Case Study Fact File Coastal Sea Level Rise

A* Case Study

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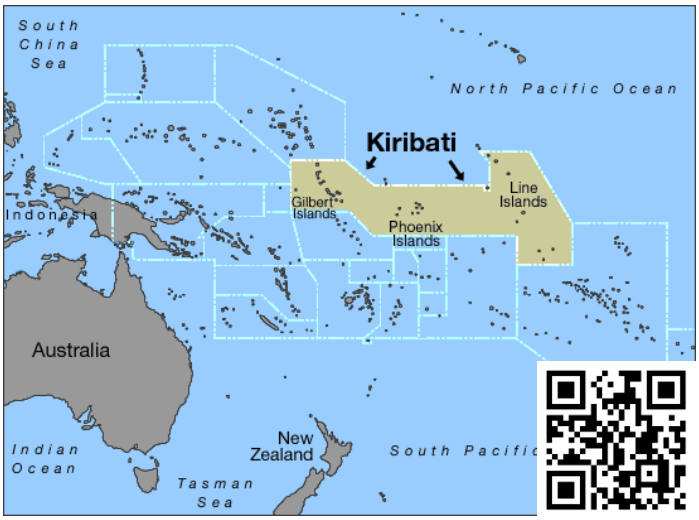
The Pacific Islands Of Kiribati [LIC]

Topic: Case study of a contrasting coastal landscape beyond the UK to illustrate and analyse how it presents risks and opportunities for human occupation and development and evaluate human responses of resilience, mitigation and adaptation



Want to know more about different types of Sea Level Change? Click this link or scan the code above!

Background Information:

Kiribati is composed of 32 atolls and one raised coral island situated just west of the International Date Line; Kiribati was among the first nations to enter the new millennium. It is also **one of the first countries in danger of becoming uninhabitable owing to climate change.**

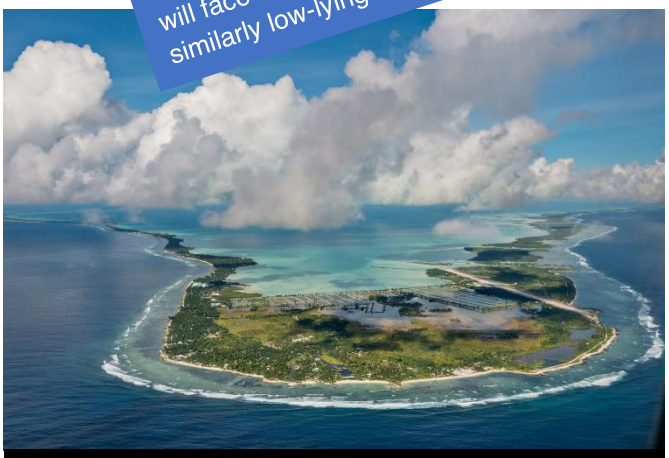
Sea-level rise linked to climate change threatens to render Kiribati uninhabitable well before it is completely submerged through different impacts, and whilst leadership and citizens have tried strategies to help mitigate the situation, **as climate change is a global problem, it requires global solutions to fix!** Some believe the future is hopeless for Kiribati and other Pacific Island nations, potentially making its citizens some of the world's first 'climate refugees.'

Why Kiribati?

Did you know? The highest point of Kiribati is only 81m above Sea Level!

Because atolls are naturally low-lying and have a high ratio of coastline to land area, they are especially vulnerable to sea-level rise and storm surges.

Kiribati is a good A* case study as it is difficult to see any sort of positives in the future, and the current challenges its 110,000 residents will face will soon be replicated in many other similarly low-lying nations on a global scale.



The figure above showcases one of the atolls that make up Kiribati. Notable is the geographical isolation and very weak coastal defenses, predominantly natural coral reefs.

The Challenges Kiribati Faces:

Recent evidence of higher rates of global sea-level rise from melting ice on land suggests that these projections—based largely on a warming ocean—may be low. If our current emissions scenario continues, changes of over 1m may be visible by the end of the century.

Many countries are at risk of seawater incursion, particularly those with major river deltas, low-lying areas, and coastal regions.

Severe and frequent coral bleaching caused by warming ocean waters could hinder the growth of Kiribati's reefs, compounding the dangers of sea-level rise. Half of all coral reefs are expected to be destroyed by 2050. There will also be damage to the delicate biodiversity of the islands.

Scientists project that by 2080, the risk of flooding in Pacific atoll countries is likely to be roughly 200 times greater than at the start of this century. Without any adaptation, Kiribati could lose about 34 percent of its 1998 GDP by 2050 because of climate change and sea-level rise, and mostly covered by 2100 by water.

Furthermore, warmer oceans broadly lead to more violent and regular hazardous tropical storm events, the socio-environmental consequences of which in the pacific would be potentially harmful to the long-term further development and inhabitability of these islands. In addition, for mainly subsistence-reliant locals, this could destroy incomes and livelihoods.

'SEEP' Challenge Tracker:

Social Economic Environmental Multiple

What Can Be Done?

The below Box has some more information about how Kiribati is planning on coping with their future environment. Do you think this is feasible?

In Detail

Managing Sea-Level Rise In Kiribati:

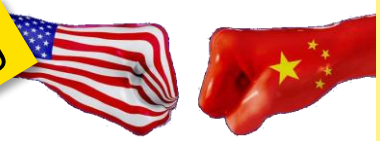
It is a sad truth that the countries which have contributed little to climate change and hence sea-level rise are the ones which may feel the hardest impacts.

Whilst many in the international community believe that the easiest option would be to evacuate the islands and displace Kiribati's native population to surrounding higher island nations.

These include Fiji, Hawaii or further afield, for example to New Zealand or Australia, all of which have close diplomatic ties to the nation, successive local governments have pledged as part of their '20 years plan' to protect the islands from flooding by raising them through dredging.

This essentially in the short to medium term will allow life to continue but may have significant environmental consequences on surrounding coral reef environments.

Furthermore, they are considering in the future constructing elevated roads to adapt to flooding conditions and prevent the entire country being inaccessible. This may also help with recovery efforts following tropical storms.



Consider the link between these two topics!

A* Extra Reading

If you are studying Global Systems & Governance, this extra bit of information may be quite interesting! Here is another GS&G A* Case Study Fact File on 'The Rise & Rise Of China'

Synopticity!

Coasts with Global Systems & Governance

Geopolitics In The Pacific

Kiribati is a low-income country, where the average citizen earns only $1,600), therefore has struggled to fund the sort of project needed to protect its citizens. Their new president (above) was elected with a pro-Beijing platform, marking a switch from favoring America and the West as allies. This meant that for the first time, Kiribati will be looking to China to help it develop and manage climate change at the same time.

In turn with being closer to China, Kiribati in turn has the opportunity to participate with Chinese companies and use Chinese money to fund large-scale infrastructure projects in the country, such as constructing 'elevated roads', to protect against sea level rise.

This has led critics to say that the country may possibly fall into a Chinese 'debt trap', where it will essentially run out of money and not be able to pay loans back, thus essentially 'selling out' the country. This gives China a huge advantage as although it has little land, Kiribati's control of the oceans is over 3.5 million km^2, which is very valuable for them to control.

Links & References:

Key Terms From This Fact File:

- Atoll = a small, shallow ring-shaped coral reef found at sea, including a coral rim that encircles a lagoon partially or completely. These can be above the sea permanently, tidally, or fully submerged.
- International Date Line = imaginary line of demarcation on the surface of Earth that runs from the North Pole to the South Pole and demarcates the boundary between one calendar day and the next.
- Climate Refugee = Refugees are forced to flee due to human violence: war, terrorism, and persecution. However, in the future, it is expected that climate will also play a huge role in large scale population displacements e.g. through sea level rise or desertification.
- Coral Bleaching = whitening of coral that results from the loss of a coral's symbiotic algae, thus destroying them. This is often due to warming oceans and acidification.
- Subsistence-reliant = People who predominantly 'live off the land' locally (or in this case the ocean) – such as through agriculture, small-scale fishing etc… just to provide for themselves.

What Case Studies Can This Be Linked To?

Kiribati is a fairly unique A* case study which probably is best to mention to a small extent alongside other main case studies such as Sundarbans Delta in Bangladesh, the Netherlands, or your UK Coastal Environment in the question below, for example.

Don't forget… Not all questions are suited to use Kiribati, so choose carefully.

Have A Go At A Practice Exam Question:

20 MARKER (AO1 & 2) QUESTION #3

'No amount of coastal intervention by people can halt the natural processes which continue to present serious risks to coastal communities.' To what extent do you agree with this view?

Useful links:

https://www.climatehotmap.org/global-warming-locations/republic-of-kiribati.html

https://www.youtube.com/watch?v=TZ0j6kr4ZJ0

^ *DW Docufilm 'The Drowning Paradise'* [42 mins]

https://www.theguardian.com/world/2020/aug/10/kiribatis-presidents-plans-to-raise-islands-in-fight-against-sea-level-rise

https://www.theguardian.com/world/2020/jun/23/pro-china-president-wins-re-election-in-kiribati