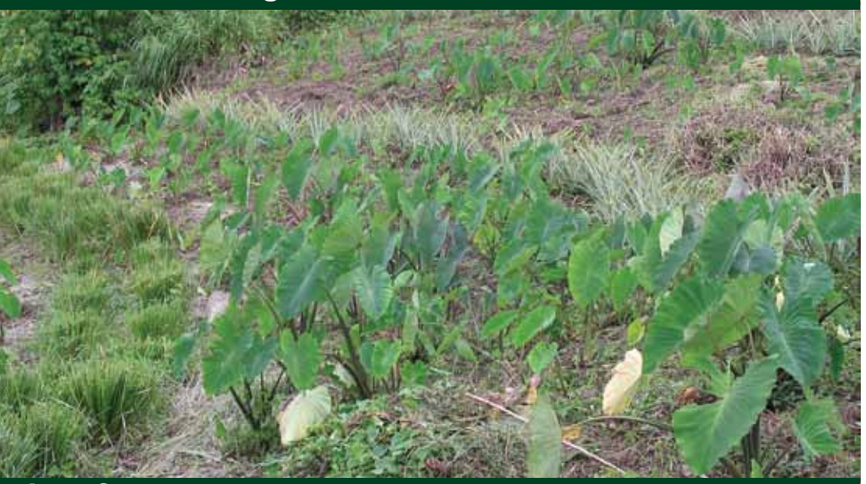
The Way Forward
SUSTAINABLE LAND MANAGEMENT

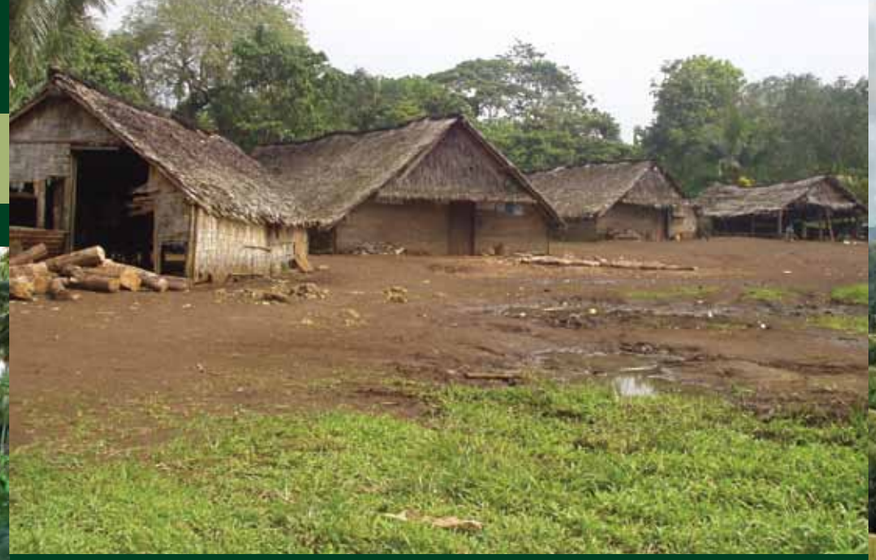
Sustainable Land Management is recognised to be an important coping mechanism to the adverse effects of climate change.

Integrated Farming System

Contour Farming



Agroforestry



SPC/GTZ Programme on Adaptation to Climate Change in the Pacific Island Region

The overall objective of the programme is to strengthen the capacities of SPC member countries to cope with the adverse effects of climate change and to avoid deforestation, with sustainable management of land based natural resources as a fundamental element.

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Growing the Pacific. Growing our future together. L'Océanie, le terreau de notre avenir.
SPC Land Resources Division

Agriculture & Climate Change in the Pacific Island Region

Agriculture in the Pacific Island Region

Agriculture is the backbone of many Pacific Island economies. It supports economic growth and livelihood of the people with significant contributions to the nation`s gross domestic product, employment sector and foreign exchange earnings. In Melanesia, more than 80% (ADB, 2008) of the population are heavily involved in agriculture and forestry for subsistence and commercial basis. Currently with continued climatic changes and its impact, this sector is struggling to cope.





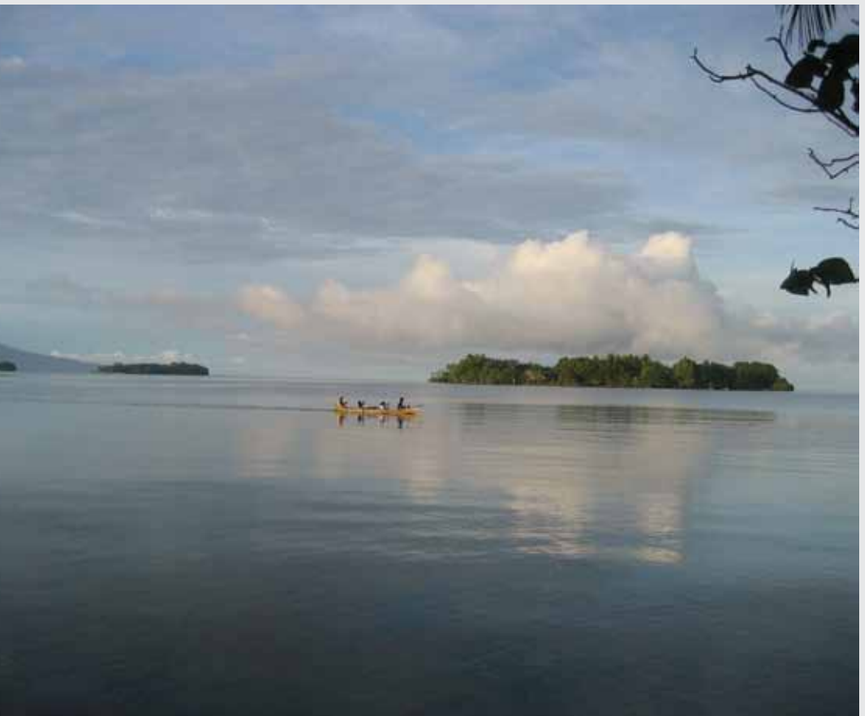



Climate Change in the Pacific Islands

The Pacific Islands are the most vulnerable to climate change due to its geographical remoteness and size. Scientists have projected that by 2100 Pacific Islands would experience:

- sea-level rise by about 0.39metres,
- surface air-temperature to increase by 2.3˚C,
- rainfall could either rise or fall with predicted impacts of –8.36% to 20.2%,
- El Nino conditions possibly occurring more frequently,
- tropical cyclones becoming more intense,
- saline intrusion into freshwater lenses,
- increased flooding

(Source: IPCC's 4th Assessment Report published in 2007)



Climate Change Impacts on Agriculture

Loss of Soil Productivity

Increased temperature and extreme rainfall pattern, alters soil structure, easily triggering erosion, and accelerating nutrient loss. Continuous coastal erosion and contamination of groundwater by saltwater intrusion will cause agricultural soils to become infertile.

Declining Agricultural Yield

Extreme weather patterns will result in production losses due to heat stress, drought conditions, water logging, increased flooding of river catchments and frequent soil erosion.

New Pests and Diseases

Changes in rainfall patterns, temperature and wind direction could result in the establishment and introduction of pests and diseases threatening production.

Desertification

This is a disturbance of dry lands as a result of both climate change and human activities. Its severity would affect main rainshadow areas of PNG, Fiji & New Caledonia

The TONGA Lapaha soil series has low productivity and sloping limitations Agricultural yield is already poor and prolonged season of drought or intense precipitation will aggravate soil productivity.

In FIJI the 1 in a 50 year flood in 2009 affected

- **70% of pawpaw orchards**
- **dalo and cassava plantations in the low-lying area of Naitasiri and Rewa**
- **80% of vegetables and pulses that immediately required re-planting**

In PAPUA NEW GUINEA incidences of malaria, late blight on potato and leaf scab on sweet potato are increasing due to warmer and moister conditions which climate model predicts (Bailey, 2009)

Water Resources

Saltwater intrusion caused by sea-level rise would eventuate in the contamination of freshwater lenses. As a result it would deteriorate the quality of water needed by agricultural plants and animals and reducing the supply of freshwater.

Erosion of Agrobiodiversity

Rapid climate change affects the traditional seasonal calenders that most farmers in the Pacific rely on. As a result, crops such as yam which is normally planted on the onset of wet season would not grow well , thus the need to look for more resilient varieties and alternative crops.

In Kiribati, Te babai (giant taro) is a traditional main staple crop that has low saltwater tolerance. Current predictions show that a 10 percent reduction in average rainfall by the year 2050 would result in a reduction in the thickness of the freshwater lens by as much as 29 percent; threatening the structure of freshwater lenses and further adding stress to the babai.

Yam (Dioscorea spp.) is one of the two main traditional food crops in Yap (Federated States of Micronesia) that shows a remarkable diversity of cultivars. It also stands as an important cultural component (offerings during funerals, weddings etc.). Yap agrobiodiversity conservation is much more than an ecological and economic issue, it is also a social and cultural issue. (Krishnapillai)

DID YOU KNOW?

The main sources of agricultural emissions are from fertilizer application, livestock, and manure management, rice cultivation and savanna burning.

In year 2000 alone, agriculture contributed 13% of total Global Greenhouse Gas emissions