

Reading Sheet: Tuvalu and Sea Level Rise

Location and Background

Tuvalu is a small island nation located in the Pacific Ocean, midway between Australia and Hawaii. It consists of nine low-lying atolls and reef islands. With a population of around 11,000 people, Tuvalu is one of the world's smallest and most isolated countries. The highest point of Tuvalu is just 4.5 metres above sea level, making it extremely vulnerable to rising ocean levels caused by climate change.

Sea Level Rise and Impact

Since 1993, the sea around Tuvalu has been rising at an average of 4 millimetres per year, faster than the global average. This is due to thermal expansion (water expanding as it warms) and the melting of glaciers and ice sheets. Scientists predict that by 2050, sea levels could rise by 50-60 centimetres, and by 2100, the rise could reach over 1 metre.

For Tuvalu, this means frequent flooding, coastal erosion, saltwater intrusion into freshwater supplies, and damage to agriculture. Many people are forced to consider leaving their homes, making Tuvalu one of the world's first countries at risk of becoming uninhabitable due to climate change.

Government Response

The government of Tuvalu is actively seeking international support to adapt to climate change. They have called for urgent global action to reduce greenhouse gas emissions and are exploring solutions like building sea walls, improving water storage, and planting mangroves to protect the coast. However, long-term, the country may face the reality of having to relocate its population to other countries, like New Zealand or Australia.

Questions:

Location and Vulnerability

Where is Tuvalu located, and why is it especially vulnerable to sea level rise?

Sea Level Rise Data

How much has the sea risen around Tuvalu since 1993, and how does this compare to the global average?

Impacts of Sea Level Rise

List at least three impacts that rising sea levels have on Tuvalu.

Government Response

What strategies is the Tuvaluan government exploring to cope with sea level rise?

Future Concerns

Why is Tuvalu considered one of the first countries at risk of becoming uninhabitable due to climate change?

Reading Sheet: Fairbourne, Wales and Sea Level Rise

Location and Background

Fairbourne is a small coastal village located in Wales, United Kingdom, on the coast of Cardigan Bay. The village, home to around 700 people, was built on land reclaimed from marshes and sits just above sea level. In recent years, Fairbourne has become one of the most well-known examples of a community threatened by sea level rise in the UK.

Sea Level Rise and Impact

In the UK, sea levels have risen by around 3 millimetres per year since the early 20th century. Although this rise is slower than in places like Tuvalu, Fairbourne faces increased risk due to its low-lying position and the possibility of storm surges. Experts predict that sea levels will rise by 30-50 centimetres by 2050, putting the village at high risk of flooding.

By 2054, local authorities plan to stop maintaining the village's sea defences, meaning Fairbourne will eventually be left to the mercy of the sea. This has led to what is known as a "managed retreat," where residents will eventually have to relocate.

Government Response

The government and local councils have decided that it would be too expensive to continue defending Fairbourne from rising sea levels. As a result, they are preparing for a planned, managed retreat, where the village will be gradually abandoned. While some residents have accepted this, others are fighting to stay, feeling that the government has abandoned them too soon.

The issue in Fairbourne highlights the difficult decisions governments must make when dealing with the impacts of sea level rise, especially when there are limited resources to protect vulnerable coastal areas.

Questions:

Location and Vulnerability

Where is Fairbourne located, and what makes it vulnerable to sea level rise?

Sea Level Rise Data

How fast have sea levels been rising around Fairbourne, and what is the projected rise by 2050?

Impacts of Sea Level Rise

How will rising sea levels affect the community of Fairbourne by 2054?

Government Response

What is the government's plan for Fairbourne, and what does "managed retreat" mean?

Challenges

Why are some residents of Fairbourne unhappy with the government's decision?

Comparison Questions:

Global Impacts

How do the impacts of sea level rise in Tuvalu differ from those in Fairbourne?

Adaptation Strategies

Compare the strategies that Tuvalu and Fairbourne's governments are using to deal with rising sea levels. Which do you think is more effective?

Future Outcomes

Which community, Tuvalu or Fairbourne, faces a greater risk of displacement, and why?