



Coping with Climate Change in the Pacific Island Region (CCCPIR)

Climate Resilient Agricultural Crops and Farming Systems Teouma, Efate Island, Vanuatu

Project facts CCCPIR

Funding sources: Federal Republic of Germany through the Federal Ministry for Economic Cooperation and Development (BMZ)

Regional partners: SPC, SPREP and USP

Countries: Federated States of Micronesia, Fiji Islands, Marshall Islands, Nauru, Kiribati, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu

Duration: January 2009-December 2015



Climate Change in the Pacific

Pacific Island Countries (PICs) are already experiencing the negative impacts of climate change, especially as these countries are of the most vulnerable to environmental hazards and often have insufficient adaptation resources. Sea-level rise, changes in precipitation patterns and rising temperatures are causing secondary impacts of coastal erosion, salt water intrusion, cyclone damage, pest and disease outbreaks, water insecurity and declining agricultural production.

The 'Coping with Climate Change in the Pacific Island Region (CCCP-IR)' programme aims to strengthen the capacities of Pacific member countries and regional organisations to cope with the impacts of climate change. The programme is funded by the Government of the Federal Republic of Germany through the Federal Ministry for Economic Cooperation and Development (BMZ) and implemented through GIZ working in partnership with SPC and SPREP. At the regional level, the project aligns with the Pacific Island Framework for Action on Climate Change 2006-2015 (PIFACC) and at the national level with the Priority Action Agenda (PAA).



Climate change and its impact on Vanuatu Communities

The village of Teouma on the Island of Efate, one of the SPC-GIZ pilot sites is experiencing crop failure due to increasing temperatures and changes in precipitation.

The community of Teouma has requested the support of this program to better understand climate impacts on their lives and find innovative strategies to secure the future development of their community.



Agriculture in Vanuatu

According to the 2009 population census, 76% (176,816 people) of Vanuatu's population are based in rural areas and practice traditional agriculture to provide for their dietary needs and income.

Traditionally, root crops (yam, taro, manioc, sweet potato and plantains) are a fundamental part of Ni-Vanuatu diets and have been for the past 2,000 years. These foods are generally used because of their ability to withstand weather extremes, pests and other destructive situations, but there are still challenges being faced today.

Increased consumption of imported foods and population growth have resulted in a decrease in the cultivation of these crops and therefore, some methods of production that were used in the past to deal with climate extremes have been lost. As climate and weather patterns change, the food security of Vanuatu is increasingly vulnerable.

The Asian Development Bank reports that "*With projected temperature increases, heat tolerance thresholds to crops are being reached which induces heat stress, wilting and crop failure. Subsistence crop production is falling as a result and in turn threatens food security.*" Changes to rainfall in Vanuatu are impacting agricultural production, in addition to future projections of

- decreasing overall precipitation
- extreme rainfalls during storm events
- increased evaporation and
- more pronounced dry seasons.





These changes influence agricultural planting, maintenance and harvesting methods, as well as the production capability of agricultural systems. Intense rainfall events during planting seasons damage seedlings, water-log soils, reduce growth and provide conditions that promote the development of plant pathogens, pests and diseases.

The SPC-GIZ program is working with Vanuatu's Department of Agriculture and Rural Development to test and trial specific adaptation methodologies in farming communities. On Efate, SPC-GIZ has initiated pilot activities in the Teouma Community. At the end of this project, farmers in the Teouma Pilot Site should have increased understanding of:

- climate change predictions and forecasts
- climate change impacts on agriculture
- weather patterns and their impact on agriculture (agrometeo training)
- techniques to improve soil fertility
- techniques to improve agriculture production in times of heavy rain and drought
- methods to identify resilient crop varieties for continuous planting
- techniques to minimize wind damage to crops
- techniques to rapidly propagate and multiply resistant varieties
- agriculture business management (farming as a business training module)

The program is currently focusing on the identification of varieties of kumala, cabbage and yam that respond well to local climate change impacts, as well as alley cropping farming practices for climate resilience

Hands-on, sustainable projects

The people and community of Teouma are leading the way in the use of innovative agricultural practices for adaptation.

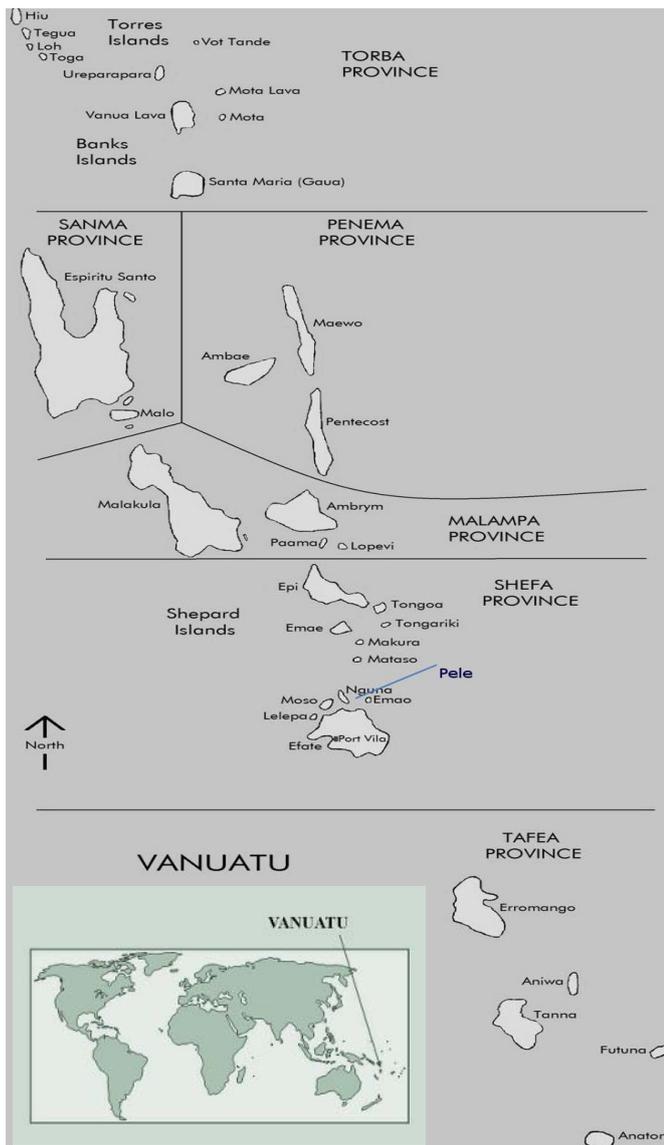
One farming system for adaptation is alley cropping. Gliricidia trees are intercropped with dwarf beans followed by root crops in the second rotation. Trial plots are cultivated with different techniques for comparison e.g. with/without weeding, with/without mulching, soil nutrient improvement etc. to establish best practice conditions for growth, quantity, quality and climate tolerance. The trees provide protection from extreme wind events, reduce soil temperature and sun exposure, and also help to keep the roots moist. This is in addition to the normal benefits of using leguminous Gliricidia as a soil enriching plant.

One of the staple diets of Ni-Vanuatu people is island cabbage but this crop often fails first with heavy rain and drought events. The community in Teouma is working to establish the most hardy and productive local varieties to withstand extreme rainfall, drought and heat by on-farm testing 30+ different types of island cabbage and monitoring their growth and productivity.

Research by VARTC (Vanuatu Agricultural Research & Training Centre) on Santo has led to new varieties of yam and kumala that are now trialled in Teouma to identify climate change resilient varieties suitable for the local area.

20+ different kumala species from different areas of Vanuatu have been planted to establish the most suitable one for local climatic conditions and extreme events.





GIZ is a federally-owned enterprise that supports the German government in the field of international development cooperation. For more than 30 years, GIZ has been cooperating with Pacific Island partners in strengthening the capacity of people and institutions to improve the lives of Pacific Island communities for this generation and generations to come. GIZ is an implementing agency providing support through technical cooperation with partners to balance economic, social and ecological interests through multi-stakeholder dialogue, participation and collaboration.

SPC/GIZ Coping with Climate Change in the Pacific Island Region (CCCPiR)

PO Box 306
 Port Vila
 Vanuatu
 phone: +678 555 2187 / 29594
 E-Mail: Christopher.Bartlett@giz.de

