes are known as coral gardeners.

“It dawned on us that if something was not done quickly, not only would tourism be negatively affected, but so too would livelihoods of local communities that rely chiefly, or even to a lesser extent, on fishing,” said Donovan Brown, an executive member of the Saint Lucia Dive Association.

The programme was identified as a priority action for the fisheries sector in Saint Lucia’s National Adaptation Plan (NAP) (2018–2028). This mandate helps the coral gardeners align their efforts with national priorities and enhances opportunities for them to gain access to more resources, more support to better track the progress of their work, and more channels to share their experiences across the island to make a bigger impact. While just beginning, the programme is already showing strong results.





◀ Tourists help coral gardeners with nursery construction. (Sandals Resort)

Coral Restoration: A national adaptation priority

Coral reefs are among our world's most threatened ecosystems due to the changing climate and increasing local pressures, according to the International Union for Conservation of Nature.

In Saint Lucia, the bleaching and shocks to coral health will have severe economic, human health, and social consequences. While covering less than 0.1% of our ocean floor, reefs host over 25% of all marine fish species. Additionally, coral reefs buffer shorelines, protecting coastal communities from storm surges, hurricanes, and floods. According to an analysis published in 2011, the cost of climate change-induced damage to coral reefs in Saint Lucia could reach between USD 1.7 billion and 3.4 billion by 2050.

Though not all coral bleaching is caused by warming water, a spike of 1–2°C in the water that continues over several weeks causes stress on the coral and leads it to expel the algae that live symbiotically in its tissues. The coral then turns white and, if these conditions continue for too long, eventually dies. The IPCC further indicates that ocean ecosystems, such as coral reefs, are already experiencing large-scale changes, and critical thresholds are expected to be reached at global warming of 1.5°C and higher. As Small Island Developing States (SIDS) prepare for warming seas, coral restoration is a vital approach to ecosystem-based adaptation that protects coral reefs from the changing climate while providing ecosystem goods and services that are essential for people's lives and livelihoods. Coral gardeners in Saint Lucia are pivotal to this effort, as prioritized in the NAP.



◀ Tourists help coral gardeners with nursery construction. (Sandals Resort)

Defined as a 10-year process (2018–2028), the island’s NAP lays out medium- to long-term adaptation measures across eight priority sectors. Coral gardeners play an important role in helping efforts to positively influence thinking, mould outcomes, change behaviour, and instigate action across the country at all levels.

Taking Action in Soufriere: A collaboration between government, non-profits, and the private sector

Facing the Caribbean Sea, the village of Soufriere is the base of the Coral Restoration Programme, which aims to produce approximately 4,000 coral colonies on selected reefs with the help of its coral gardeners.

Initiated by CLEAR Caribbean in 2016, the Coral Restoration Programme is delivered through a partnership between the Anse Chastanet and Jade Mountain Resort hotels, the Sandals Foundation, PANORAMA, and the Department of Fisheries of the Government of Saint Lucia.



“The effects of climate change are a sad reality for the Caribbean” and contribute to “the deterioration and destruction of over 50% of coral reefs in the region,” said Karolin Troubetzkoy, Executive Director, Marketing & Operations, Anse Chastanet and Jade Mountain Resort. “This in itself is a huge motivator to get involved.”

The programme is designed to help local coral reef ecosystems adapt to the effects of climate change by introducing species of coral that are not prone to bleaching in warming waters. “We have planted over 400 fragments of corals onto the reef, and we are presently hosting 250 fragments of corals in the coral nursery waiting to reach the recommended size for out-planting,” said Troubetzkoy.

Consistent with the NAP process, coral gardeners are restoring the shallow water populations of elkhorn (*Acropora palmata*) and staghorn (*Acropora cervicornis*) coral species. The immediate focus of the programme is to establish a sustainable recovery plan for these critically important, fast-growing Acroporids. The end goal is to develop genetically diverse thickets of mature coral capable of growing and spreading to nearby shallow reef areas.

Coral Gardening

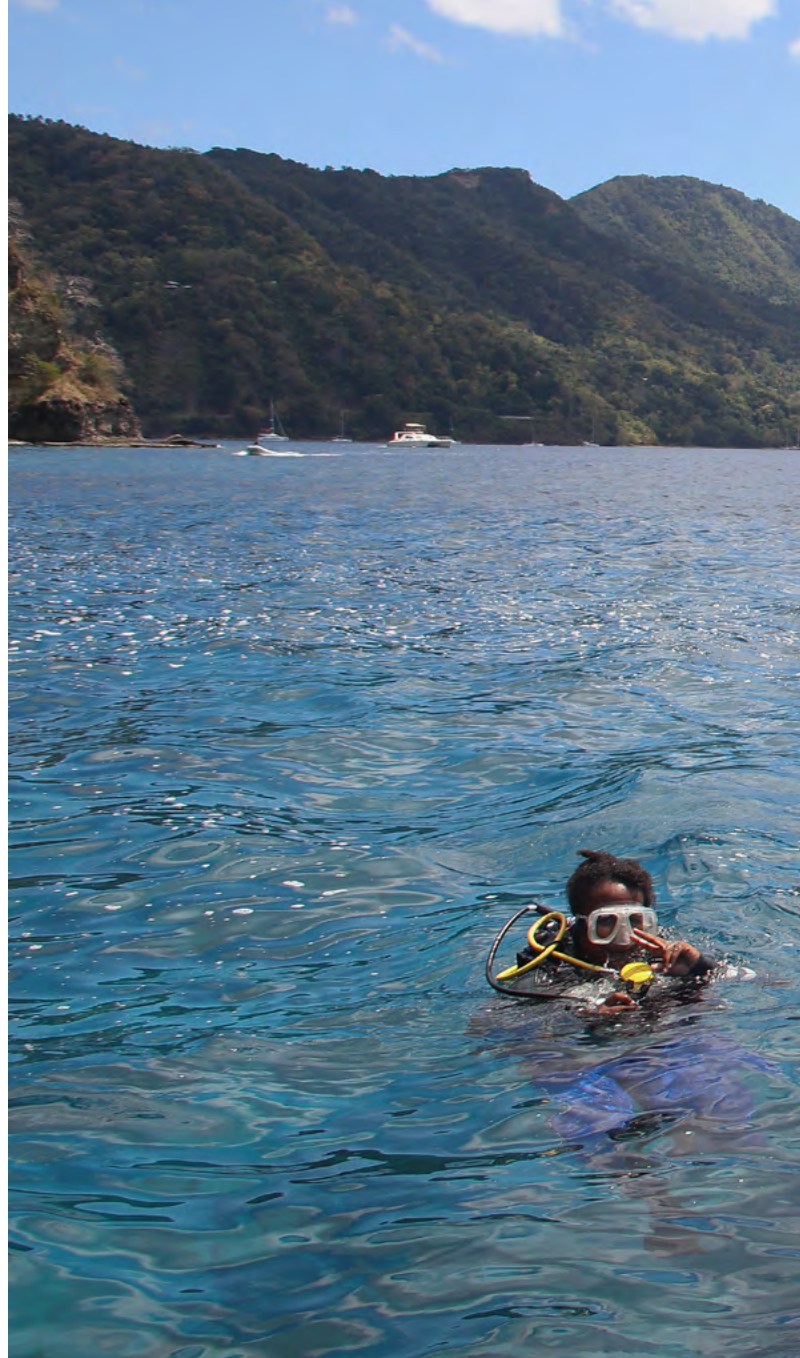
The Coral Restoration Programme has been made possible by a remarkable team of young adults from across Saint Lucia. Before embarking on their underwater mission, coral gardeners are first trained as certified divers in the pool at Sandals Resort.

They also construct vertical and horizontal structures that will be placed underwater to begin the coral gardening process.

During their dives, the gardeners are separated into two groups. While some focus on tending to the existing corals, ensuring their well-being and maintenance, others take charge of the outplanting process, carefully transporting coral from the nurseries and introducing it into its new reef habitats.



- ▲ (Chester Nathoniel)
- ▶ (Lucius Doxerie)



Success of the Programme Already Evident

The coral growth achieved in 11 months, as shown below, demonstrates the potential of this programme to restore the underwater ecosystem. The endangered elkhorn and staghorn species are doing especially well, according to the Department of Fisheries, the lead entity for the execution of measures in the Fisheries Sectoral Adaptation Strategy and Action Plan under Saint Lucia's NAP.



The promising early adaptation achievements have important lessons that will be applied to adaptation actions across the country in years to come. The programme in Soufriere is highlighted in Saint Lucia's first-ever NAP progress report as a key achievement for the country's fisheries sector and one that has not only led to positive ecosystem results but also enhanced human and institutional skills and knowledge to adapt to climate change.

Under the NAP process, the programme is not only re-seeding coral but is also engaging local

“It’s amazing to see how once nearly dead reefs can come back to life as a direct result of what we do.”

DEUXMILLE ALEXANDER, CORAL GARDENER

partners (including the private sector), offering training for community members, raising awareness about coral restoration through a communications strategy, developing a monitoring plan to track the performance of outplanted coral, and developing approaches to finance this work in the long term, including through private sector investments.

The programme is also providing important research and lessons learned for the global adaptation community as coral genotypes are determined and tracked to ensure both genetic diversity and the selection of the most resilient specimens.

As for the coral gardeners, they are benefitting by learning new skills and growing their careers in diving and coral restoration. The community of Soufriere has also expressed profound gratitude for the programme.

“Through coral gardening, I was able to expand my business which now includes taking visitors scuba diving and snorkelling.”

JN LOUIS MATHURIN, OWNER OF FATHER NATURE, A LOCAL SIGHTSEEING BUSINESS



► Coral gardener Jn Louis Mathurin cheering. (Donovan Brown)



◀ Coral gardener Jadel Alcide getting ready for a dive. (Lucius Doxerie)

“What is really heartening is seeing fisherfolk landing more fish than before and knowing that you are partly responsible for the availability of more fish. It is humbling to know that the restoration work carried out by the team resulted in more visitors coming to the community and improving the state of the community economy and, by extension, the country’s economy.”

JADEL ALCIDE, PROGRAMME TRAINEE SINCE 2022



What's Next for the Programme

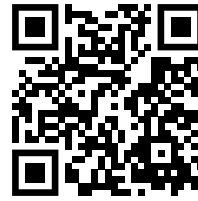
The Coral Restoration Programme requires ongoing collaboration, adequate funding, and continuous learning opportunities. Through the country's NAP process, the lessons and experiences gained through the programme are being widely shared with national and local stakeholders, as well as with other countries grappling with coral bleaching. Additionally, other efforts consistent with the NAP process will focus on expanding coral nurseries through partnerships with local entities.

As an ardent advocate for the programme, Chester emphasizes the need to continue their work. “We’re fighting a war, winning small battles at a time,” he says.

Exploring diverse adaptation techniques to protect coral reefs from climate change needs to be a priority—both in Saint Lucia and around the world. That being said, the long-term success of saving reefs will depend on urgently reducing global greenhouse gas emissions to mitigate climate change; as the Saint Lucia-led climate change awareness campaign urged, “1.5 to stay alive.”

As long as we support local heroes like Saint Lucia’s coral gardeners, there is reason for optimism. By caring for their coral ecosystems, they are not only protecting Saint Lucia’s natural beauty, but also the resilience of its ecosystems, communities, and economy.

◀ (Donovan Brown)



↑ [READ WEB STORY](#)

Credits

PHOTOS (UNLESS OTHERWISE CREDITED) AND INTERVIEWS Lucius Doxerie

WRITTEN BY Catherine Burge, Lucius Doxerie

SPECIAL THANKS TO Dawn Pierre-Nathoniell, Maier Sifflet, Jermaine Descartes, Ruth Phillips Itty (Department of Sustainable Development, Saint Lucia); Leona Mathurin; Chester Nathoniell (Action Adventure Divers); Donovan Brown (Saint Lucia Dive Association); Donovan Mathurin; Karolin Troubetzkoy (Anse Chastanet & Jade Mountain Resort); Heidi Clarke (Sandals Foundation); Newton Eristhé (Clear Caribbean); Shernella James; Zadel Dusauzay; Wendy Biscette; Deuxmille Alexander; Jn Louis Mathurin; and Aquinas Sylvester.

The Public-Private Partnership for the Saint Lucia Coral Restoration Programme for Resilient Ecosystems and Sustainable Livelihoods was implemented by CLEAR Caribbean Ltd with funding under the Caribbean Aqua-Terrestrial Solutions (CATS) programme. It is a partnership that also includes the Saint Lucia Department of Fisheries, the Soufriere Marine Management Association, the Caribbean Public Health Agency, and the Sandals Foundation.

The CATS programme is funded by the German Federal Ministry of Economic Cooperation and Development (BMZ) and implemented by the Caribbean Public Health Agency (CARPHA) on behalf of the Caribbean Community (CARICOM) and the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) in association with a number of other partners.

Sustaining Hope and Harvesting Rainwater

Tonga embraces resilience in the face of climate crisis

This photo essay by Viliami Takau from the Tongan government's JNAP Secretariat shares stories of how this national adaptation plan is being implemented.

► Mangrove planting in Tongatapu, Tonga. (Viliami Takau)





Tonga was the first Pacific country to develop a Joint National Action Plan (JNAP) on Climate Change and Disaster Risk Management in 2010, which served as the island nation's national adaptation plan (NAP). Tonga is now implementing the second iteration of its NAP, the JNAP 2. Tonga's 2020 Second Nationally Determined Contribution (NDC) built on the JNAP 2, clarifying how the country would achieve adaptation goals related to several targets set out in the JNAP 2.

▼ Community groups from the nearby villages are working to restore Tonga's largest mangrove forest. (Viliami Takau)



The Green Symphony: A million trees in Tonga

July 26, 2023

Tongatapu, Tonga

Deep in the heart of Tonga’s largest mangrove forest, located on the northern coast of the main island of Tongatapu, eight staff members from Tonga’s Department of Climate Change gather on a chilly tropical morning. Usually, their work is in the office dealing with proposals and project administration, but today, they are poised for a different kind of mission. As the tropical sun begins its ascent, they are united under the banner

of the “1 Million Trees Goal,” a momentous undertaking shared with the Department of Environment, the Ministry of Agriculture, and several organizations in Tonga that are also lending their support.

In the lead is Aloisio Fifita, the head of division for the Ozone Division in the Department of Climate Change. He marshals his troops with the task of planting 3,800 mangrove trees over the next three days—a major stride toward Tonga’s 1 Million Trees Goal as part of its nationally determined contribution and the achievement of seeing “30 per cent of land in Tonga utilized for agroforestry or forestry,” a target under Tonga’s JNAP 2.

Amid the rich mangroves, there is a tranquil harmony, a song sung here for millions of years. The hush of the forest’s whisper is broken by occasional splashes of fish, the rustle of mud crabs, and sometimes the flapping of the purple swamphen.

Away from their desks, the team plunges their hands into the loamy soil. Each tree is not only a testament to their collective vision but an act of reverence for their ancestral home country. “A million mangrove trees could easily fit into this area alone,” says Aloisio. “It is just a matter of action at this point.”

High above the watery landscape hums a drone from Tonga’s National Emergency Management Office. The camera captures the vast open parts of the mangrove forest that are able to sustain growth.



An hour passes by, and the thudding sound of clonking sticks penetrates through the mangrove forest—a familiar sound across the kingdom that signifies the traditional hand-manufacturing of Tapa cloth by women. “Behind those trees lies the village of Puke,” says Aloisio. “Planting mangroves here won’t just build the biodiversity of the area, it will create a safety buffer for those villagers from storm surges.”

The Department of Climate Change and the Department of Environment have split the number of trees to each take on 500,000 toward their goal of 1 million trees planted by the end of 2023.

Sustaining Hope and Harvesting Rainwater: Tongan communities in Vava’u embrace resilience amid the climate crisis

July 25, 2023

In the azure waters of the South Pacific, a tale of resilience and cooperation is unfolding as Tonga’s Department of Climate Change, with funding from Korean Aid, works to safeguard vulnerable communities from climate change. Tonga, a breathtaking archipelago of lush green landscapes and pristine beaches, has long grappled with the impacts of drought and water scarcity, particularly during the arid months from May to October.

Recently, a glimmer of hope emerged as the Department of Climate Change announced the delivery of 300 much-needed water tanks, funded by Korean Aid. With the ambitious goal of bolstering the resilience of Tonga’s communities, this initiative has already begun to transform the lives of those most affected by climate change.

► Community groups from the nearby villages are working on restoring Tonga’s largest mangrove forest. (Viliami Takau)







▲ The Department of Climate Change has started the roll out of water tanks to households across Tonga. (Viliani Takau)

Among the beneficiaries are the communities of Vava’u, a picturesque island group nestled in the heart of the Tongan archipelago. Vava’u, like many other regions in Tonga, has endured its share of hardships, grappling with parched lands and water shortages during the relentless dry spells. With 40 water tanks allocated to Vava’u, the distribution was carefully coordinated to reach the constituencies of Vava’u 14 and Vava’u 16, areas that have borne the brunt of climate-related disasters in recent times.

At the forefront of this exercise is Tonga’s Department of Climate Change and its national adaptation plan, as submitted to

the UN Framework Convention on Climate Change (UNFCCC): one of the JNAP 2’s target is to achieve “water security through integrated management and conservation.” By focusing on enhancing resilience and reducing vulnerability to climate-induced disasters, their efforts offer a beacon of hope to the Pacific nation.

The monitoring activities in Vava’u, carried over from 2022 to 2023, show encouraging results. Villages and districts have embraced the arrival of the water tanks, recognizing the critical role they play in securing their livelihoods and sustenance during the unforgiving dry seasons. According to the



▲ The National Water Tank Project is currently underway on the main island of Tongatapu. (Viliani Takau)

technical officer in the Department of Climate Change, Vava'u, Ms. Ma'ata Kata, the last monitoring activities showed that 92.5% of these households had already completed the necessary foundations for the tank stand, demonstrating the need for improved water supply in the communities.

But beyond the numbers and statistics lies a deeper connection to nature—a shared understanding of the pressing need to protect their land and seas, handed down through generations. The sight of these sturdy water tanks dotting the landscape is a tangible symbol of solidarity, where international aid and local spirit meet in the face of adversity.

In this corner of the Pacific, where the blue of the sea meets the blue of the sky, a shared commitment to safeguarding the Earth's fragile ecosystems unites us all. The descendants of masterful navigators now find themselves on a voyage of discovery, hope, and resilience amid the rising tide of climate change. The National Water Tank Project is currently underway on the main island of Tongatapu, where water shortages are expected for 2023.



▲ Monitoring water tanks at Tu'anequivale village.
(Viliami Takau)



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