Pacific Calling Partnership information sheet

Mangroves

Mangroves might look like muddy swampy places but they are a valuable part of the natural environment and they work hard to protect their shorelines and to provide resources for the people who live nearby.

Mangroves are made up of small trees and shrubs and in some places are tall trees. Most plants have a low tolerance for salt but mangroves can grow in salt water and mud and have clever ways of coping with this environment.

They grow all around the world between the latitudes of 25 degrees north and 25 degrees south. This means they grow in places such as India, Egypt, Mexico, Asia, Australia, Papua New Guinea and of course the islands of the Pacific. There are four types of mangroves in Kiribati: Te Nikababuti or White mangrove; Te Aitoa or Black mangrove; Te Bongo Buangi or Oriental mangrove and Te Tongo or Red mangrove.

Roots

Roots provide stability and support to plants. For land plants, the roots are hidden in the ground but you can see the roots of mangroves above the mud. In mangroves, the moving water and unstable mud means that plants must have an extensive root system to hold the plants upright.

Mangroves have three different types of roots with three different functions:

- Large roots with a tangle of anchor roots provide support.
- Little roots which grow up out from the main cable root feed on the rich soil just below the mud's surface.
- Aerial roots with small pores collect oxygen for the plant. These roots grow into the air and are above water level at low tide.

The mangrove's large strong woven roots make a rich environment for supporting life. They are a home for larger fish, micro-organisms and small animals such as shrimp, crabs, worms and molluscs which become food for baby fish. Once established, mangrove roots slow down water flow and protect the coast by holding the banks together.

Leaves

Mangroves grow a huge number of leaves. In the process of photosynthesis, they capture and use lots of energy from the sun and release oxygen. One of the leaves tricks is to expel salt that has made it past the roots. If you lick a leaf, you will taste the salt that the plant has excreted or if you look closely at the leaf's surface you can see where salt crystals have formed. Some plants cope with salt by concentrating it all in their bark or in older leaves that take the salt with them when they drop.

Conserving water is important for mangroves and plants have thick, waxy skins or dense hairs on their leaves to reduce the amount of water they lose. In addition, the leaves are often fat and succulent and store water in their fleshy internal tissue.

What does a mangrove do?

The whole mangrove system - its roots, branches and leaves - helps absorb wave energy during storms. They protect the shoreline. Mangroves also improve coastal water quality by filtering water, depositing silt and sand and recycling nutrients.

Mangroves provide wood for fuel and for building boats, houses and furniture. Leaves and flowers are used for plaiting and weaving. Some mangroves have fruits that can be eaten, used as a dye or made into medicine. They offer shelter and food to shell-fish, prawns and crabs; they act as fish nurseries and when leaves drop and decompose in the water they help build up nutrients in the wetland. Mangrove branches are a home for birds and shelter from the sun.

Mangrove planting

By planting new mangroves we can help protect shorelines and river banks from erosion and improve marine resources.

Mangrove seeds grow on trees to form baby plants called propagules. The propagules fall when they are ready and are moved by the tides until they take root in the mud and begin to grow. People can collect propagules from where they have fallen under a mangrove tree and plant the propagules in a suitable place for a new mangrove to grow. Plant 3 propagules together in a hole 2/3 their height.

It is important to look after young mangrove plants for about two years after planting by removing algae and barnacles from their surfaces and removing dead plants.

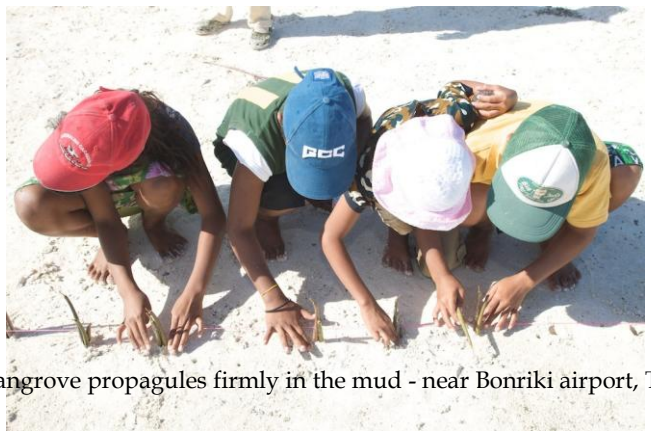
School children examining ripe propagules before planting

Planting mangroves is a natural way of protecting the shoreline. Building sea walls is another way to protect the shoreline but planting mangroves is much cheaper than building sea walls.

You do not need special tools or engineering skills to plant mangroves. Ordinary people can do it but you will need to be guided by the local authority. In Kiribati, the Ministry of Environment, Land and Agricultural Development (MELAD) will tell you where, when and how to plant new mangroves and help you obtain propagules that are ripe.

Important facts

- Some mangroves can grow to 20 metres high.
- Mangroves protect the shoreline and river banks from tidal surge and storm damage.
- Planting new mangroves stabilises the shoreline and improves fish habitats.
- Mangroves are a food source for fish, birds and people.



Planting mangrove propagules firmly in the mud - near Bonriki airport, Tarawa, Kiribati