

Rising sea levels, coastal erosion and salination

“Hungry for justice, thirsty for change”

CARITAS STATE OF THE ENVIRONMENT REPORT FOR OCEANIA 2016



Curriculum links:

ACSSU189 | Year 10 | Science

Investigating the effect of climate change on sea levels and biodiversity.

ACHGS034 | Year 5 | Geography

Interviewing people about rising sea levels and summarising the points of view on the issue.

ACSES106 | Senior Secondary | Science

Climate change has been linked to changes in species distribution, crop productivity, sea level, rainfall patterns, surface temperature etc.

Sustainable Development Goal links:

13.1 - Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries.

13.3 - Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning.



Background on ‘Hungry for justice, thirsty for change’:

In 2015, Caritas Aotearoa New Zealand released its first “Caritas State of the Environment Report for Oceania”, which reported on five issues identified through the 2014 foundational report “Small yet strong: Voices from Oceania on the environment”. In 2016, Caritas Australia joined together with Caritas Aotearoa New Zealand and Caritas Tonga to jointly produce this second report which draws on interviews with groups from our Catholic and Caritas networks and partnerships across Oceania, to paint a picture of environmental changes and issues impacting on the lives of all people of our region.

Rising sea levels, coastal erosion and salination in the Pacific:

Coastal erosion across the Pacific has been happening gradually but relentlessly over decades. More Pacific communities are losing ground to coastal erosion and coastal flooding, disrupting food gardens, cemeteries and homes, and causing increased movement and dislocation. Rising seas are no longer just affecting low-lying atolls, but larger volcanic islands as well.

Caritas has documented the experiences and observations of partners at the grassroots and coastal edges of life in the Pacific and Church contacts, showing patterns of coastal erosion, salination and flooding across the region which has had extensive and serious impacts on the well-being of peoples across the Pacific.

Key facts:

- Global sea-level rise has averaged 20 centimetres since 1900.
- By 2050, levels are estimated to rise another 20-30 centimetres, just from greenhouse gases already released into the atmosphere.
- Sea-level rise in Pacific is generally about 10 percent above the global average.
- Over the past year, scientists have said sea-level rise is happening faster than previously thought. NASA estimates current sea-level rise at 3.4 millimetres a year, compared to an average of 1.4 millimetres a year from 1900 to 2000.
- Pacific Island nations most at risk are Kiribati, Tuvalu, Tokelau, Tonga, the Federated States of Micronesia, and the Cook Islands.

IPCC: *Fifth Assessment Report*, 2014. NASA: <http://climate.nasa.gov/vital-signs/sea-level/>

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Widespread impacts across the region

Losing land

Coastal erosion is widespread in **Samoa**. The beach at Lotofaga, a village on the south coast of Upolu, has been eroded 150-200 metres from where it used to be. In West Guadalcanal in the **Solomon Islands**, the sea has eroded up to 200 metres and big rain trees are being washed into the sea, leaving the shoreline even more vulnerable to erosion. On Abaiang in **Kiribati**, seventeen villages on the main island and two smaller islets have experienced coastal erosion, flooding or salinated water. In Popua in **Tonga**, homes suffer extensive flooding when there is high tide or excessive rain and seawater washes through their homes.

Impact on food and water sources

Caritas partners from **Solomon Islands**, **Kiribati**, **Samoa** and **Papua New Guinea** have reported losses of coconut, pandanus and swamp taro sources this year as a result of coastal erosion and salination. With its three atolls providing a home to 1,400 people, **Tokelau**, coastal erosion and high seas is impacting food security, especially the ability to grow taro and root crops.

“It is sickening to watch our shores slowly eaten away by the sea... what will happen in the next decade? Will the place we call home still be the same or will it soon perish due to sea-level rise?”

Modest Hasiau, Education Coordinator,
Honiara Archdiocese, Solomon Islands.

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“People are trying their best to move to the next level... they are not feeling good about the situation. People are living in fear. We don't have any plans from the government, we don't know what their next move is.”

Liborio Maemaauri,
Maintenance worker and woodwork
trainer for Auki Diocese,
Solomon Islands.

Relocation and displacement

At Auki Harbour in the **Solomon Islands**, people have been building up the level of the ground around them or moving to higher ground if they have the money. All of the people in Tebunginako village on Abaiang atoll in **Kiribati** have relocated, leaving their church and maneaba (meeting house). In **Samoa** the village Falefa has lost about 20-30 acres of land to coastal erosion, amounting to about three quarters of its land. Only one family remains living near the school; others have moved inland. The people of the **Carteret Islands** continue the program of resettlement to Bougainville.

Impact on Infrastructure

In the **Solomon Islands**, the National Referral Hospital in Honiara is on the beachfront and as a result of rising sea levels, the shoreline has eroded up to the hospital buildings. In recent years bigger waves from king tides and storm surges have inundated the hospital and staff have been forced to evacuate patients four times. As a temporary solution, until the hospital can be relocated, they have reclaimed a few metres of land and built a sea wall to protect the building from the worst effects of sea level rise and high tides.

The coastline near a small local health clinic in Visale in the **Solomon Islands** that delivers primary health services for the people of West Guadalcanal has eroded, many trees have washed away, leaving the village vulnerable to storm surges and high tides. All that is holding the shore together in front of the clinic is one large rain tree.



credit: Caritas.

Photo credit: Caritas.

Above: The Church at Tebunginako.

Questions for discussion and reflection:

- What are king tides and why are king tides a threat to low islands and atolls?
- List the impacts faced by the islanders as sea levels rise and coastal erosion increases. How are the impacts related to one another?
- In what ways have islanders adapted to sea level rise in the short term?
- What are some problems these island residents might face in relocating to the mainland? How do you think they could be solved?

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Kiribati - Building natural defences

Pacific Islanders have not given up on defending their coastlines. Boore Moua left his job with a construction company to devote more time to rebuilding the land and leading the Kiribati Caritas Youth Group. The group has visited several Kiribati islands now, raising awareness about climate change and other environmental issues. They're also speaking about the implications for Kiribati and outlining what Kiribati people can do to protect their environment.



"I am a borrower, I borrow this land from my grandchildren. So as a borrower I have a responsibility for that, to look after to maintain what I have on this land."

Boore Moua,
Leader of the Kiribati
Caritas Youth Group

Above: Boore Moua planting mangroves.

When Boore was asked, "Why are you planting mangroves?" he answered, "Because I don't want to leave my country. I want to stay.... I am connected to this land. My grandparents are buried here. For me this is my home. Youth are planting mangroves because they want to stay."

"During our climate awareness sessions, I ask the youth: 'Who is the owner of this land?' They give many answers, but they're all wrong.... The answer is, 'The next generation. My next generation, your next generation, Kiribati generation – that is the answer.... I am a borrower, I borrow this land from my grandchildren. So as a borrower I have a responsibility for that, to look after to maintain what I have on this land.'"

And that is why Boore continues to plant mangroves. "I have to plant it – in order to maintain the food, the healthy environment, healthy species, healthy fish, many fish. So that's the reason I should maintain as a caretaker of this land for my grandchildren."

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What should be done?

Overall, the state of the environment in Oceania is deteriorating and it's time for determined, urgent, coordinated action.

Caritas calls on the Australian government to:

- work with the global community to create legal protections for people, who are forced to relocate because of climate change and environmental degradation.
- recognise that communities are losing land, homes and livelihoods now and allocate sufficient funds within their aid budgets for adaptation required by people who are being impacted by coastal erosion and sea level rise.
- take immediate steps to transition to a low-carbon economy, setting national carbon emissions targets that will hold the increase in the global average temperature to well below 2°C above pre-industrial levels, and pursuing efforts to limit to 1.5°C.
- scale up its contribution to international climate finance to \$558 million in the 2017 budget . Climate finance must also be on top of Australia's existing development assistance, to prevent the diversion of funding from other poverty reduction programmes.
- develop and implement a climate change strategy for Australia's aid program to ensure climate change is integrated across programmatic areas.

Glossary

Low-carbon economy - an economy based on low carbon power sources that therefore has a minimal output of greenhouse gas (GHG) emissions into the biosphere, but specifically refers to the greenhouse gas carbon dioxide.

Climate finance - refers to financing channelled by national, regional and international entities for climate change mitigation and adaptation projects and programs.

“If present trends continue, this century may well witness extraordinary climate change and an unprecedented destruction of ecosystems, with serious consequences for all of us. A rise in the sea level, for example, can create extremely serious situations, if we consider that a quarter of the world's population lives on the coast or nearby, and that the majority of our megacities are situated in coastal areas.”

Pope Francis
Laudato Si' #24

What can YOU and I do?

- We can all become more informed about the impact of sea-level rise on vulnerable communities throughout our regions, and monitor the responses of local and central governments. Read the full [‘Hungry for justice, thirsty for change’](#) report.
- Join us in calling on our political leaders to [take action](#) for climate justice for the world's most vulnerable communities, and in making changes in our own lives to be more environmentally sustainable.
- [Stay informed](#) by joining our community of climate justice champions acting in solidarity with those most affected by climate change.