

# Strong islands. Strong future.

## Information Kit

### Healthy coral reefs and mangroves help to protect Pacific islands from the effects of climate change.

The stronger they are, the greater the protection to your island home.

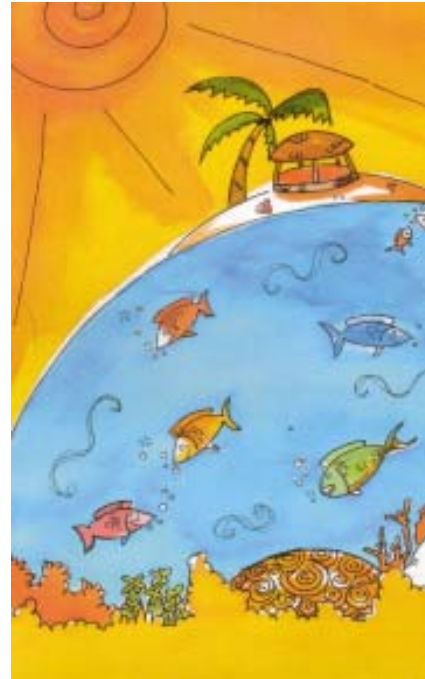
Many coral reefs in the Pacific are degraded or under stress due to development activities such as exploitation, pollution, overfishing and coral mining. Their resilience or ability to cope with sea level rise caused by climate change is greatly reduced.

Healthy coral reefs are stronger and able to recover quicker from the effects of climate change. The stronger the coral reefs, the greater the protection.

Mangroves protect the shoreline from erosion, and protect our coasts from the effects of storm surges.

This World Environment Day, give back to the natural systems that protect your island home.

We hope this kit provides the information, activities and resources to help you celebrate World Environment Day in your community.



Global change | island action

World Environment Day 5 June 2007



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## WORLD ENVIRONMENT DAY RESOURCE KIT

- 'Strong islands, strong future' information booklet
- 'Strong islands, strong future' posters
- Mangrove posters
- Coral reef posters
- 4Rs posters
- Island Life posters
- 'From mangroves to coral reefs' guide
- 'Jo and Ju save the mangroves' reader
- Mangrove postcards
- Coral reef stickers

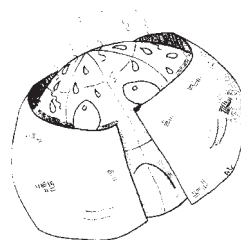
# Climate change in the Pacific

Pacific islands are extremely vulnerable to climate change. Pacific island culture, traditions, economy and environment will be affected by the effects of climate change, marking an urgent call for partnerships and collaboration to increase the resilience of communities to adapt to these changes.

More than 80% of Pacific Islanders live on or near the coast. Community action will ensure that Pacific islands are strengthened to reduce the impacts of climate change such as sea level rise and storm surges. This global change requires island action to protect your island home for future generations.

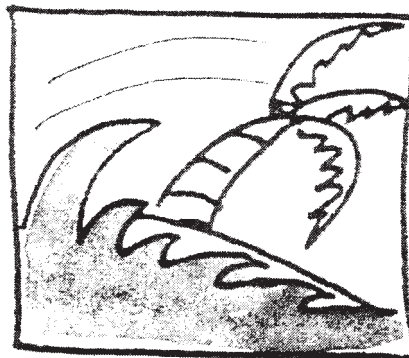
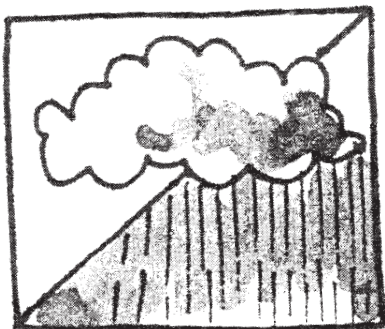
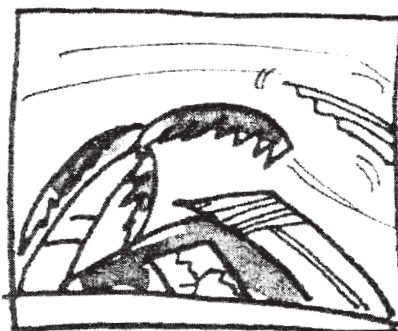
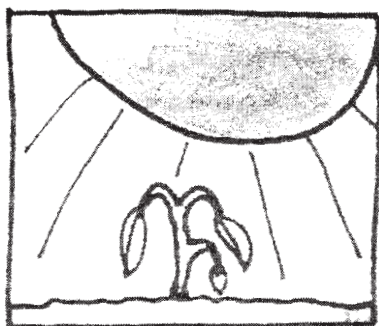
## What causes climate change?

The blanket of gases that keeps the surface of the earth warm and able to sustain life is getting thicker. This is caused by the release of greenhouse gases as we burn fossil fuels for energy and cut down forests. Carbon dioxide, one of the main greenhouse gases in the atmosphere, has significantly increased in concentration, trapping more heat in the atmosphere and causing global warming. This in turn is causing extreme weather conditions.



## How will climate change affect the Pacific?

The biggest impacts of climate change include loss of land and coastal infrastructure, more intense cyclones and droughts, failure of subsistence crops and coastal fisheries, loss of coral reefs, and the spread of disease. This will greatly affect the sustainable development of Pacific island countries and territories if not integrated into national planning methods and strategies. There is also a need to encourage greater collaboration and partnerships to strengthen the cultural and social capital of Pacific communities to strengthen adaptation.



## Climate change facts

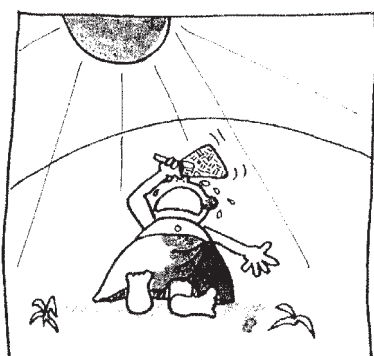
- The Earth's surface temperature will rise between 1.1 and 2.9 degrees celcius by the end of the 21st century (IPCC AR4, WG 1, 2007).
- Higher temperatures will result in melting of ice-caps and thermal ocean expansion resulting in sea level rise.
- A mean sea level rise of between 25 – 58cm is projected by mid 21<sup>st</sup> century along the coastlines of Pacific island countries
- Higher sea surface temperatures will result in bleaching of coral reefs which means less diversity of fish and other animals.
- Mangroves will retreat inland which may not be possible in built up areas or where infrastructure will affect this growth.
- The stronger the coral reefs and mangroves, the more resilient they are to cope with the effects of climate change.

## Pacific Adaptation to Climate Change Project

SPREP with its member countries and territories is working to build the capacity of Pacific Islanders to adapt to climate change across three sectors; water resource management, food production and food security and coastal management.

SPREP is an intergovernmental organisation working with Pacific island countries and territories to strengthen environmental management and promote sustainable development.

The Pacific Adaptation to Climate Change (PACC) Project will be the first project in the Pacific islands region to focus specifically on adaptation implementation in eleven Pacific island countries: Cook Islands, Federated States of Micronesia, Fiji, Nauru, Niue, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu. The PACC will also work with key partners to integrate adaptation to climate change priorities into national policies and programmes. Through promoting regional collaboration, PACC hopes to foster information sharing about innovative approaches to mainstream adaptation to climate change.



# Coral reefs

The diversity of life on coral reefs is unmatched by any other environment.

During storms and cyclones, coral reefs protect land, villages and towns from rough seas that would normally destroy our islands. Reefs prevent erosion by waves and tides and produce white sand, which replaces any natural erosion that has taken place along the shoreline.

The coral reefs and lagoons that are so common and important to Pacific islands are now subject to serious damage. The coral reefs are highly productive, fragile and easily disturbed. Reports suggest that there is widespread destruction of reef and lagoon resources in the Pacific: nearly half the countries report reef damage from illegal dynamiting and poisoning for fish. Three-quarters report problems of reef pollution. Siltation and smothering of corals by land erosion and dredging are reported by one third of the countries and construction activities of reefs have destroyed further areas.

The stronger the coral reefs, the greater the protection to our island homes.

## What damages coral reefs?

### **Soil: precious on land, a coral reef killer...**

The soil and fertilisers that make plants grow on land, will smother and kill our coral reefs if they wash into the sea. The roots of trees and plants hold the soil together during storms. Do not clear steep slopes or remove plants that are holding the soil together. Good farming keeps the soil on land and protects our coral reefs.

### **Don't let our reefs go down the drain!**

Pollution kills our coral reefs. Rain also washes fertilizers, pesticides and other pollution into the sea and onto the reefs. These smother and kill the reefs. Apply fertilizer thoughtfully so that the plants get the benefits.

### **Dynamite and poison**

Dynamite kills more than the fish you want to catch. It also kills the fish's food, their homes and their young. It is like cutting down the tree to pick up the fruit.

### **Anchor damage**

Anchoring on coral and swinging anchor chains can smash over an acre of coral in a few hours.

### **Coral walking**

Coral is alive and protects itself from the harmful effects of the sun by producing mucus. We remove this protection and break coral if we walk on or touch coral. Try to walk on the sand only and do not touch coral if you can avoid it.

### **Taking too much from the reef**

Harvesting too much coral, beche de mer, fish, and other animals disrupts the balance in coral reef communities. The loss of one important level of the food chain can mean the death of many other organisms found on the reef and ultimately destroys our way of life. Only take what you need, and eat what you take.

# Take action!

Here are some ways that you can protect the coral reefs to strengthen the protection against the impacts of climate change.

## Local people, reef owners, reef users

- Take only what you need and eat what you take
- Avoid using destructive fishing methods such as poison or dynamite
- Avoid building pig pens and toilets on the shoreline
- Help promote value of coral reefs as protection against the effects of climate change
- Use alternative materials other than coral reef materials for construction purposes
- Observe traditional customs to help manage your reef
- Tread carefully when walking, swimming, snorkeling and boating on and around coral reefs
- Support and respect Marine Protected Areas and sanctuary areas
- Participate in and support coral reef awareness programmes

## Divers and snorkelers

- Ensure you are weighted correctly and enter the water away from water
- Don't stand or rest on coral
- Avoid touching things with your fins and secure gauges that might catch on coral
- If you pick up anything, living or dead, always return it to where you found it
- Do not poke or prod animals and plants
- Take the time to learn about coral reefs and the marine environment

## Fishers

- Obey Fisheries regulations and do not take undersized fish
- Use only a line or net to fish, not dynamite or poison
- Return undersized or unwanted fish to the water immediately, to minimize injury or damage

## Boat operators

- Anchor in mud and sand away from live corals and make sure the line is clear
- Motor towards the anchor when hauling the line in
- Use moorings instead of anchoring to the reef

# Mangroves

Mangroves are amazing trees that live half way between the sea and land.

Mangroves are very important to Pacific island communities. They protect our coastlines from storm surges and sea level rise. They also provide food for our families, act as nurseries for small fish, and homes for fish and birds.

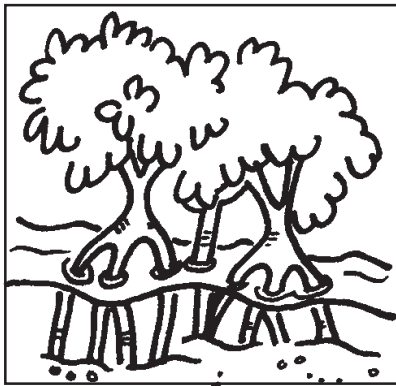
Mangroves also have important cultural and medicinal purposes. Flowers found in mangroves are used in traditional ceremonies, we use the mangroves to dye handicrafts, and we use the plants to keep us healthy.

Although we may use mangroves for firewood, it is important that we take only what we need.

Some people think that mangroves are rubbish dumps! Mangroves are not dumps! They are an important home for animals, a place for food, and also protection for our homes.

Many countries are removing mangroves to make way for roads and other developments. With sea level rise and other effects of climate change, we need to start thinking about how important mangroves are to our culture, and future, and start giving back.

## Mangroves protect our coast



The large root systems of mangroves slow down waves and water flowing through them. This reduces erosion and causes the particles of soil to settle down. As a result mangroves continue to grow towards the sea.



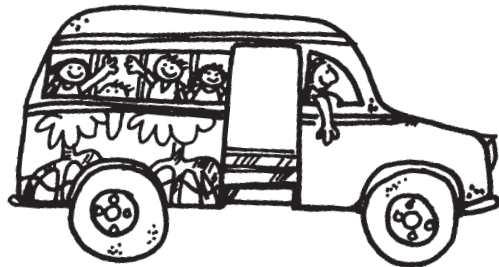
When strong winds including cyclones hit the shores where mangroves grow, they act as natural wave breakers.

# Threats to the mangroves

- Numerous rivers and streams drain into the mangrove forest. The dirt and sediment is carried downstream to the mangrove forest where it can cover the roots and kill the trees.
- Any type of building or construction in or close to the mangroves endangers the trees. When the flow of water (fresh or marine) is reduced, the mangroves suffer or even die.
- Mangroves are not fast growing, if many trees of one kind are cut in one area, they will probably not grow back.
- Pollution from land affects the health and growth of the trees. Oil and gasoline from faulty outboard motors create a thin film that sticks to the mangrove's roots and makes it difficult for the tree to exchange gases.

## Take action!

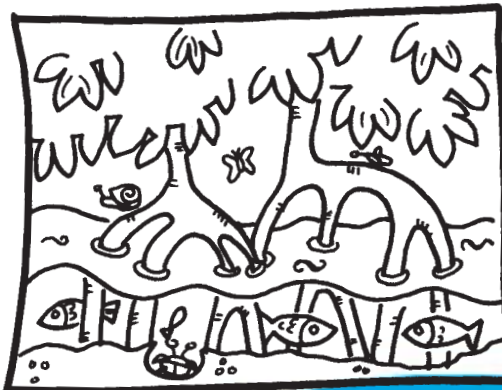
### 1 Visit the mangroves



### 2 Clean-up the mangroves



### 3 Replant mangroves





# Top 10 activities for World Environment Day

## 1 Create a human chain

Use the power of numbers as a visual display. Invite youth groups, NGOs, schools and community groups to a prominent location in your town. Stand side by side along the foreshore, and link arms. This is a good way to get people involved, and to highlight that partnerships and collaboration is a good way to strengthen resilience of Pacific communities to the effects of climate change.

## 2 Go into the mangroves! Learn about the amazing trees

Mangroves are amazing trees that live half way between land and sea. Mangroves are among the few trees that can grow in sea water as well as in places where the sea water mixes with the fresh water from the land. Mangroves provide shelter for many marine creatures and produce large amounts of organic matter used as food. Mangroves are important in protecting and building up shorelines, and can act as a buffer to sea level rise and storm surges. Visit a local mangrove site. Speak to the local community about how the mangroves are used.

## 3 Replant mangroves or coastal trees

In many Pacific islands, mangroves are used as rubbish dumps, trees are cut down and the land filled in for housing and other development. This World Environment Day, give back by replanting some mangroves in an area near you.

## 4 Contact the media

The media play a very important role in promoting sustainable development. The media are usually very supportive of initiatives that will improve the lives of Pacific islanders. Make contact with your local media. Highlight how protecting coral reefs and mangroves will help to reduce the impacts of climate change.

## 5 Educate others

Hold an information session for schools, communities and private sector. Provide information on the role of coral reefs and mangroves in increasing Pacific islands' resilience to the effects of climate change. Promote the rich and unique biodiversity of the Pacific islands, and the importance of sustainable use to preserve the precious natural resources for future generations.

## 6 Wear blue

On World Environment Day, wear blue to show you care about your island home.

## 7 Work with tourist operators

Each year, hundreds of thousands of tourists visit the Pacific for the vibrant and diverse natural environment. Work with local tourist operators to highlight the importance of limiting the impact on coral reefs.

## 8 Make a pledge programme

Organize representatives from different organizations to pledge to look after the coral reefs and mangroves to increase resilience to the effects of climate change.

## 9 Identify and recognize community champions

Acknowledge and celebrate the good work that is being done in your community to protect the coral reefs and mangroves.

## 10 Celebrate your successes and plan for the future

## More information

[www.sprep.org](http://www.sprep.org)

[www.ipcc.ch](http://www.ipcc.ch)

[www.unfccc.int](http://www.unfccc.int)

[www.wwfpacific.org.fj](http://www.wwfpacific.org.fj)

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For more information on SPREP's education and awareness activities visit  
[www.sprep.org/topic/awareness.htm](http://www.sprep.org/topic/awareness.htm)