

PAPUA NEW GUINEA

PACC Country Brief

Pacific Adaptation to Climate Change



Design underground irrigation systems to help PNG adapt to current and future drought

The Pacific Adaptation to Climate Change (PACC) project is supporting the integration of climate change risks into policy frameworks and the implementation of community-based adaptation measures in 14 countries throughout the Pacific. These actions are intended to increase resilience in three key development sectors: water resource management, coastal zone management, and food production and food security.

In Papua New Guinea (PNG), a small island nation located in the south-western Pacific Ocean, the PACC project focuses on enhancing food production and food security, particularly to overcome the effects of drought.

Issues

The climate and weather pattern of PNG is heavily influenced by El Nino and La Nina. In recent times, surface temperature has increased and current weather patterns seem to be reversed: drier regions are now wetter and wet areas drier. Warmer temperatures are ascending into the PNG highlands. As a result of these warmer temperatures, malaria has crept into the lower regions of the highland, a trend that will likely ascend into higher altitudes as temperatures continue to increase.



A young woman from Kivori Poe doing her gardening in a drought situation. On average, Kivori experiences droughts 6 months of the year.

PNG has experienced at least 13 severe droughts over the last 120 years, and in almost all cases, the lowland areas of Central Province as well as communities in Milne Bay, Morobe, and Madang were seriously affected by drought.

In 1997-98 up to one million people across PNG were affected by the severity and extent of the drought conditions and subsequent food shortages. Increased periods of drought in the highlands of PNG have had significant impacts on the economy, environment sectors and livelihoods of the majority of the population in the country. People in PNG experience domestic water shortages on

a regular basis resulting from limited rainfall. This has serious implications for the people of PNG and their community, as it affects the availability of water for consumption, agricultural production and industry.

Actions

The Government of PNG is very aware of the impacts of climate change, and is participating in the PACC project to enhance resilience to the adverse impacts of droughts. This will be accomplished by implementing a framework to integrate adaptation measures to the longer term planning and development of PNG's agriculture sector. The pilot adaptation project under PACC PNG will focus on managing underground water which is significant to assist people's food production, food security, focussing on the vulnerable Central Province where drought occurs almost every year.

The PACC PNG project is expected to enhance food production and food security, especially in the lowland dry sub-humid region of Central Province. Specifically, the project is designing practical underground irrigation networks to adapt to current and future drought situations.

Policy mainstreaming:

As part of policy mainstreaming efforts, the PACC PNG project will support the development of a drought plan for the pilot site which could be a guide for the Central Province. The drought plan will be part of the policy/regulatory framework of the National Food Security Policy. This framework aims to increase and diversify food production in order to achieve greater self-sufficiency in food and attain food security at the national and household levels by the year 2015. The PACC project will also support the development of cooperatives at the pilot site level as a tool to implement the Medium-Term Development Strategy for PNG focusing on export-driven economic growth, rural development and poverty reduction to enhance income-generating opportunities.

Country Summary

Country: Papua New Guinea

Thematic Sector:
Food production and food security

Project Funding Source:
GEF-Special Climate Change Fund

National budget allocation:
GEF-SCCF: \$800,000

Co-financing:
\$3,000,000

Programme Period:
2009-2014

Target area:
Kivori Village, Central Province

National Implementing Agent:
Department of Agriculture and Livestock, Government of PNG

National Implementing Partners: Office of Climate Change and Development (OCCD), National Weather Service, National Agricultural Research Institute (NARI), National Disaster Management Office, Department of Environment and Conservation, National Planning Office, Department of Water Resources, Department of Lands and Surveys and Department of Works.

Regional Implementing Partner: SPREP

Implementing Agency:
UNDP





Coastal erosion, drought, increasing temperatures and more frequent and highly destructive flash floods are threatening villagers livelihoods.

Community-based adaptation:

The second PACC outcome is to design and demonstrate innovative decision systems, approaches, technologies and practical measures to improve climate-resilience. For PACC PNG, necessary baseline assessments have been carried out to determine the root cause of problems the people of Kivori are facing. As one of the precursors for adaptation activities, a soil moisture assessment is being used to determine the frequency and intensity of soil moisture stresses throughout the year in the pilot site. The soil moisture assessment gives a reliable guide to determining water availability.

An overall land-use plan for the pilot area has been designed. PACC PNG efforts include trainings and demonstrations for the use of low input/low technology irrigation systems to reduce the impacts of drought on crop yields.

Grassroots efforts have been supplemented with Cost/Benefit Analysis training to help the PNG PACC Core Team better understand the costs of setting up an underground drainage and irrigation scheme for the four villages in the Kivori area, Central Province (a drought prone area). These socioeconomic trainings will be coupled with assessments of soils, elevation data, hydrology and land levelling currently being carried out. Feasibility reports are currently being developed to better understand whether an underground irrigation system will be able to work in Kivori district.



The Kivori Kui women detail how climate change is impacting their lives. Photo: PACC PNG

Assessment results will inform whether the capture and storage of rain and groundwater resources can be used for irrigation in an enhanced farming and land use techniques of soil and water conservation (e.g. mulching, organic farming, mixed cropping, drainage).



Flooding can often occur where there is no proper drainage, devastating food production. Photo: PACC PNG

Impacts

The design and use of new irrigation systems and land-use plans is expected to help PNG adapt to current and future drought situations by reducing the impacts of drought on crop yields. The project is also expected to enhance the adaptive capacity of farmers and stakeholders by strengthening their networks and information sharing, particularly on alternative cultivation practices that enhance the resilience of farming systems to drought conditions.

By increasing harvesting and storage of rain and groundwater resources (in both individual household and community storage capacities) and introducing climate resilient crop species, future disturbances in the water and food supply will be reduced. The impact of these PACC PNG efforts will improve public health, agricultural production, and industry, thereby preserving villages and livelihoods.

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