



CLIMATE SUPPORT

10 stories of technical assistance from the Intra-ACP GCCA



INTRODUCTION

For countries in the African, Caribbean, and Pacific regions, climate change is a massive challenge. Higher temperatures, shifting rainfalls, and extreme weather events disrupt agriculture, prompt natural disasters, and hinder poverty reduction.

The Intra-ACP GCCA+ Programme finances technical assistance to 79 countries in the African, Caribbean, and Pacific regions. In some cases, such as Côte d'Ivoire's drive to halt its deforestation, our technical assistance helped the country to access further international finance and technical support, driving the pro-

cess forward. Our technical assistance helped access international finance and technical support, driving the process forward. Elsewhere, in Burkina Faso and Niger, for example, our consultants built capacity and knowledge, which counterparts are still using and sharing today.

These ten stories come from all three regions. They illustrate both the nature of our work and our contribution to tackling climate change. We welcome all comments and questions, and we are open to further requests for support. Climate change is the defining issue of our time.

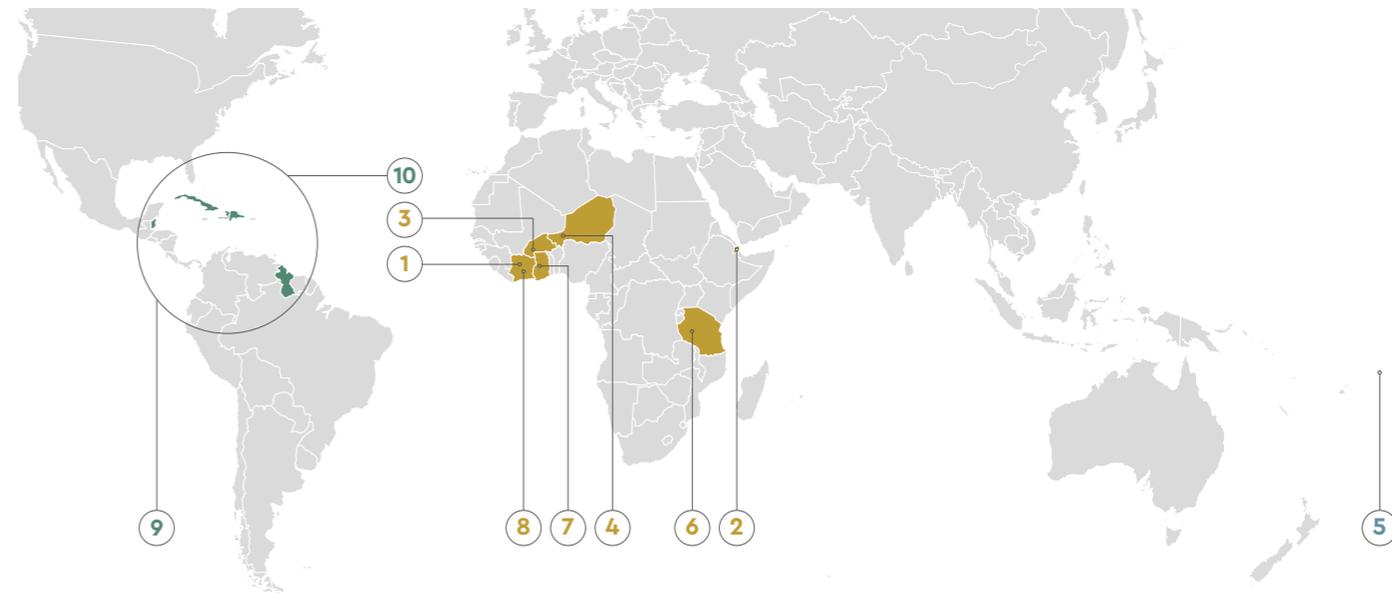


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1. CÔTE D'IVOIRE - FORESTS



CÔTE D'IVOIRE'S FORESTS GET A "ROADMAP" AND INTERNATIONAL SUPPORT

For Côte d'Ivoire, forests are an essential part of every day life, providing both spiritual and agricultural benefits. In a country where so many people depend on farming for their livelihoods, the trees help fertilise the ground and regulate the country's rains.

But Côte d'Ivoire's forests have become a victim of their own success. Agriculture, especially for cash crops such as coffee and cocoa, has driven rapid deforestation. Between the end of the 1950s and 2008, Côte d'Ivoire's forest cover dropped from 80 to just 5 percent of national territory.

By 2012, the government was looking to join the international REDD+ mechanism, a UN scheme to help countries protect and restore their forests. It turned to the Intra-ACP GCCA Programme.

"We applied to the ACP Secretariat for technical support to help us analyse the state of our forests and

to produce a roadmap for the REDD+ process," says Marcel Yao, Côte d'Ivoire's coordinator for REDD+.

"The request was approved and a consulting firm made available."

The consultants developed a REDD+ roadmap, including an analysis of the country's gaps in sustainable forest management, and built capacity to implement it.

"The roadmap reassured our partners and brought in a lot of funding," Marcel says. "Above all, it allowed the different sectors to collaborate effectively."

The roadmap helped put Côte d'Ivoire's ambitious forest management plans back on track. In May 2018, Côte d'Ivoire said it would ask donors, timber firms, and cocoa companies to help finance a reforestation strategy costing US\$1 billion over ten years (616 billion CFA francs). The strategy would seek to extend forest cover

to 20 percent of national territory by 2030, replanting 170,000 hectares each year.

"The roadmap was the starting point for this strategy, the first brick on which everything else was built," says Marcel.

By supporting Côte d'Ivoire to protect its tree cover, the international community reduces global greenhouse gas emissions and slows the pace of climate change. By protecting tropical forests and allowing them to recover, current annual global emissions could drop by up to 30 percent.

FACTBOX – CÔTE D'IVOIRE – FORESTS

Côte d'Ivoire has some of the world's richest and most biodiverse forests, but they have been damaged by deforestation. Here are some more facts about the forests of Côte d'Ivoire.

- Côte d'Ivoire's forests are home to some of the region's richest biodiversity, including primates, birds, reptiles, and more.
- But the world's top cocoa producer has had some of the world's fastest deforestation rates. Between 1990 and 2015, average deforestation was around 4.3 percent per year, the highest in the world at the time.
- The main causes of deforestation in Côte d'Ivoire are massive expansion of agriculture, timber exports, uncontrolled harvest of forests for firewood, bushfires, and mining, notably illegal small-scale gold mining.
- Other causes include population growth and poverty, which lead to over-exploitation of available natural resources.
- Côte d'Ivoire's forest cover dropped since the end of the 1950s from 80 percent of national territory to just 5 percent in 2008.

Sources: Reuters, President's Office, World Bank, REDD+ Roadmap



2. DJIBOUTI - WATER



DJIBOUTI RECYCLES ITS WASTEWATER FOR FARMING

Vital for life, water is a rare commodity in the tiny, semi-desert country of Djibouti. With temperatures ranging from hot to very hot, rural families must sometimes travel as far as 15 kilometres to find any drinkable water.

Climate change has become a worry. Recent years have seen lower rainfalls and longer, more frequent droughts.

"Recurrent droughts are a reality for people in this region," a government minister told a conference on climate in the Horn of Africa.

"We need effective mechanisms to tackle climate variability and change."

One effective mechanism has been to use and reuse the existing resources as efficiently as possible. With survival at stake, and a growing population, Djibouti must find ways to collect and recycle its water more efficiently.

One excellent opportunity came with

the construction of a wastewater treatment plant at Douda just outside the capital. Financed by the European Union and finished in 2013, the plant was big enough to serve 40,000 people. But what to do with the recycled water?

Responding to a request from the EU Delegation in Djibouti, the Intra-ACP GCCA Programme financed a consultant to advise on using the recycled water. The final plan was to pipe water from the plant to a nearby farmers' cooperative, Douda FIICAN.

In doing so, the Intra-ACP GCCA Programme was helping Djibouti adapt to climate change. As a semi-arid country expecting to receive even less rain in the coming years, Djibouti produces very little food. Its limited agriculture and horticulture has extra value.

By May 2017, when the EU's Director General of International Cooperation and Development, Stefano Manservigi, visited the project, pipes were

snaking their way through the sand to a tidy area of green, net shelters run by 40 farmers and their families.

"The project contributes to improving the life of Djiboutians, notably by putting in place for the first time a framework for the reuse of treated wastewater," an EU statement said

FACTBOX – DJIBOUTI – WATER

A semi-arid, desert-like country, Djibouti is one of the world's most water-stressed countries. It receives low rainfall and has extremely limited agricultural production. Here are some more facts about Djibouti's water.

- Djibouti does not have a permanent source of surface water, such as rivers or fresh water lakes. It relies on deep underground water tables, fed by rainwater infiltration. More than 95 percent of water is abstracted from groundwater.
- In 2006, nearly 16 percent of the population had no immediate access to safe drinking water. The most deprived populations had to travel as far as 15km and back every day for safe drinking water.
- With less than 1,000 km² of arable land and an average rainfall of just 13cm, Djibouti is totally dependent on imports to meet its food needs.
- Djibouti is highly sensitive to natural disasters such as floods and droughts. Herders and rural dwellers can easily lose their livelihoods.
- Djibouti suffered consecutive seasons of drought in 2016–2017
- More than 23 percent of Djibouti's nearly 1 million population live in extreme poverty. Most of them live in rural areas.

Sources: UNICEF (2006), USAID Food Assistance Fact Sheet, USAID, and World Bank



3. SAHEL – TRAINING

SAHEL INSTITUTION TEACHES NEW TOOLS ON CLIMATE CHANGE

Snaking along the southern edge of the Sahara Desert, the ten countries of the Sahel region are precariously dependent on rain. Survival has always required resilience and ingenuity, but climate change represents a new scale of challenge.

Recent years have seen intense weather changes, including intense and repeated flooding between 1999 and 2016, while recurring droughts have also had an impact.

"The consequences of drought on agropastoral production, food security, and socio-economic life are disastrous," says Maguette Kaire, the GCCA+ coordinator in the region.

To adapt to climate change, Sahel countries wanted to develop the expertise that would allow them to incorporate climate change issues into their national plans and budgets. However, the issue was new to the region, which lacked the technical knowledge.

The Intra-ACP GCCA Programme works with the Permanent Interstates Committee for Drought Control in the Sahel (CILSS), building knowledge and capacity on climate change issues. Based in Burkina Faso, the centre has become region's centre of excellence on issues relating to climate change.

In April 2013, for example, the Intra-ACP GCCA Programme funded technical experts to help the CILSS produce a course on climate change and to train trainers to share the knowledge more widely.

Some 11 CILSS participants received training in a small town about 100 kilometres west of Burkina Faso's capital, Ouagadougou. It covered eight modules ranging from the effects of climate change on sustainable development through to prioritising options on adaptation and mitigation, budgeting, and monitoring and evaluation.

The consultant produced a first draft

of a training guide and helped CILSS trainers to complete and implement it.

"The CILSS helps the region by training managers on climate change and climate negotiation, also by providing information on climate and sustainable land management," says Maguette.

By September 2018, CILSS had trained more than 275 government officials from ministries across the region, including from Benin, Burkina Faso, Côte d'Ivoire, Niger, Senegal, Chad, and Togo. Niger had also been supported to integrate climate change issues into its livestock sector.



4. SAHEL – AGRICULTURE



NIGER CENTRE STUDIES CLIMATE-SMART AGRICULTURE AND CLIMATE FINANCE

Some two thirds of the Sahel's 100 million population depend on agriculture for their survival, but climate change threatens that very survival. Droughts or even flooding can quickly devastate farms and livestock.

Adaptation requires leaders and public servants who understand the challenge and techniques to overcome it.

"Agriculture is the key sector in the Sahel and West African economies, but it faces a major challenge," says Maguette Kaire, GCCA+ Coordinator in the Sahel.

"To fight climate change, we need to understand it first so that we can adopt solutions at national and local level," he adds.

In June 2014, the Intra-ACP GCCA Programme worked with the Centre Regional Agrhymet (CRA) to build that understanding. Based in Niamey,

Niger, the Centre Regional Agrhymet (CRA) takes students from all across the region, training future leaders on a range of issues including environment, agriculture, water, energy, environmental science, geography, and more.

The Intra-ACP GCCA Programme financed an international consultant to help develop two modules for the CRA's Masters Programme on climate change and sustainable development. The two modules covered climate-smart agriculture and climate finance.

Both modules have proven to be very useful for the students, Maguette says. The work on climate finance helps participants to understand the opportunities for international support and to access further support for the region.

"The module on climate finance showed the diversity of funding pos-

sibilities and gave ideas on how to access this funding."

The consultant also trained CILSS staff to teach the modules themselves.

"This Masters course is very popular in Sahel countries," says Maguette. "Students learn from experts and researchers, who have long experience in the field."

Still supported by the Intra-ACP GCCA+ Programme, further courses are due in 2019 and 2020.

FACTBOX – SAHEL – AGRICULTURE

Some two thirds of the Sahel's 100 million population depend on agriculture or livestock. Here are some more facts about the impact of climate change on farming and food security in the Sahel.

- Yields are low and over a third of crops are lost every year.
- Climate change may already be impacting the region. In 2017, lack of rain in many Sahel areas affected pasture availability and led to an early onset of the lean season. Up to 40 and 95 percent of the pastoral areas were negatively affected in Chad and Mauritania respectively.
- UNICEF has warned that well over 1.5 million children under the age of five may be affected by severe acute malnutrition in 2018.
- The UN also estimated that in the Sahel's pastoral areas, 4.25 million people would need food assistance in the 2018 lean season (May to August). As many as 6.8 million people may need humanitarian assistance.
- In 2011–2012, major drought left more than 18 million people facing hunger and 1 million children at risk of death from malnutrition.
- In 2017, a report by the Potsdam Institute for Climate Impact Research, said that climate change could one day turn the Sahel green by changing weather patterns and triggering more rain. However, the first few years of the transition would involve very erratic weather – extreme droughts followed by destructive floods.

Sources: Sahel Alliance, United Nations, Reuters



5. SAMOA - SOLAR WATER PURIFICATION



SAMOA SEEKS PRIVATE SECTOR INVOLVEMENT ON DRINKING WATER

Surrounded by sea, small island developing states lack easy access to drinking water, a major household expense. In Samoa's urban areas, households spent an average US\$1,095 on drinking water in 2014.

Rainfall is an important source of drinking water in the Pacific nation, but climate change is likely to reduce the amount of rain, even as saline intrusion, rapidly growing urban populations, and pollution all compound the issue.

"Future demand for accessible, affordable and safe drinking water is a critical concern in Samoa," says a consultant from the Intra-ACP GCCA Programme.

As with other aspects of climate change, Samoa will have to adapt. This can be a costly business, but governments have limited resources, and they need support from donors and the private sector.

One first step to getting the private

sector involved is to develop pilot projects that show both the demand for a product and the profit opportunities.

Back in 2014, the Intra-ACP GCCA Programme helped Samoa with this process, developing a pilot project to sell solar-powered water purification, one of six business proposals to involve Samoa's private sector in climate adaptation.

The project's solar water purification systems consisted of a single panel that looked like a solar panel measuring 2.2 metres x 1 metre, with a stand. Polluted or contaminated water (including salt water) was fed into the top of the panel, which then used sunlight to distil it. Pure water was collected at the bottom.

A single US\$400 panel could supply a household with twenty litres of pure water per day for a minimum of ten years and probably closer to 20 years or more.

"The project addresses the steady reduction in potable ground water, water supply for coastal, rural and isolated communities and a sustainable reduction in the cost of potable water available to urban communities," the project proposal says.

The project is another example of the way in which Samoa is weening itself off carbon fuels such as diesel to take advantage of its plentiful supplies of sun and wind. Samoa is aiming to generate 100 percent of its electricity from renewable sources.

The consultant also helped find other potential donors for the projects, winning interest from the Carbon War Room, the Clinton Foundation, and the NAMA Facility too.

FACTBOX – PACIFIC – CLIMATE CHANGE

The 15 Pacific nations of the ACP Group include countries that are among the world's most vulnerable to the effects of climate change. Here are some more facts about Pacific nations in the ACP Group.

- The 15 nations are Fiji, the Cook Islands, Kiribati, the Marshall Islands, the Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Timor Leste, Tonga, Tuvalu, and Vanuatu.
- Without Papua New Guinea and Timor Leste, the other Pacific nations have a combined population of about 2.3 million people, scattered across an area equivalent to

15 percent of the globe's surface.

- Papua New Guinea is the most populated nation with a population of 8 million. Niue has less than 2,000 people.
- Kiribati is one of the most remote and geographically dispersed countries in the world, consisting of 33 coral atolls spread over 3.5 million square kilometres of ocean, an area larger than India.
- According to the World Risk Report, five Pacific countries are among the top 20 countries most at risk in the world, measured by the highest average annual disaster losses as a proportion of GDP.

- In 2015, Pacific Island leaders issued the Suva Declaration, a call for firmer action on climate change. The Declaration said 2°C warming was "no longer safe for the survival of our Pacific Small Island Developing States".
- Some 1,700 residents of Papua New Guinea have been named the world's first environmental refugees.
- Extreme weather conditions have forced more than 20,000 Marshallese climate refugees to emigrate to the US.

Sources: World Bank, Reuters, COP23



6. TANZANIA – FORESTS



Better known perhaps for its beaches and spices, the Tanzanian island of Pemba has earned a reputation for its reforestation too.

Roughly 50km from the Tanzanian mainland and part of Tanzania's Zanzibar archipelago, Pemba once suffered from massive deforestation. But a successful reforestation project has brought the island back on track.

In fact, the project has been so successful that, in 2014, the Intra-ACP GCCA Programme funded two consultants to produce a website, training videos, and documentary so that others could learn from this example.

"The clay stoves alone have had a huge impact," said Craig Norris, the filmmaker who spent over two months documenting the islanders' efforts, referring to fuel-efficient stoves that reduce the pressure on forests.

"They're twice as efficient as open-pit fires and that means less trees need to

be cut for firewood," he said. "It also gives replanting programmes a chance to take root."

The educational films have helped spread the word about best practices in land care, agroforestry, kitchen gardening, plant nursery development, apiary care, and even how to build clay stoves and sturdy housing with earth blocks.

Pemba's reforestation began when Mbarouk Mussa Omar from Pemba visited the nearby (and much smaller) island of Kokota. He was shocked at the deforestation and decided to take action on Pemba.

In 2007, he rallied community support and – with the support of a young Canadian, Jeff Schnurr – started a small-scale tree nursery. Communities began to collect seeds from nearby forests.

The seeds were sprouted in nurseries, built in the centre of each participating village. These nurseries became community centres, serving as a place

for women to meet, weave baskets, share news, and grow trees. Over the years, communities trained each other, shared best practices, swapped seeds, and even shared seedlings when pests or disease destroyed neighbouring nurseries.

Since 2007, over one million trees have been planted for fruit, timber, and conservation.

"We have also planted because we want our children to know these trees," says Farma Rashid Seif, a community member and tree planter.





7. GHANA - BIOGAS

GHANA SWAPS BURNING WOOD FOR BIOGAS

At the African Regent Hotel in Ghana's capital, Accra, toilet effluent is producing valuable gas for the hotel kitchen. Stored in a storage balloon, the biogas travels through a pipe to the kitchen, substituting normal cooking gas.

Biogas – the gas that comes from organic waste – is a clean, safe, and decentralised way to generate energy for cooking. It reduces deforestation and brings a multitude of other benefits including better sanitation, safer cooking, and better health.

By 2014, Ghana had begun to tap into the biogas opportunity, with an estimated 400 biogas installations. But it wanted to increase its renewable energy generation.

The Intra-ACP GCCA programme funded a consultant to work with the Energy Commission of Ghana (GEC), conducting a feasibility study. The consultant also helped establish institutional biogas systems in 200 boarding schools, hospitals, and prisons.

"Based on the individual discussions with stakeholders and the two well attended stakeholder consultation workshops, it seems there is an urge felt by all stakeholders to take institutional biogas for sanitation a step forward," the feasibility study said.

"The anticipated 200 systems should kick-start the development of the biogas market in Ghana."

The feasibility study looked at private companies in Ghana, noting their expertise in building biogas installations and noted that the development of a market for biogas installations could generate many local jobs.

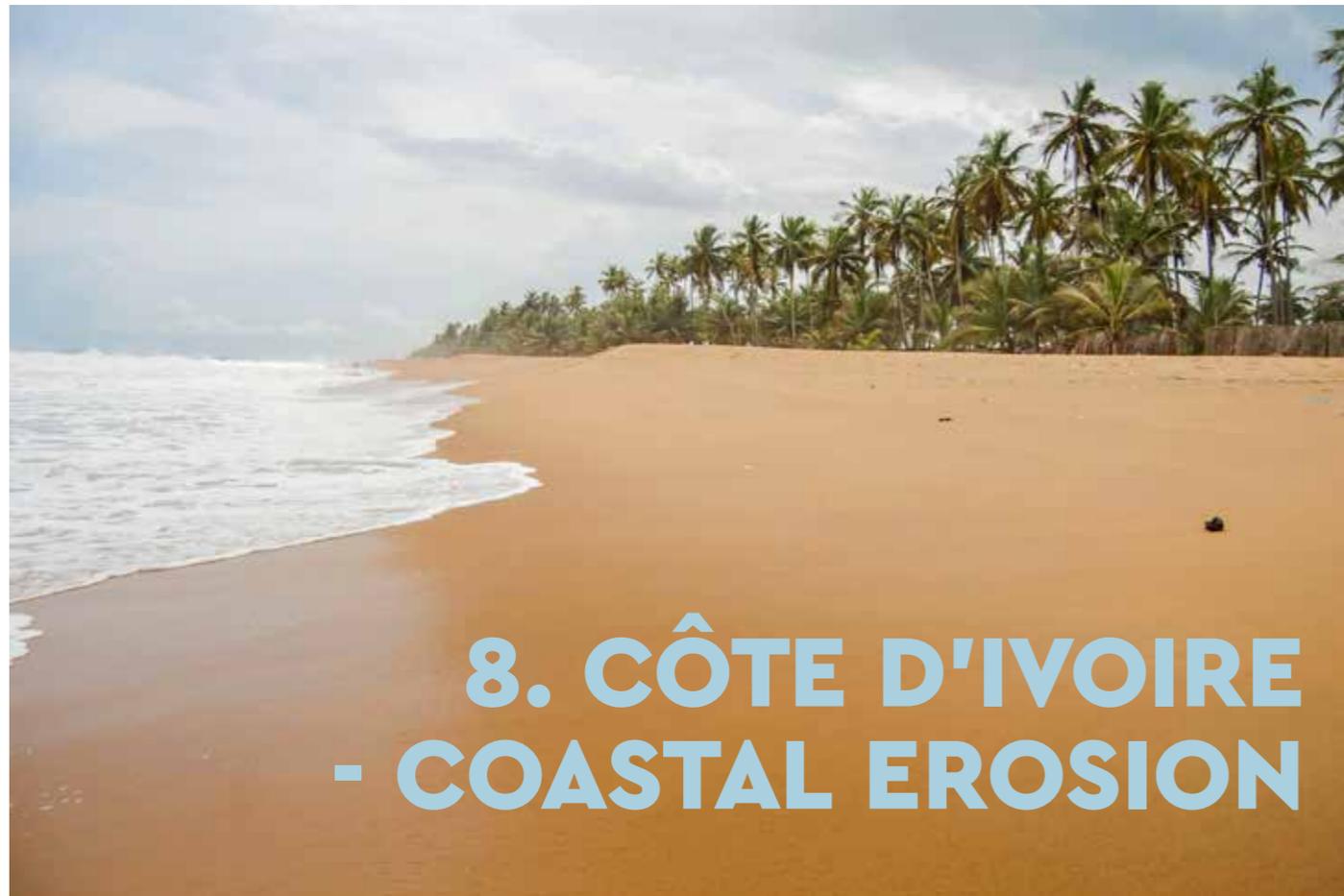
Interest rates and access to finance have a huge influence on the economic viability of biogas digester systems, but the socio-economic and environmental benefits of institutional biogas for society outweigh the costs by far, the report said.

"The direct involvement of government and state institutions is an im-

portant success factor," it added.

Biogas also saves lives through safer cooking. The pollution from indoor cooking kills an estimated 1.6 million people each year, more than malaria. In a house with open fire, the level of small particles in the air is 3060 µg/m³, much more than the EU's recommended maximum of 40 µg/m³.

In Ghana, cookstoves and dirty fuels kill about 13,400 people each year.



8. CÔTE D'IVOIRE - COASTAL EROSION

CÔTE D'IVOIRE LOOKS TO PROTECT ITS ERODING COASTLINE

Away from the urban centres, Côte d'Ivoire's coastline, one of the longest in the region, is a rich mix of forests, lakes, cocoa plantations, rubber, palm oil, pineapple, and palm-lined, sandy beaches, perfect for tourism.

But all this is under threat. Climate change and rising sea levels are exacerbating coastal erosion, which affects two thirds of the coastline. The coastline is retreating about seven metres per year.

"Last week, the ocean took away part of my house while my family was sleeping inside," a 32-year-old fisherman told journalists.

"When the big waves come, they can easily kill you."

The Intra-ACP GCCA Programme financed two consultants to visit coastal regions, work with government departments and hold a workshop in August 2012.

The consultants travelled along the coast, visiting coastal erosion and fishermen in the region, then organised a workshop in Abidjan.

Workshop participants – which included 22 participants from government and civil society – ranked the top problems as rising sea levels, loss of mangroves, increased temperatures, changing ecology, and aggressive erosion.

Besides coastal erosion, Côte d'Ivoire and other West African countries also face the threat of increased flooding, caused by storm surges and intense rainstorms.

By sharing knowledge and understanding, the workshop helped build political consensus in the country for action on coastal erosion. In April 2018, the World Bank approved a regional project to boost the resilience of coastal communities in six countries of West Africa.

FACTBOX – WEST AFRICA – COASTAL EROSION

Climate change is set to affect coastal populations in West Africa, especially the poor, whose already precarious livelihoods depend on the quality and quantity of natural resources. Here are some more facts about the West African coastline.

- The West African coastline includes 17 countries and stretches from Mauritania to Gabon. Eight of these countries have a GDP per capita of less than US\$1,000, ranking among the lowest in the world.
- Many of these countries have gone through conflict or political

and social unrest in the past decade. In 2014–2015, Liberia, Sierra Leone, and Guinea suffered the worst Ebola epidemic in history.

- West African economies have been growing steadily, but they continue to depend heavily on natural resources such as fisheries, fossil fuel, minerals, and timber.
- West Africa's coastal areas account for 42 percent of the region's GDP, almost one third of the region's population.
- Every year, an average 500,000 people in the region are threat-

ened by floods and aggravated coastal erosion. Economic losses have been estimated to be about 2.3 percent of Togo's GDP in 2013 and 3.2 percent of Mauritania's GDP in 2014.

- The West African coastline is also susceptible to increased flooding caused by storm surges and intense rainstorms.
- Degradation of coastal resources and ecosystems is accelerating due to increasing population pressure on the coast, demand for resources, unplanned coastal development, and climate change.

Source: World Bank



9. CARIBBEAN – NDC PREPARATION



CARIBBEAN COUNTRIES REDUCE THEIR CARBON EMISSIONS

Caribbean island states have tiny carbon footprints when compared to larger, more industrialised nations, yet they bear the brunt of climate change impacts such as rising sea levels and extreme weather events.

Despite this, COP19 in 2013 decided that all parties to the UNFCCC – even those with comparatively small carbon footprints – had to submit plans to reduce their CO₂ emissions. These plans were known as the intended nationally determined contributions (INDCs). The deadline for their submissions was COP23 in Paris in 2015.

Linked to this, the Caribbean Community Climate Change Centre (CCCCC) asked the Intra-ACP GCCA Programme to guide Caribbean states through the complex process and strengthen capacity to prepare their INDCs.

In 2015, a few months before the Paris Conference, the Intra-ACP GCCA Programme ran a workshop in the

Dominican Republic to provide technical assistance and capacity building for CARIFORUM countries to “create a common baseline of understanding and preparation of INDCs and their potential to deliver on national development aspirations”.

Belize, Cuba, Dominican Republic, Grenada, Guyana, Haiti, and St. Kitts all attended the workshop, and although four of the countries had already drawn up their INDCs, the workshop was an opportunity to revise and refine their plans.

By the end of the four-day workshop, one country – Belize – had submitted its INDC from scratch using the guidance provided, and the Belize representative commented that the workshop had inspired him to do so.

The workshop was close to the submission deadline, but participants were overwhelmingly positive. Feedback included praise for the practical approach and interactive

style. Participants said the workshop was timely, applicable and accomplished what it was intended for. The cross-fertilisation of ideas and country experiences was particularly useful.

The transition to a low carbon economy is challenging for many Caribbean governments, but doing so will enable them to reduce fuel imports, save on foreign exchange and promote the use of sustainable energy.

FACT BOX – CARIBBEAN – CLIMATE CHANGE

Caribbean states have some of the world's lowest greenhouse gas emissions, but are among the world's countries most vulnerable to the impacts of climate change. Here are some more facts about climate change in the Caribbean region.

- If current trends continue, the Caribbean region could warm a further 2–3°C this century, more than the 1°C already seen in the last century.
- Annual rainfall in the region could decrease by up to 40 percent, posing a significant challenge to already water stressed islands.
- Caribbean sea levels could rise by one to two metres, far exceeding the rise already recorded.
- In 2017, Hurricane Irma caused US\$14.8 billion in damage and killed more than 40 people as it swept

across Barbuda, British Virgin Islands, Turks and Caicos Islands, Anguilla, St. Maarten, and St. Barts. It significantly damaged the Bahamas and Haiti, and affected St. Kitts and Nevis.

- Most small islands are heavily dependent on imported fossil fuels for the majority of their energy requirements, particularly transport and electricity production. In the Caribbean, petroleum imports are responsible for more than 75 percent of primary energy demand.
- Fossil fuels account for an average of 15 percent of all imports to Caribbean countries.
- 33 percent of all households in Barbados use solar water heaters.
- 75 percent of electricity on Guadeloupe is generated from wind power.

Sources: IPCC



10. CARIBBEAN – ECOSYSTEMS

Climate change impacts on the Caribbean region include rising sea levels, extreme weather events, unpredictable rainfall and food insecurity. Small island nations in the region can use natural ecosystems to increase their resilience and adaptation.

Mangroves, for example, act as a barrier between the sea and land, helping to mitigate the impact of storm surges and rising sea levels. However, many of the Caribbean region's mangrove forests have been degraded or cut for coastal development. This damage makes coastlines more vulnerable to flooding and erosion.

In 2016, the Organisation of Eastern Caribbean States (OECS) requested the Intra-ACP GCCA Programme to train instructors in disaster and environmental management. The aim was to build capacity for eco-based disaster risk reduction and climate change adaptation (DDR/CCA).

The four-day 'train the trainer' workshop trained 36 instructors from 10 OECS countries, identifying and analysing the links between ecosystems, disaster risk reduction, resilience and climate change. It also looked at mainstreaming eco-based DDR/CCA into development policies, plans and strategies. Participants included engineers, fisheries managers and NGO workers.

"The fact that different departments and job functions were represented, not just different island nations, added greatly to the richness of the discussion and experiences that were exchanged," the trainers said in their mission report.

The workshop was held on the island of Dominica, which had been hit by Hurricane Erika in 2015. In less than 48 hours, more than 200 mm of rain had fallen across the entire island. The heavy rains caused catastrophic flash flooding and mudslides which killed

more than 30 people. The storm also made nearly 900 homeless and caused US\$482.8 million of damage. On the workshop's fourth day, participants visited some of the worst impacted areas.

The workshop was designed to be as interactive and 'real world' as possible. Each participant had to prepare a case study, including a risk-hazard map based on the real life challenges of their own island nations. Each participant identified at least one opportunity that could benefit from an eco-DRR/CCA approach in their own country, some of which were proposed to decision-makers when they returned home.

FACTBOX – CARIBBEAN – CLIMATE CHANGE

The Caribbean region is one of the world's most vulnerable regions to climate change, but nature and ecosystems may help to protect these small island nations from the worst impacts of climate change. Here are some facts about ecosystems and the ways that they could help to protect Caribbean nations.

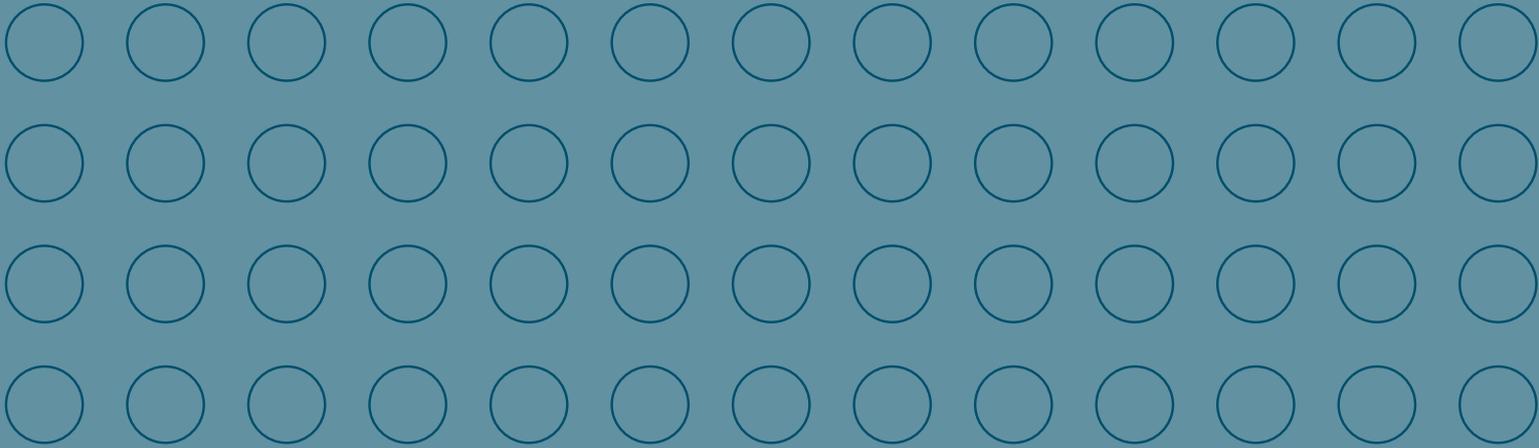
- Climate change impacts such as sea level rise are projected to cost the Caribbean region US\$187 billion by 2080.
- Coral reef and mangrove revival in Barbados could reduce the potential damage from climate change-related losses by 35 percent. In Jamaica, coral reefs and sea grasses were found to provide

up to 40 percent shoreline protection against storm surges and beach erosion.

- A healthy reef reduces wave energy by up to 97 percent, and just 100 meters of mangroves can reduce wave height by 66 percent.
- The cost-benefit ratio of return on investment of appropriate restoration of ecosystems may be as high as 3:75, depending on the ecosystem context and the measures taken.
- The most important coastal ecosystems for mitigating the consequences of climate change in the Caribbean are mangrove forests, seagrass meadows and coral reefs.

Sources: IFRC / ReliefWeb, Convention on Biological Diversity, UNEP





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