



COUNTRY BRIEF

Vanuatu



Coping with Climate Change in the Pacific Island Region

The challenge

Vanuatu, an archipelago of 80 volcanic islands in the southwest Pacific, is a country extremely vulnerable to climate change and natural hazard risks. Its ~250,000 inhabitants are largely dependent on subsistence rain-fed agriculture. A growing population, combined with increasing climate variability, reduces agricultural outputs, undermining traditionally resilient food security systems. Marine ecosystems, including fragile coral reefs, are projected to suffer severe degradation from multiple threats, including ocean acidification, thermal stress and cyclone damage. With over half of the population fully dependent on rainfall for drinking water, current and projected rainfall fluctuation is cause for serious concern. Coastal erosion, due to a myriad of factors, including warming-induced sea-level rise, leads to trickle-down impacts on infrastructure, market access and economic resilience for the entire population. Added to the risks posed by Vanuatu's geological events, including earthquakes, volcanic eruptions, tsunamis, and landslides, it is not surprising that the United Nation's World Risk Report has twice ranked Vanuatu the world's most vulnerable country. Every sector on every island has already been negatively affected and the impacts are increasing.

The programme

The SPC/GIZ Coping with Climate Change in the Pacific Island Region (CCCPIR) programme aims to strengthen the capacity of 12 Pacific Island countries and Timor Leste to cope with the current and anticipated impacts of climate change. The programme, which began in 2009, is also working to enhance the capacity of Pacific regional organisations to support Pacific Island countries in this regard.

CCCPIR works in the following areas:

- 1) strengthening regional advisory and management capacity;
- 2) mainstreaming climate consideration and adaptation strategies;
- 3) implementing adaptation and mitigation measures;
- 4) sustainable tourism and climate change;
- 5) sustainable energy management; and
- 6) climate change education.

In Vanuatu, work has progressed in all six areas. CCCPIR provided support to the Government to establish Vanuatu's National Advisory Board (NAB) on Climate Change and Disaster Risk Reduction, chaired by the Directors General of the Ministry of Climate Change and the Prime Minister's Office and the NAB steers the overall programme. Working across multiple sectors, including agriculture, education, forestry, livestock, land and environment, the programme supports the evolving climate adaptation priorities of the Government of Vanuatu and its people at the grass roots and provincial levels.



Solar fruit dryers, provided to communities on 15 islands, are helping boosting food security and supplement income

Mainstreaming climate risks into national and provincial policy

CCCPIR has supported the government to review and mainstream climate change risks into a number of policy processes including the National Forest Policy, Overarching Productive Sector Policy, the National Land Use Planning Policy, the National Environment Policy, The National Livestock Policy, the National Agriculture Sector Policy, The National Environmental Management Strategy and the Vanuatu Energy Roadmap.

The result of the mainstreaming work to date is that most sector policies now have a coherent resilience focus towards sustainable development, leading to a greater consistency in adaptation approaches and investments. In sectors where CCCPIR has supported policy mainstreaming, there is a now clear pathway towards climate resilient development.

CCCPIR has also supported the development of the National Climate Change and Disaster Risk Reduction Policy and, most recently, the highest level National Sustainable Development Plan. Rather than making climate change a stand-alone issue, CCCPIR has supported the Government of Vanuatu to ensure that climate change is integrated holistically into sustainable development. The result of CCCPIR's interventions has simplified the prioritization in adaptation, ensuring that the most pressing issues are addressed at the highest level. For example, the NSDP emphasizes the tradeoffs that are required to balance the often contradictory goals of economic and climate resilient development.

Key results

ADAPTATION MEASURES

Solar drying boosts food security and supplements income

The islands of Vanuatu are graced with abundant tropical fruit trees; so many in fact that each season sees fruit rotting on the ground, especially if an extreme weather event causes early flowering. CCCPIR, in partnership with the private sector, the Department of Trade and Industry, and the Food and Agriculture Organization of the United Nations, introduced inexpensive and locally constructed solar fruit dryers to communities in over 15 islands around the archipelago. The dryers are bed-like structures, in which warm air moves over thinly sliced food, removing the moisture and thus preserving it. These dried products can last up to 18 months. CCCPIR provides training and capacity building to women's groups and communities on how to preserve, store and even market a range of products, including fish, meat, nuts, vegetables and fruits.

The solar dryer functions as a dual food security and income-generating activity. Tropical cyclones can destroy entire harvests of vulnerable staple crops, such as banana, manioc and island cabbage as demonstrated recently by tropical Cyclone Pam in March 2015, but villagers can now preserve surplus food until it is needed for emergency consumption, making solar drying a successful climate change adaptation strategy. Of the hundreds of women trained and supported in solar food preservation, a great many were able to quickly recover from Cyclone Pam without substantial reliance on imported foods. Additionally, with dried fruit products being in high demand by the tourism industry, many households now have a sustainable



Food preserved in the solar dryer keeps for up to 18 months

income. Especially beneficial and popular among community women's groups, the solar dryer builds on traditional food preservation knowledge and roles within the ni-Vanuatu society. Since women have traditional roles around food preparation and family nutrition, the CCCPIR program found fertile ground among village women and girls within the gender-focused solar dryer training programs.

“The people here suffer from so many impacts of climate change already, and now we are finally able to preserve and store our fruits, fish and nuts in preparation for when the ship will arrive. We need more programmes like this to give us the chance to reduce the risks we face and also develop our communities into the future.”

– Mr Shepa Wilson,
Provincial Area Secretary on Buniga Island

TOURISM

Tourism activity promotes climate resilient reefs

CCCPIR, in partnership with the island-based Nguna-Pele Marine and Land Protected Area Network, refined and implemented a coral reef climate change adaptation project focused on coral gardening for tourism. Specially built coral beds were strategically placed near popular tourism snorkelling areas and 'planted' with fragments of climate-resilient coral. Overseas visitors are invited to join in this planting activity, which gives them a sense of contributing to a local development issue. At the same time, they learn first hand about the impacts of climate change on Vanuatu's coral reefs. While coral gardening will never be able to rehabilitate an entire reef area, learning about coral sensitivity and growth challenges has been invaluable for encouraging more comprehensive coastal management among indigenous communities. Since 2013, CCCPIR has partnered with local tour operators to upscale and promote the coral gardening activity to incoming international visitors, giving them an opportunity to proactively contribute to adaptation during their stay. Through this activity, it was found that many international visitors feel responsible for climate impacts occurring in the Pacific and are open and willing to participate in adaptation provided these opportunities are available and marketed in a visitor-friendly way by local communities.



Divers plant pieces of coral reef on specially-built beds near Pele Island as part of a climate adaptation project that focuses on gardening climate resilient coral species for tourism

“Tourists will be able to snorkel with us to find the climate resistant coral pieces and fasten them on the underwater gardening beds. In exchange for a financial sponsorship to the community, they will have a little piece of living coral reef here in Vanuatu to remember forever.”

– Willie Kenneth, community leader on Pele Island

CASE STUDY

Pigs cross-bred on Pele Island to improve production

Pigs hold both cultural and economic significance for ni-Vanuatu families; they are exchanged to promote cultural alliances, eaten at special celebrations; and sold for much-needed income. According to the National Agricultural Census, the average rural household in Vanuatu has five pigs. Recently, pig farmers have been experiencing a decline in production for a variety of reasons, including climate-related impacts. Drought conditions associated with El Niño have caused shortages of pig feed and reduced water availability. Heat stress reduces pigs' appetites, restricting their growth and propensity to reproduce. Increasing temperatures also lead to reduced plant and grass cover, threatening the pigs' primary food sources.

To address the impacts of climate change on Vanuatu's pigs, the Government of Vanuatu and the CCCPIR programme initiated a pilot site on Pele Island to examine technologies that might promote pig adaptation. The first trial was in selective breeding. Wild 'local' pigs have proven to be the most hardy and climate tolerant, but tend to be small and bear small litters, while imported European large-white are typically larger, but less climate resilient. In the Pele trials, different varieties are cross-bred to obtain the most desirable characteristics for local farmers. The genetic-selection activities are intended to demonstrate to farmers the possibility of incorporating climate resilience into their breeding decision-making.

Many pigs in Vanuatu are now left to roam freely and scavenge for food. Feral pigs cause substantial environmental damage, as they commonly ransack food gardens. While enclosing pigs may prevent crop damage, it potentially exposes pigs to climate stress. If enclosures are not shaded or ventilated, pigs are more likely to suffer stress from heat, rain, wind and cold. To help deal with this on Pele Island, CCCPIR designed and constructed a roofed enclosure using both traditional and modern materials. This promoted the resilience of pigs to climate stress. Compared with control pigs in open enclosures, the sheltered pigs consumed substantially more feed and maintained higher levels of productivity.

The food eaten by local pigs is most often composed of



Breeding trials and roofed enclosures are being used on Pele Island to promote the resilience of pigs to climate stress

coconuts, grass and leaves, which are abundant in the villages but extremely vulnerable (e.g. to cyclone damage). To ensure a continuous supply of food, CCCPIR introduced a mixed feed system of grass, leaves, taro, banana, manioc, sweet potato, coconuts, silage, and farmed tilapia for the Pele Island pigs. The new feeding regime preserves and stores locally available feed products so that disruptions to food supply are avoided and production maintained, even during climatic extreme events.

What we learned

The importance of shared and communal work

Pig farming is a labour-intensive endeavour that requires hard work and diligence. Responsibility for feeding, watering and maintaining the pigs' habitat should be shared amongst many individuals in the community so the burden does not fall upon only one family. This practice is in line with traditional practices of communal pig husbandry.

Economics are an essential consideration

For adaptation to be successful, local people must see an economic benefit from the hard work they are putting into climate adaptation. Initiatives without a financial benefit (e.g.

the ability to sell excess preserved fruit) results in lowered motivation and outcomes. Adaptation must not be approached as an additional time consumer, but rather as an integral part of existing livelihood activities.

Traditional and local government buy-in is essential

Strong governance systems are essential to overcome challenges as the smallest of issues can result in failure. Working in partnership with the Pele Island Council of Chiefs and the Nguna-Pele Provincial Area Council simultaneously on the implementation of technical adaptation projects reinforced the important role of these governance structures and has enabled successful resolutions to challenges as they arose.

EDUCATION

From theory to practice: climate quiz winners' coastal rehabilitation

In 2014 secondary schools in Vanuatu held their third annual Climate Zone Quiz with support from CCCPIR, SPC and over 18 additional partners. All interested secondary schools in Vanuatu were supplied with study material on climate change, including science, impacts, mitigation, adaptation and gender aspects. Four students from each school sat a written examination based on this material. The highest-scoring school in each province was invited to participate in the final competition in Port Vila. Local experts submitted questions about climate change and, in a game show format, the students did their best to answer. The quiz was videotaped and broadcast nationally on Television Blong Vanuatu, thus exposing a broad audience to climate change knowledge. DVDs were later sent to rural islands without television reception to disseminate awareness to these remote communities. To help them apply the knowledge they gained, students from the winning school were given USD 5,000 to design and implement a climate change adaptation project. SPC-GIZ is currently helping the students of Malapoa College implement their coastal rehabilitation project that was a direct outcome of the Climate Zone Quiz. Malapoa students were given the opportunity to work alongside community leaders, traditional landowners, and government technical experts to address the root causes of coastal erosion. CCCPIR found that the creativity and ideas of secondary students can be harnessed to drive a new localized approach to adaptation, emphasizing the involvement of the nation's future leaders.

ADAPTATION

Traditional meets modern for climate forecasting

The people of Vanuatu have been predicting weather events, adapting to changes in climate and experimenting with agricultural techniques since first arriving on the archipelago thousands of years ago. As Vanuatu modernises, it is imperative that traditional knowledge is preserved. The Vanuatu Cultural Centre, the Red Cross, CCCPIR and the Vanuatu Meteorology and Geohazards Department have collaborated to document indigenous knowledge on the climate-related behaviour of plants and animals and traditional meteorological indicators, such as wind direction and strength. The intention of the programme is to revitalise and validate the wealth of traditional knowledge that may facilitate adaptation to climate change. The collection of traditional climate knowledge from over 70 sites throughout Vanuatu is housed in a publically accessible database. Where possible, modern climate forecasting is comparing and strengthening its projections with traditional knowledge. This innovative CCCPIR project seeks to fully integrate traditional knowledge of weather and climate forecasts, disaster risk reduction and climate change adaptation strategies with modern scientific methods and applications, thus creating a hybridised and more locally appropriate forecasting system. In practice, the TK indicators program is a way to validate traditional forecasts done by customary weather leaders with those forecasts released by the national meteorology service, thereby empowering and revitalizing traditional knowledge.



An innovative national quiz, which airs on national television, is motivating secondary school students to learn about all aspects of climate change

A new resource for schools and communities

The CCCPIR programme worked alongside the Vanuatu Rural Training Development Centres Association (VRDTCA), SPC's Centre for Education, Training and Communication, and local experts to develop a draft set of seven modules on Climate Change and Disaster Risk Reduction to be rolled out as a mandatory course in all the rural training centres in the country. Alongside the Government of Vanuatu and the Pacific-Australia Climate Change Science and Adaptation Planning programme, CCCPIR developed and launched *Learning about climate change the Pacific way: A visual guide*, a picture-based education resource based on nationally prioritised key messages and learning outcomes. The resource has been distributed to all schools and helps teachers to convey key messages and achieve learning outcomes on climate change using the attractive, culturally relevant pictures, illustrations and cartoons that are more user-friendly than scientific texts and graphs. From trials undertaken in a range of rural training centres, communities have provided feedback that this course is of particular value as it addresses real-life and practical strategies and steps that rural individuals can take in the face of intensifying climate and disaster impacts.

ENERGY

Sustainable energy management

In 2013, in collaboration with the Department of Energy, Mines and Mineral Resources and the Vanuatu Meteorology and Geohazards Department, CCCPIR supported an energy survey that reached 1200 households in Port Vila and Luganville. The results of this assessment, led to a major investment by the Asian Development Bank to convert households to more efficient lighting. Installations at a number of government buildings were made to enable accurate impact assessment in terms of electricity savings and CO2 emissions reductions. Additionally, SPC-GIZ partnered with the government to complete a preliminary survey of potential solar PV installation sites at various public buildings around Port Vila, finish a solar energy feasibility study for the Meteo Building, and submit a successful renewable energy project proposal to the United Arab Emirates Pacific Partnership Fund, the construction of which is now underway at the Ministry of Climate Change and new Parliament House. CCCPIR learned that by making investment attractive to the private sector, through targeted technical studies, financial support for renewable energy and energy efficiency is available and easily accessible.

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