

# JUST FACTS

A RESOURCE FOR SCHOOLS FROM  
THE EDMUND RICE CENTRE  
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## CLIMATE CHANGE & THE PACIFIC

This resource contains:

- A Guide for Teachers
- An information sheet and answers to Frequently Asked Questions
- Cross-curricular activities

## Guide for Teachers

Climate change is having a major impact on the islands and population of the vast Pacific Ocean, with its more than 7,500 islands and 9.2 million people being affected in a number of ways.

The changing climate has resulted in rising sea levels, dying coral reefs, increases in temperatures, changing rainfall patterns and more intense cyclones and storms, among other effects.

As many islands are small and only a few metres above sea level they are prone to flooding and salt water inundation, contaminating soil and drinking water. Most communities depend on fishing as a major component of their diet and as sea temperatures changes then fishing becomes more problematic.

These are just a few examples of the issues confronting the communities of the Pacific Ocean at the present time.

## Goals

The Fact Sheet (FAQ) and questions should assist students to:

- Understand the geography and the communities of the Pacific Ocean
- Acquire knowledge of climate change and its impact on the Pacific Ocean and the people who live there
- Develop informed opinions on the impact of climate change and responses to it

## Introducing the material

### Learning Objective:

To provide a means of ascertaining how much prior knowledge the students have on climate change and the Pacific Ocean:

Watch the videos 'Kiribati SOS' (4 minutes)

[www.youtube.com/watch?v=LYuHisUrsNE](http://www.youtube.com/watch?v=LYuHisUrsNE)

[www.youtube.com/watch?v=Z5wRA6AipH4](http://www.youtube.com/watch?v=Z5wRA6AipH4)

Have the students brainstorm the topic Climate Change and the Pacific Ocean using the following questions (or others of your choosing) and write their answers on the board.

- What do you know about the Pacific Ocean?
- Who lives there and what are their lives like?
- What is climate change?
- What is its impact on islands in the Pacific Ocean?

### Introduction

To the north and east of Australia lies the Pacific Ocean, a vast region at the forefront of human induced climate change. There are over 7,500 islands in the Pacific, with approximately 300 inhabited. The 22 countries and territories of the Pacific have a combined population of 9.2 million.

Pacific island countries have a unique combination of geographical, biological, cultural and economic characteristics. Over thousands of years, its peoples have developed cultures closely connected to the land and sea. The rich diversity of the forests and ocean have provided abundant food, medicines, building materials and fibres for daily life as well as inspiration for cultural stories, music and art.

Traditionally Pacific islanders were subsistence farmers and fisher folk, but their fragile environments are increasingly threatened by population growth, commercial interests and especially climate change.

Climate change is not an intangible or far removed future threat. It is impacting on the Pacific countries and territories right now.

### Impacts of climate change in the Pacific

Many of the Pacific island countries are extremely vulnerable to climate change because of a combination of factors.

- The islands are often small and not very high above sea level. For example, on Tuvalu the highest point above sea level is about 5 metres.
- The islands are spread across vast distances which make it difficult to coordinate responses to the problems of climate change.
- The farming land, settlements, tourism and transport are often concentrated in the coastal areas that would be affected by rising sea levels.
- Many of the islands are prone to natural disasters such as cyclones. Although cyclones may become less frequent their intensity will increase, causing greater damage.
- The islands have fragile environments that may be unable to cope with the impacts of climate change. Coral polyps are very sensitive to temperature change and there is concern that many of the Pacific's coral reefs will die.

- The islands have limited natural and human resources to cope with emergencies and changing weather patterns. Climate change is already impacting on fisheries; this will have a major effect on the island's economies.

### Specific Examples

- In Kiribati, it is estimated a 1m rise in sea level will inundate over 12% of the land.
- With people moving from the outer islands to larger atolls, population pressures increase. Tarawa, the capital of Kiribati, is overpopulated and poor sewage is tainting the water supply and spreading disease.
- With a 2 degree temperature rise, tropical cyclone intensities in the north-west Pacific are expected to increase by 12-15% and average rainfall to decrease by 12-28%.
- Inshore fishing, the mainstay of the local economy, is under threat from even slight rises in water temperature.
- In 2013, the Marshall Islands declared a national emergency after a number of severe droughts caused by climate change. Over 6,000 people were affected and were surviving on less than one litre of water a day.

- Climate models show that a 10% reduction in average rainfall by 2050 is likely to correspond to a 20% reduction in the size of freshwater lens on Tarawa Atoll, Kiribati.

## Responses

Pacific island countries have been:

- Fighting for action that will reduce the emissions of greenhouse gases.
- Implementing policies to adapt to the changing climate.
- Relocating citizens away from the problem areas.

They have formed the Pacific Islands Framework for Action on Climate Change, and also have created the South Pacific Sea Level and Climate Monitoring Project to collect data and develop measures to alleviate the impact of climate change, as well as many projects in their own countries.

Australia's aid programs, directed at the vulnerable atolls, have combined increased training and education opportunities with adaptation funding.

However, much more needs to be done. For example, allowing Pacific islanders to come to Australia for seasonal work to provide their families with remittance income but also return home would be of great benefit; as would allowing migration on special visas to enable them to return to their families and friends over the long term.

## A manifesto for a new earth and new humanity

Pope Francis has issued an encyclical, 'Laudato Si – On Care of Our Common Home'.

It is an 'appeal for a new dialogue about the future of our planet where everyone is included in the conversation because the environmental challenge we are undergoing, and its human roots, concern and affects us all". (LS 14)

The document highlights the interconnectedness and interdependence of all creation and how humanity has been damaging the earth by a technology and economics not based on moral values.

This leads to increasing damage, climate change and wasteful consumption. It leads to a throwaway culture that negatively impacts on the poorest communities. Here is the link between the cry of the poor and the cry of the earth.

The environmental problem is part of a much larger problem – the failure to recognise the truth that we are all, everyone and everything, interconnected.

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## FREQUENTLY ASKED QUESTIONS



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### What is global warming and what is climate change?

Global warming refers to the rise of average surface and ocean temperatures on Earth. An overwhelming scientific consensus agrees that global warming is primarily caused by the human use of fossil fuels, which releases carbon dioxide and other greenhouse gases into the air. Climate change refers to the changes in the climate caused by global warming.

### How big is the Pacific Ocean?

It is the largest of the oceans, covering a third of the Earth's surface. Its area is 161.8 million square kilometres, and extends from the Arctic Ocean in the north to the Southern Ocean in the south and is bounded by Australia and Asia in the west and the Americas in the east. It compromises about 46% of the world's surface water.

### How many people call the Pacific Ocean home?

There are over 7,500 islands in the Pacific Ocean and approximately 300 are inhabited. The 22 countries and territories have a combined population of 9.2 million.

### What are the Pacific Island countries in the western Pacific?

Papua New Guinea; Solomon Islands; Vanuatu; Fiji; Samoa; Tonga; Niue; Tuvalu; Cook Islands; French Polynesia; Kiribati; Tokelau; New Caledonia; Marshall Islands; Nauru; Federated States of Micronesia; Palau.

### What are the main activities and occupations?

The majority of people live a subsistence life, growing their own food and keeping livestock in their village.

Fishing plays a very important role, and fish is an important part of their diet. There are some commercial activities on the main islands and tourism is very important.

### How is climate change impacting the Pacific?

- Rising sea levels
- Increases in temperatures both on land and in the oceans
- Changing ocean currents
- Changing rainfall patterns
- Dying of coral reefs
- More intense cyclones and more damaging storm surges
- Loss of local economies
- Coastal erosion
- Increased occurrence of droughts

### As sea temperatures rise, what will happen?

- Higher sea levels as water expands when it heats up and ice melts
- Stronger storms and cyclones
- Fishing may suffer as fish and the small creatures on which they feed move to cooler waters and new species invade
- Weather patterns will change
- Coral reefs, which protect many atolls and harbour fish, may die as coral polyps are very sensitive to temperature change

### Why is sea level rise a problem?

- Many islands are small and are only a few metres above sea level with a fragile environment
- Coastal villages will be flooded, lose land or have it become too salty for growing crops
- Sea water may contaminate limited supplies of fresh water
- Storms will have a greater impact on coastal communities
- Many people will have to move to other larger islands or higher ground or emigrate to other countries, such as New Zealand and Australia



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## RESEARCH QUESTIONS FOR STUDENTS

### Learning objectives:

To research and study the impact of climate change on the Pacific Ocean and on the peoples and communities of the Pacific and to come to an understanding of measures to assist and alleviate the impact of climate change.

### Questions

1. Explain how climate change impacts on agriculture, coastal systems, ecosystems and water for Pacific islands.

2. Imagine that you are a fisherman or farmer on a Pacific island. Explain how climate change has affected your life and livelihood.

3. (a) What is the importance of coral reefs in the Pacific Ocean?  
(b) How are they formed and what impact is climate change having on them?

4. Form a small group and each choose one of the following: marine biologist, farmer, doctor, government official, fisherman, tourism operator, mother and emergency aid worker. Talk about how you feel about climate change, how it is affecting your life and what you would like to see done.

5. Select an issue affecting a Pacific island country, such as biodiversity, climate change, fishing, logging, tourism or development and consider how the lifestyle of people here in Australia might contribute to this issue.

(a) How can people in Australia change their behaviour to contribute to achieving better outcomes for Pacific islanders?  
(b) Create a fact sheet to educate your family, friends and others in your community to educate them about these issues.

6. Choose one of the environmental issues in the Pacific and write a poem or song to express your feelings about the issue.

7. (a) In a small group, choose a Pacific island community and collect a variety of images of the environment and living conditions in the country.

(b) Sort the images into two groups to present two contrasting views – one that shows the benefits of living in the country and one that shows the drawbacks of living there.  
(c) Which group of images do you think is the most realistic?  
(d) Find out if solutions can be found to address the negative features depicted in the second group of images without threatening the positive features depicted in the first group of images.

8. Explain and illustrate by examples the following words and/or concepts:

deforestation, degradation, coral bleaching, ecotourism, environmentally displaced people, exclusive economic zone, marine sanctuary, ocean acidification, salt water contamination, sustainability, sustainable tourism

·9. Watch the video of Tinaai and Vasiti from Kiribati:  
[www.youtube.co.uk/watch?v=LYuHisUrsNE](http://www.youtube.co.uk/watch?v=LYuHisUrsNE)

(a) What important issues are raised in the video?  
(b) What is your response?

### Thinking More Deeply

10. A futures wheel is a diagram that shows the future consequences of an event or trend. The direct (first-order) consequences are in the first circle and the indirect (second-order and third-order) consequences are in the outer circles. Construct a futures wheel that predicts the consequences of climate change for Pacific islands.

11. The Pacific islands have been called “the canaries in the coalmine” (The Pacific Ecologist). Explain how you think Pacific Island people feel about this term?

12. A report by Australian government officials in 2006 warned of a flood of environmentally displaced people across the Asia-Pacific region. Do you think Australia and other developed nations should accept those who are deemed to be environmentally displaced? Justify your views.

13. According to the Intergovernmental Panel on Climate Change (IPCC), 'small island states account for less than 1% of global greenhouse gas emissions but are among the most vulnerable of all locations to the potential adverse effects of climate change and sea level rise.' Consider your response to this statement.

(a) What role might Australia play in supporting strategies to reduce greenhouse gas emissions?

(b) What is the Federal government's current policy on this issue?

(c) Write a letter to the editor of a newspaper to express your views on this matter. Your letter should cover the effects of climate change on the small island states and the responsibilities of people in Australia.

14. Examine the information available on sustainable tourism and forestry. In small groups discuss the impact of these activities on the culture, environment and economy of Pacific island states. Or you may choose one particular country to examine.

Fact Sheets and other information may be found at the following sites:

**Pacific Climate Change Science:**  
**[www.pacificclimatechange.org](http://www.pacificclimatechange.org)**

**Pacific Calling Partnership:**  
**[www.erc.org.au/pcp](http://www.erc.org.au/pcp)**

**Kiribati Climate Action Network:**  
**[www.kirican.wordpress.com](http://www.kirican.wordpress.com)**

**Pacific Island Climate Action Network:**  
**[www.pacificclimateactionnetwork.wordpress.com](http://www.pacificclimateactionnetwork.wordpress.com)**

**The first climate refugees? Contesting global narratives of climate change in Tuvalu**  
**<http://ro.uow.edu.au/cgi/viewcontent.cgi?article=8119&context=scipapers>**