

Small yet strong

VOICES FROM OCEANIA ON THE ENVIRONMENT





Fishing near
Lalomanu, Samoa.

Small yet strong

VOICES FROM OCEANIA ON THE ENVIRONMENT

Small yet strong in the love of God, like Saint Francis of Assisi, all of us, as Christians, are called to watch over and protect the fragile world in which we live, and all its peoples.

Pope Francis: *Evangelii Gaudium* #216, 2013

Ka mate te whenua, ka mate te tangata,
Ka ora te whenua, ka ora te tangata.

*If the earth dies, the people die,
If the earth lives, the people live.*

ST FRANCIS DAY
4 OCTOBER 2014





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Photo shows taupata (*Coprosma repens*), an extremely tough coastal plant of Aotearoa New Zealand, able to withstand strong winds and salt spray. Birds feed on its bright orange berries. Related *Coprosma* species occur across the Pacific Islands, in Papua New Guinea, West Papua and Australia.

This booklet has been printed on paper produced from sustainable sources, after consideration of the options available to us to reduce the impact on the environment.

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About this report

This report draws from interviews carried out with Caritas Aotearoa New Zealand partners and networks between March and August 2014. We approached groups with these key questions:

What are the environmental issues you are experiencing in your work and community?

What responses are people making?

What solutions do you think should be made?

What else do you want to tell us about environmental impacts affecting people in your community?

Caritas Aotearoa New Zealand is the agency for justice, peace and development of the New Zealand Catholic Bishops Conference. We undertake advocacy, education, aid and development on both local and global issues affecting people in the Pacific, Asia, the Middle East and Africa.

We are a member of Caritas Oceania, one of seven regions comprising the Caritas Internationalis confederation of 165 Catholic welfare, development and social justice organisations. Since 2003, Caritas Oceania has raised environmental justice and climate change issues within our confederation as matters of urgency affecting the wellbeing of peoples in the Pacific.

The New Zealand Catholic Bishops Conference has asked Caritas Aotearoa New Zealand to make the peoples of Oceania a priority in our work, and environmental justice is one of five key strategic goals in the Caritas Aotearoa New Zealand 2013–2017 strategic plan.

Our Pacific regional strategy recognises that climate change and environmental degradation pose a severe threat to Pacific livelihoods and survival. Caritas aims to work with the most vulnerable communities affected by climate change, including tāngata whenua (indigenous peoples), informal settlements, youth, women, disabled people and displaced people. Our aims include increasing community awareness of environmental issues and climate change in Aotearoa New Zealand and Oceania, promoting sustainability of natural resources, and undertaking advocacy to address structural environmental injustices.



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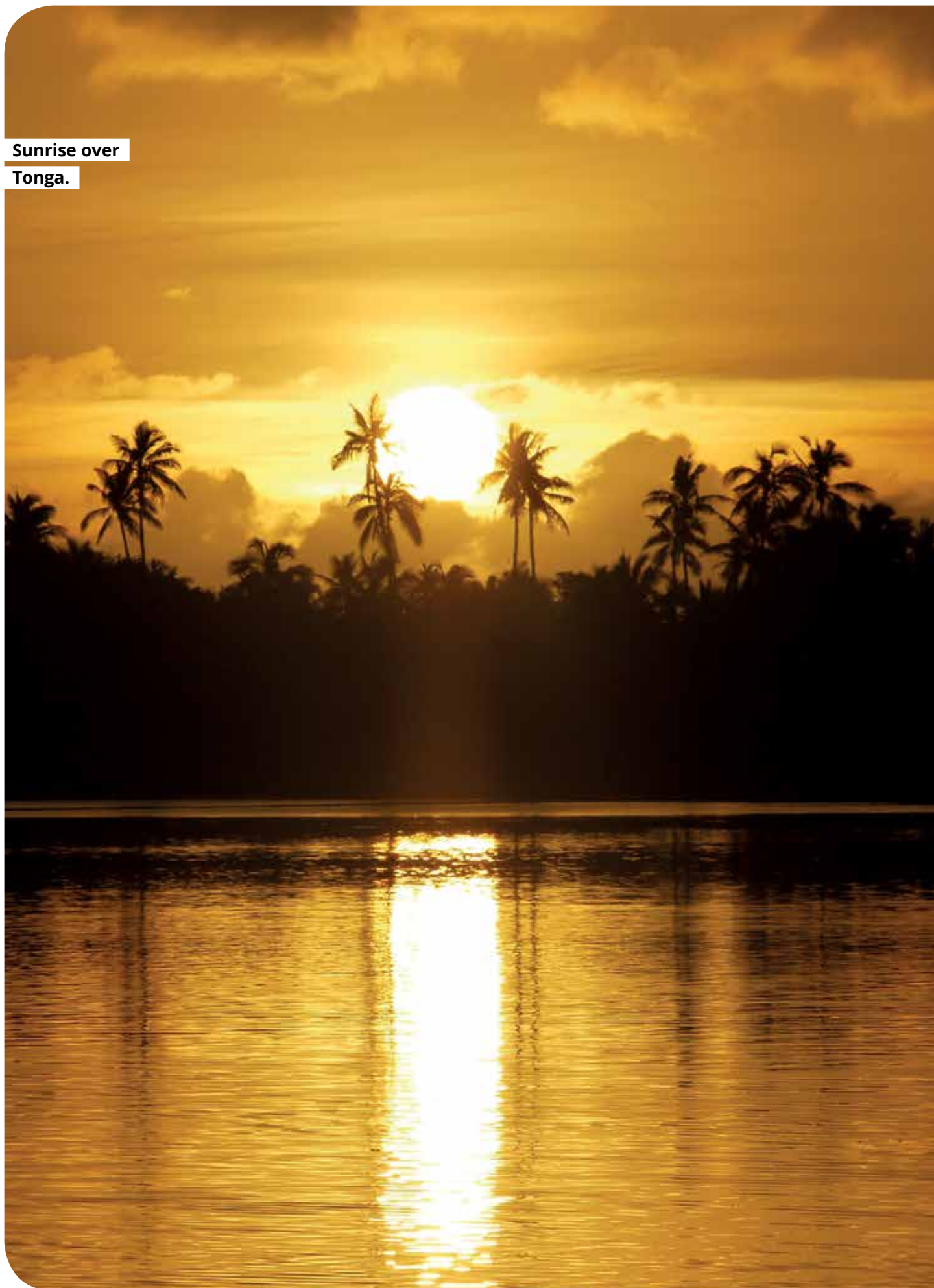
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Sunrise over
Tonga.



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The Synod Fathers called upon the governments and peoples of Oceania to protect this precious environment for present and future generations. It is their special responsibility to assume on behalf of all humanity stewardship of the Pacific Ocean, containing over one half of the Earth's total supply of water. The continued health of this and other oceans is crucial for the welfare of peoples not only in Oceania but in every part of the world.

POPE JOHN PAUL II: *ECCLESIA IN OCEANIA*, 2001

Introduction

The joys and hopes, the griefs and anxieties of the people of the Pacific in relation to their environment, are the joys and hopes, the griefs and anxieties of the Church. They are therefore the concerns of Caritas Aotearoa New Zealand – the New Zealand Catholic Bishops' agency charged with promoting justice, peace and true human development.

The Pacific Ocean or Te Moana-nui-a-Kiwa covers one third of the world's surface – a vast area of the world with relatively few people living in it. However, from within our place in the Pacific, voices are speaking out – some loud, some soft – with increasing concern and anxiety about what the future holds. They are concerned about how local and global environmental changes are affecting and will continue to affect the lives of people – in their gardens, in their forests, and out at sea.

Caritas Aotearoa New Zealand has a special concern for the people in this part of the world, mandated by the New Zealand Catholic Bishops Conference to make Oceania a priority in our work. Environmental issues are often at the forefront of concerns in the communities with whom we work, through our advocacy, development and aid programmes.

These issues include the legacy of environmental damage from the past, such as the ongoing impact of colonisation and past nuclear testing. There are the present-day impacts of mining, deforestation, overfishing and pollution. And there are early warnings of issues with long-term, unsettling implications, such as changing temperatures, eroding coastlines and unpredictable weather.

This report gives a voice from the people on environmental changes in Oceania. There are many reports assessing the situation and challenges facing the Pacific from a scientific or economic perspective – this report does not do that. Instead, we asked our Pacific partners and contacts to tell us what environmental challenges they are facing in their daily lives. We were also particularly interested to find out how they were responding to those challenges and what solutions they felt were needed.

The peoples of Oceania face very different realities – from the challenges of small



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Kuilani Fa'asolo of Caritas Tonga in Kolonga, Tongatapu.

islands and atolls, to bush-clad mountainous countries such as Papua New Guinea, to the large and complex economies of Australia and Aotearoa New Zealand.

However, what communities have in common across the region is experience of widespread environmental changes – observable on a daily basis over large parts of the Oceania landscape. But the peoples of Oceania are not sitting back as passive observers. They are exercising their traditional *kaitiakitanga* or guardianship of their lands, waters and resources, as best they can and often under very difficult circumstances.

As a Catholic agency, Caritas understands the environment as God's gift, to be treasured and protected for the sake of the poorest and most vulnerable, both today and for future generations. God entrusted all of creation to human responsibility, charging us to care for its harmony and development. This includes appropriate use of science and technology, in such a way that respects men and women, and all other living creatures.

The Bishops of Oceania have a long record of speaking out on environmental issues, asking us to practise responsible and loving stewardship of God's creation. Pope John Paul II represented this concern in his letter to the Church of Oceania *Ecclesia in Oceania*, reminding us of our special responsibility as guardians of the Pacific Ocean on behalf of all humanity. In Aotearoa New Zealand, the Catholic Bishops have reminded us that those most affected by environmental issues such as climate change are often those who have contributed the least to it. In his inaugural homily last year, Pope Francis called on us all to “be protectors of creation, protectors of God's plan inscribed in nature, protectors of one another and of the environment”.



This report draws on that religious tradition and on the traditional wisdom and insights of tāngata whenua of this region. Uncle Henare Ngaia, kaumātua of Taranaki and of the Catholic Hui Aranga, explains that both Genesis and Māori accounts of creation teach us that human beings are the pōtiki, the youngest members of the environment in which we live. That means we have a duty of care towards our elders – the mountains, oceans, rivers, plains and creatures of our region.

Protecting the environment and finding solutions to the environmental challenges of our day, means first facing up to the reality. We have asked our sources to describe for us what the environmental changes mean for them. From large-scale industrial mining, forestry and commercial plantations, to the loss of food crops, water supplies and places of beauty, their stories collectively awaken and challenge us.

We may be tempted to feel overwhelmed and helpless by stories of environmental degradation. To understand a way forward, we must first acknowledge and lament for what has been lost and repent for past actions and attitudes that have led to it. Then we can look ahead to the future.

There are many stories of hope, of communities and individuals working with each other and what resources they have to try to restore and repair their own environments, to connect with others and to restate an ideal and a vision of a world where people live in accord with the natural environment. We tell stories of what people are doing to reclaim control, and we conclude our report with recommendations for future action – by government and regional decision makers, by communities and by individuals.

We ask you to join us in listening to the voices of Oceania speaking about their experiences, their fears and pain, as well as their hopes and dreams for the future of their home and their ocean environment. They are small communities, small voices within a vast and vulnerable region, but strong in love and determination to protect the fragile world in which we live, and all its peoples.

But ask the animals, and they will teach you; the birds of the air, and they will tell you; ask the plants of the earth, and they will teach you; and the fish of the sea will declare to you; Who among all these does not know that the hand of the Lord has done this? In his hand is the life of every living thing, and the breath of every human being.

JOB 12:7-10

Reefs and island in
Ha'apai group, Tonga.



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1 Battling the sea with sticks and stones

All around the Pacific, islanders are struggling to protect their land and livelihoods from encroaching seas and coastal erosion. Coastal plantings and community-built sea walls are being used to fend off the sea, with mixed results. This chapter looks at how villagers in Vanuatu, Papua New Guinea and Tonga are protecting their land from the sea.

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Fr Denis Revi

Marist priest Fr Denis Revi grew up on northwestern Malekula in **Vanuatu**. “There were certain stones we used to stand on and jump in. Now it’s all covered under the sea. There used to be some beaches where there’s completely no beach at the moment – it’s just water under the sea.”

Coastal grasses are being planted at Mele on the island of Efate to help prevent sea erosion, but he’s not sure how effective that will be.

“People might have to think about relocating their villages, because the sea has come up. Some have been making sea walls from stones – they just collect stones and throw them on to try to protect the shoreline. But that creates more problems. The sea erodes other places outside the sea wall, and you often see this happening with investors building hotels by the seashore. Many times it’s the village next door that cannot afford to build a wall of stone that will end up suffering the erosion.”

Many communities on low-lying islands and coastal areas of **Papua New Guinea** are making their own sea walls to keep the sea at bay. Mathias Ire, Kimbe Diocesan Caritas Coordinator in West New Britain, says people use stones, logs, coral and even large shells to make sea walls. Vertical sticks or posts are placed in the shore to mark the wall, then logs or planks nailed across them. Finally, stones are put in behind the logs or sticks. Such walls tend to last two to three years, though some that are bound together with wire mesh may last longer.

“Once these sea walls are destroyed by the sea,” says Mathias, “the sea keeps coming, it doesn’t stop. Once the sea breaks the wall down it continues to dig into the beach.”

“Once these sea walls are destroyed by the sea, the sea keeps coming, it doesn’t stop.”

MATHIAS IRE,
PAPUA NEW GUINEA



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Sea wall in Carteret Islands made from giant clam shells.



Meanwhile, in **Tonga**, the women of Popua are raising their claim to land on the edge of the lagoon in the main island of Tongatapu. Settlers first moved to the area in 1982 after cyclone Isaac, which displaced 45,000 people – almost half the population of Tonga at the time.

With money raised from income-generating activities, women in a Caritas Tonga project group have bought stones, a truckload at a time, to raise the level of the land. Similarly with topsoil – they get a truckload in, and share that soil among their members.

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Ata Manoa

“The biggest challenge is that we don’t have land,” says the group’s eldest member, Ata Manoa, “so we accept all the environmental challenges present in our community ... excessive rain causing flooding, erosion of the sea. We accept it because we need somewhere to live.”

During high tide, water comes up to her door. “If vehicles come out there on the road, they cause a ripple effect, and it can come in.”

But not everyone in the area has money to build up their land. Project group members have been able to pay for reclamation from their earnings, but some of their surrounding neighbours don’t have the same means. In the rainy season, water collects at one low-lying spot, but will then wash itself around to other houses, even those that have been ‘reclaimed’.

There needs to be a community-wide response, says Caritas Tonga Programmes Coordinator Amelia Ma’afu. At every workshop they go to, the women ask if funds can be provided to reclaim land for the entire community.

“That’s the only way to end or decrease the effects of flooding – funds to reclaim the entire Popua or to have some mechanism for upgrading the foreshore to keep the water away,” says Amelia.

“We accept all the environmental challenges present in our community ... We accept it because we need somewhere to live.”

ATA MANOA,
TONGA

Home by the sea: 'Do-it-yourself' on the edge

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Katalina Vea

Katalina Vea moved to her home by the sea in 2009 with her husband and six children. When they asked for approval, the town officer just said, "If you want to reclaim the land, reclaim it."

Initially, they bought one truckload of stones, supplemented by leftover stones from construction jobs her husband and brother-in-law were working on. In small holes of topsoil in the ground, she planted an orange tree and native plants. Along their house, other plants grow in pots.

The house itself is made of recycled corrugated iron. Large packing cases provide internal walls to separate two small bedrooms from the living area, which doubles as another bedroom. Cooking (as with most basic homes in Tonga) is done in an outdoor kitchen. Her husband built a toilet outside, with the waste going to a septic tank. A broken refrigerator gathers seawater when the tide comes in, and that is used to flush the toilet.

After 97 truckloads of fill to build up the land, Katalina says King tides (the highest tides of the year) don't normally come into the house now. The family will put a few more truckloads of stones down the back of the house. When that is done, they will lay foundations for a proper house. However, Katalina is proud of their existing home because it was "all their own doing".

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Katalina's home by the sea.

Buma, Malaita,
Solomon Islands.



PHILIP GIBBS

2 Water, water, everywhere, nor any drop to drink

Safe drinking water is playing hard to get in parts of the Pacific. Groundwater supplies face pressure from both demand and contamination, while rainwater supplies are becoming more unreliable. The Pacific Ocean contains half the world's water – but there's not always a drop to drink.

The atolls of **Kiribati** have a limited supply of fresh water available underground in water lenses – layers of fresh water that sit directly under coral atoll formations. The main township of South Tarawa is home to half the nation's population. Its irregular town water supply (pumped from such a water lens) is often unavailable or at low pressure, according to Br Chris Poppelwell, a Marist brother heading St Louis high school. There are also problems with leaks and wastage. People resort to wellwater but wells are often

BR CHRIS POPPELWELL



Br Chris Poppelwell with water tanks in the background.

contaminated by seawater, sewage or waste.

“Increasing demand is making the problem worse,” says Br Chris, “and when a La Niña event comes, there is near total drought for as much as two years.”

Normally rainwater tanks offer good water, but they quickly run dry in times of water shortage, especially if their infrastructure isn't properly

maintained. Leaking tanks and broken spouting are a common problem. More people than before are also drawing from any one tank.

The outer islands of Kiribati rely on freshwater wells. However, underground supplies are small, shallow and fragile, and can become depleted quite quickly if demand rises. Unfortunately, the increasing use of solar pumps to mechanically draw up water means more water is being extracted than when people relied on a hand pump – as there's less physical effort involved.

The wells also risk contamination from toilets and graves dug too close to water sources. When the Caritas Youth Group from Tarawa visited some of these islands they gave environmental training sessions. Leader of the group, Boore Moua, says it helped

“When a La Niña event comes, there is near total drought for as much as two years.”

BR CHRIS POPPELWELL,
KIRIBATI



them understand how human actions might contaminate or affect fresh water. “For instance, if they’re digging a hole for a toilet, they should put the toilet on the lagoon-side, not near the wellwater source.”

However, in some cases, more drastic action was required. The Catholic community in Autukia on Nonouti Island had to move further inland to get closer to fresh water.

Another village on the same island, Abamakoro, has a problem with salinated water. “There is only one well that they as a community rely on and assume that it gives them fresher water than the other well,” says Boore, “but it is still salinated. They’ve been drinking it for years. After the training that we gave, they asked us if we can help them with their water. We are still trying to look for ways to help them.”

BOORE MOUA



Boore Moua

In **Tonga**, the central island group of Ha’apai has always been reliant on rain-fed drinking water, as the salinity of groundwater is high. However, weather patterns seem to have changed in recent years, and last year, rainfall was minimal during the usual wet-season. This was followed by a four-month drought from August that put pressure on water supplies. People from more remote communities were travelling long distances to the main town of Pangai to get water from schools and churches.

In response, Caritas Tonga brought in new plastic rainwater-collection tanks, and restored government-built rainwater storage tanks in five communities.

The government tanks were first built in the early 20th century, but earthquake damage in the 1990s led to their disrepair. These large, partly below-ground concrete tanks hold 75,000 litres as reserve water supplies. People fill their own water containers from the tanks, and water is tested on a regular basis. If it’s not safe to drink, it will be treated.

Projections for Tonga’s future rainfall trends suggest that dry seasons will become drier and wet seasons wetter, with an increase in extreme rainfall days.

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Restoring an emergency water storage tank in Ha’apai, Tonga.

Shortages and solutions in Solomon Islands

Changes in rainfall patterns are also affecting water supplies in Solomon Islands, says Wryne Bennett, Education Secretary for Gizo Diocese. Sometimes there has been no rain for up to two months, even in the rainy season. This puts pressure on inadequate water tanks and water-supply systems. However, when there is frequent rain, the roofs of houses corrode quickly and this affects drinking-water quality.

Elsewhere in Solomon Islands, one area that had been experiencing water shortages was a cluster of seven coastal communities near Auki on the large island of Malaita. In 2012, they identified with Caritas that their 42-year-old water system needed rehabilitation and extension. Originally built for one village, the system was now supplying 1,500 people. They shared this single source of fresh water for drinking, food preparation and washing, and everyone had to trek to the source village of Niu Kaloka to collect the water.

The system consists of an underground concrete tank placed on a hillside at a height of approximately 150 metres. An underground rain-fed stream with its source near the top of this hill flows into the concrete tank.

First the main collection tank was repaired, an additional storage tank installed, and three stand pipes were installed with taps for residents to access the water safely and conveniently. Members of the community helped dig trenches for the new pipelines.

In a second phase, reticulation pipelines were extended and a further 20 water taps installed in all the village communities. It has made a huge difference to the lives of the people who no longer have to wait hours for clean water, and the water pressure has improved from a dribble to a steady flow.

ADRIAN HEKE



Father and child doing the washing in Kweinaketo, one of the villages served by the Auki water scheme.



Lisa Vehikite with undersized kumala near 'Utulau, Tonga.

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3 Strange seasons and stranger times

Over the last five to ten years, there has been a change in the weather for the people of Oceania. In many places the temperatures have become noticeably warmer, and the weather more unpredictable – extreme events have become more intense and more frequent. “Going from drought conditions to very heavy rain and flooding is exactly the kind of pattern we can expect from climate change,” said Aotearoa New Zealand climate scientist James Renwick after winter rains flooded large parts of Northland this year. Many Pacific peoples have noticed disruptions in the seasonal cycle – affecting lives and livelihoods.

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Fr Dominic Maka says changing weather patterns are affecting crops in Papua New Guinea.

In **Papua New Guinea**, Fr Dominic Maka from Manus Island in the north says changing weather patterns are affecting crops, food plants and food chains. Some species are finding new ways to survive, while others are struggling or fading away.

“Animals and fish patterns of feeding have changed. They are not feeding on things that we normally know so they can be easily located and be caught for human consumption. Behaviour patterns change as well as feeding grounds.” For example, flying foxes (a type of bat) can’t find the usual abundance of fruit up in trees, so they come down to eat root plants like tapioca and sweet potatoes. Parrots are doing the same.

Cocoa pests are also increasing with warmer, more humid weather.

Fr Maka says the cocoa

pod borer (the larval stage of a mosquito-sized moth) and black pod fungal disease are attacking cocoa plants at a high rate, affecting the industry provincially and nationally. Most farmers are getting poor returns because of the impact on quantity and quality of cocoa beans.

In **Vanuatu**, Marist priest Fr Denis Revi says the change in weather patterns is the outstanding environmental issue. Even outside the normal rainy season, he has seen excessive rain cause large floods, and soil erosion destroy roads and crops.



Cocoa pods damaged by black pod fungal disease.

FR DOMINIC MAKA



“The people don’t know what to do with the crops,” he says. “They don’t really know how to protect their crops, and so these heavy rains just come and wash the crops away. People are not used to it.”

It’s hotter than it used to be, especially in the traditionally cooler months of July to September. Then in summer, there may be no rain. “A lot of villages still rely on the rain for water,” says Fr Revi. “People expect to grow certain crops in a particular season, but then it doesn’t rain as expected, and there is a shortage of food.”

Crops grown at particular times of the year become scarce, their quality drops, or they become expensive. Staple crops such as bananas, yams and taro are affected, while pineapple and mango “used to be juicier and bigger” remembers Fr Revi.

People on the islands of Tanna and Malekula – where he comes from – live basic lives, reliant on root crops. “This is when you see the reality of what people are going through,” he says. People see changes, “but they still keep doing the same thing, they still keep trying, working really hard, but yet it doesn’t turn out to be the best product, like they used to produce.”

Communities in **Tonga** have also noticed changes in the weather affecting growing cycles, particularly in the last decade. It’s not so cool from May to September any more – it tends to be warm all year round. Breadfruit used to ripen in November and December, but now appears throughout the year, only the fruit is smaller. Mangoes also tend to be smaller.

Changing weather patterns makes it difficult and unpredictable for growers like Lisa Vehikite (see opposite). They can also pile one disaster upon another. Amelia Ma’afu, Caritas Tonga Programmes Coordinator, says the central Tongan island group of Ha’apai – consisting of low-lying atolls – has several times experienced a damaging cyclone after a prolonged drought. Such was the case for cyclone Waka in 2001 and cyclone Ian in January 2014: each cyclone was preceded by a severe drought.

Mathilda Miria-Taiera, from Arorangi on Rarotonga, **Cook Islands**, says their wet and dry seasons seem to have reversed. In 2014, they had bouts of heavy rainfall in the usually drier months of May to July, while the wet summer season was unusually dry.

“Animals and fish patterns of feeding have changed. They are not feeding on things that we normally know so they can be easily located.”

FR DOMINIC MAKA,
PAPUA NEW GUINEA

Out of season

Lisa Vehikite grows taro, cassava and bananas near 'Utulau in southern Tongatapu, Tonga, as part of a group assisted by Caritas Tonga's microloans programme. Produce is sold locally and overseas.

Dry spells tend to last longer, and periods of rain have become more intense. Normally, the wet season runs from November to March. But in 2014, it extended to May, and they weren't able to plant new crops at the usual time.

"If there's rainfall, significant rainfall, then ploughing cannot take place, because the soil's too wet," explains Caritas Tonga's Programmes Coordinator Amelia Ma'afu. "And that has a direct impact on them in how they market their stuff. If they plant later then they'll harvest later, it won't reach the markets that they want, and therefore they won't meet the cost of production."

The extra rain has also brought on more weeds.

However, in extended dry periods, insect pests will attack plants from the leaves to the roots. When it's wet, the root crops are safer from pests, but won't grow so large. They'll be good only for the local market.



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Lisa Vehikite in her kumala patch: damaged by caterpillars, and with undersized tubers.



**Sr Makareta Tawaroa with
a feijoa in her garden alongside
the Whanganui river,
Aotearoa New Zealand.**

ADRIAN HEKE

4 Diminishing returns: food stocks whittled away

Nutritious food sources for Pacific Islanders are threatened by a number of factors, such as over-harvesting, changes in weather patterns, lost connections to personal food-growing practices and the impacts of resource exploitation such as mining and oil palm.

The Carteret Islanders in **Papua New Guinea** are losing their land to rising sea levels – and their fisheries resources to foreigners. Ursula Rakova, the Executive Director of Tulele Peisa, which advocates for the needs of Carteret Islanders, says outsiders are illegally poaching reef fish and giant clams, even from customary fishing areas.



Coconut palms destroyed by King tides in March 2014, Kiribati.

Tarawa Youth Group documented how King tides in March this year badly affected a neighbouring village, Buota. The land slopes down in places, so seawater that came in stayed around trees for three days. Breadfruit trees usually die first, says Boore, while coconut is also affected. One of the largest breadfruit trees, standing next to one of the houses, was dead less than three months after the event.

Wryne Bennett, Education Secretary for Gizo Diocese, **Solomon Islands**, says garden food crops are being lost where she lives due to heavy flooding, much warmer temperatures and changes in rainfall patterns: “This is happening much more frequently now than in the past: heavy pours of rain which washes the soil away from crops planted. For example, with our two basic food crops, potato

Another huge loss has been the disappearance of the island’s food staple – giant swamp taro. The species was lost when King tides hit the island in 1992 and it no longer grows there.

Exceptionally high tides and salty groundwater are also affecting traditional food supplies in

Kiribati. Boore Moua from the

“The inland people in Namosi have already complained about loss of wild yams, wild pigs, prawns... It has drastically affected their foodbank.”

LEO NAINOKA, FIJI

and tapioca, the flood just flattens the mounds and leaves the vines exposed to very hot sun.”

Leaves of food crops are also damaged by extreme heat, while in some coastal areas, coconut trees in place for years have been uprooted due to erosion of the shoreline.

“People are more alert now but don’t know how exactly to solve the problem,” says Wryne. “Many have given up. Many just continue and try other methods from others’ advice.”

In **Fiji**, the Social Empowerment Education Programme (SEEP) says large-scale mineral extraction is a prime threat to traditional food sources. Sediment and mine tailings in rivers are affecting freshwater food resources such as fish, mussels, prawns, eels and freshwater shellfish. On land, soil erosion threatens staple foods such as cassava, taro, sweet potatoes and farmed and wild vegetables.

Even exploration can affect food supplies. “The inland people in Namosi have already complained about loss of wild yams, wild pigs, prawns from the Wainavadu creek and Wainavadu conservation site in Wasoi,” says Leo Nainoka of SEEP. They said

ADRIAN HEKE



Sr Makareta Tawaroa

it was due to exploration processes for a new copper mine. “It has drastically affected their foodbank.”

In **Aotearoa New Zealand**, Sr Makareta Tawaroa of Ngā Paerangi, Whanganui river and the Sisters of St Joseph, recalls the days when the river sustained thousands of people, with mara kai (food gardens) and pā tuna (eel weirs) supplying food to settlements. The importance of eels as a traditional food source was recognised by early European translators who found that Whanganui iwi had over 160 different words to describe the variety and conditions of eels.

In the 1880s, there were over 350 eel weirs on the Whanganui river. These began to be dismantled by colonists to clear the river to allow the passage of steam and paddle boats. Despite petitions by local Māori from 1886, asking the government to protect the river as a food source, almost all the weirs had gone by 1900. The recent Whanganui river Treaty settlement recognises this history, including the loss of food resources and decision-making by Whanganui iwi over the river. However, many of the once-thriving river communities are now long abandoned.

Sr Makareta’s vision is to help those who remain in the area to once again rely on the river and the land as a source of food, rather than depending on supermarkets.

“We have a long history of battling for our reefs, and our food sources, our rivers... the more we do now to protect our waters and our reefs, and our land – our soil quality, the better off we’ll be.”

TIHIKURA HOHAIA,
PARIHAKA, AOTEAROA
NEW ZEALAND

Battling for our food

The Parihaka community in Taranaki, Aotearoa New Zealand lost their lands to confiscation in the 1880s, and present-day neighbouring land practices continue to erode their access to traditional food sources. They struggle to influence decisions on environmental matters as local government does not recognise Parihaka's kaitiakitanga (environmental guardianship) over their area.

"We have a long history of battling for our reefs, and our food sources, our rivers," says community member Tihikura Hohaia. "I grew up hearing the kuia here carry that fight. I've seen it with my own eyes: piharau [lamprey] rocks – that's a special kind of fish that we catch in winter – they're being pushed aside and moved so that the farmer can get his quad bike across the river easier, and get the stock through the river."

Recently a neighbouring farmer diverted the Waitekaure manga (stream) – threatening a beautiful wetland in the process. "It's a stretch of over 100 metres," says Tihikura, "of what's become pretty rare on that particular manga where the water comes out of its main channel and gets absorbed by marsh. You can actually walk on it, but it feels like you're floating and you get the sense that tuna [eels], whitebait can really get underneath there, and have a place to be."

"You could say that the streams have provided for millennia, therefore it has economic value, it should be, but it's a whole different cultural language. They're almost saying that the arteries that feed the river don't matter – go ahead and bury them. Whereas we'd say without our arteries, our rivers are nothing. Without those smaller feeders, that river wouldn't have any water in it."

"Once the oil starts running out, and economies start collapsing because they've based their whole thing on oil, we're going to have to start relying on our local food again, and the more we do now to protect our waters and our reefs, and our land – our soil quality, the better off we'll be."

DEENA COSTER/FAIRFAX NZ



Tihikura Hohaia explains how Waitekaure stream has been diverted to create more productive farmland, but also draining a wetland habitat for eels and whitebait.



**Warawara forest,
Hokianga, Aotearoa
New Zealand.**

5 Our forests are dying, our people are dying

Deforestation around the Pacific is destroying food, medicine and cultural resources, as well as ways of life. For indigenous peoples, forests are not a conservation wilderness. They are a home, a storehouse and of great spiritual significance.

In the West New Britain province of **Papua New Guinea**, Mathias Ire, Kimbe Diocesan Caritas Coordinator, says the clearing of forest is “devastating”.

“Our people are subsistence farmers, hunters and gatherers. Their lifeline has been disrupted in the name of development.”

Water for drinking and washing is becoming polluted and “people (especially women) now walk long distances to collect firewood, materials to build houses and other materials they need for social and cultural activities.”

Logging of native trees is often carried out to make way for oil palm plantations – polluting both soil and water. This is a major issue in both Papua New Guinea and West Papua.

In **West Papua**, Caritas works with the Franciscan Office of Justice and Peace in Jayapura (SKPKC Jayapura) to support traditional landowners in keeping their forests, rather than having them logged or converted to oil palm.

CARITAS



Fr Timotius Sefire

Fr Timotius Sefire from SKPKC Jayapura says forestry companies tempt landowners with offers of money. If the landowners don't sell, the companies will bring in the military to apply pressure: “Many people do not dare to talk about their rights for fear of the military, fear of being kidnapped or arrested – even their lives threatened.

“My own people do not enjoy the wealth of timber forest products from West Papua. It is enjoyed by the elite in Papua and Jakarta. It is unfair and inhumane.”

Much of the logging is illegal, but sometimes even the government doesn't play by its own rules. For example, a community meeting in May 2014 in the East Arso district of the Keerom Regency discussed a local government allocation of an

“Our people are subsistence farmers, hunters and gatherers. Their lifeline has been disrupted in the name of development.”

MATHIAS IRE, PAPUA NEW GUINEA

SKP-KC



Logs being barged along the Siak river, West Papua prior to loading onto a ship.

oil-palm permit to an Indonesian company.

One of the attendees, Cleman Nouyagir, had worked on the map establishing the Keerom Regency, including an area designated as owned by the indigenous people.

“That land is protected forest and the source of our livelihood,” Cleman told the meeting. “The government should know this already, which means they shouldn’t be giving out permits. We call it the Golden Triangle because it is the land we have always lived from, until now. We can use the wood, go fishing in the river, and there are also sacred places there. But now all of our forest has been destroyed, we have handed it all over. There’s just a little bit left for our grandchildren, so I would put my life on the line for it.”

“My own people do not enjoy the wealth of timber forest products from West Papua. It is enjoyed by the elite in Papua and Jakarta.”

FR TIMOTIUS SEFIRE,
WEST PAPUA

Lives on the line

Fr Timotius Sefire relates how his uncle Paul and father Kondradus put their lives on the line to protect their forest in the Fruata district of West Papua:

When our family faced a timber company to stop them cutting down our trees, they reported it to the local army post.

That night soldiers came in a truck complete with weapons. They called out, “Who is Paul Sefire?”

My uncle replied, “I am. Why?”

Then the soldiers said, “Why forbid? Come with us to the post.”

The soldiers cocked their guns and said he must follow them. They threatened firing at my uncle Paul. At that time, my father Kondradus Sefire was also there. He faced the army and said, “If you want to shoot my younger brother, shoot me first, but the bullets are going to hit yourself.”

It was an army of fear – the soldiers went back to the post that night because they were too scared. This happened in the forest, far away from the village. My family survived and our forests are protected to date.



CARITAS



Noely and her family in Keerom, West Papua have lost most of their local food sources to oil palms. Here, she makes sago from one of her family's few remaining sago palms. One palm can supply a family of four with sago for four months.

Fr Dominic Maka, from Manus Island in northern **Papua New Guinea**, says logging and associated soil erosion are among the key environmental issues where he lives.

“Soil is torn and ripped by big, heavy machines creating a lot of soil erosion which floods rivers and creeks, the source of our drinking water,” he says. “Erosion kills freshwater fish, eels and prawns, the source of protein and other living things along the creeks and rivers.”

The natural habitats of wild pigs and cuscus (the largest type of possum) are being destroyed, while species unique to Manus such as the green tree snail and chauka bird are in danger of becoming extinct.

“Money is becoming the agenda,” says Fr Maka. “Ordinary people ... have felt the pain of round log harvesting, ... they have expressed dissatisfaction against the Forestry Act of issuing licenses to foreign logging companies, and they have emphasised more downstream processing and usage of simple applications that will not pollute the air and sea.”

Travelling through mangroves which offer coastal protection, a habitat for wildlife and filtration of water runoff. Kapo, Papua New Guinea.



PHILIP GIBBS

6 Digging holes for ourselves

Large-scale mining and quarrying are removing vital soil and food supplies, endangering lives and in some cases, washing sediment out to sea, damaging coral reefs and seafood resources.

The **Fiji** government is pushing for massive extraction of minerals and river gravel as a big money-earner for the Fijian economy, according to grassroots organisation Social Empowerment Education Programme (SEEP).

In Nawailevu, Bua Province, on the main northern island of Vanua Levu, a huge bauxite project by a Chinese company is devastating rivers, streams and sea resources, says Leo Nainoka of SEEP.

Soil washed out to sea is killing coral reefs and impacting on crabs and reef fish like mullet and parrot fish. “The livelihood that the communities depend a lot on for survival has been tremendously affected,” says Leo. “What they used to get before to feed the families is getting very scarce.”

Yet the company and government claim that rehabilitation of the land is possible. “Company workers are planting watermelons and pineapples for themselves,” says Leo. “But you cannot rehabilitate land after taking away the topsoil and rehabilitate it by planting watermelon and pineapples.

“Just imagine removing trees that have been there for more than 20 to 30 years, removing the topsoil and digging deeper for bauxite. What do you think will happen there?” He predicts loss of soil fertility, species, and traditional herbs and medicines; as well as damage to sacred sites and fragmentation of communities. The land will not be viable for agriculture.

“You cannot rehabilitate land after taking away the topsoil and rehabilitate it by planting watermelon and pineapples.”

LEO NAINOKA, FIJI

TIKINA NAMOSI LANDOWNERS COMMITTEE, VIA SEEP



Erosion (left) and chemical spills arising from mining at Nawailevu bauxite mine, Fiji.



At Namosi, near Suva, an Australian/Japanese joint venture is planning a gold and copper mine. Even in the exploratory stage, chemical spills have polluted rivers and streams, and locals have lost wild yams, wild pigs and prawns.

Large areas of Fiji have been licensed for prospecting, exploration and mining, for resources such as gold, copper, silver, bauxite, black sand and manganese.

In **Papua New Guinea**, the huge Ok Tedi mine accounts for 25 per cent of the nation's export earnings, but has led to massive flooding and sediment polluting large parts of the mighty Western Province. The 30-year-old gold and copper mine is in an area that averages eight metres of rainfall a year.

Toxic sediment has killed fish and harmed animals and people living in the Fly and Ok Tedi river catchment area. It has raised riverbeds, changed the nature of the flow and increased flooding.

"The rivers cannot contain all the rainfall, the huge quantity of the rainfall, so it overflows," says Bishop Gilles Côté of Daru-Kiunga diocese, "and when it overflows it brings with it mud and sediment." When the water level drops, the sediment remains as a 'dryback' area.

"There are some rivers, beautiful, small rivers along the Fly River that I know myself that were beautiful. You see beautiful trees on both sides and then ducks and birds. Now, you go there – dead trees, nothing, all gone, because of the pollution, the sediment and all this. That dryback area is getting bigger and bigger with the years, so the people are affected because their environment which is so important to them is affected. In the middle Fly especially, the people, they have to go much further now to get food. A lot of the sago places, swamps, are polluted now, they cannot use it. And that's the staple food...."

"They have to go further inland, and the challenge for those people is that they're not gardeners. They are hunters and fishers.

"They have to work harder to feed the children," says Bishop Côté. Sometimes parents will be away from the village for a few weeks to get food. "If they want to keep their children in school, they need to give them enough food before they go, otherwise the children go with them, so it can affect education also."

Mining of a different sort is causing concern in **Samoa**. Construction works such as buildings, sea walls and rock walls require large quantities of fill and topsoil. To meet demand, quarries and large extraction holes are appearing all around Samoa, not always with appropriate approvals.

“There’s been a lot of destruction of sacred grounds, there’s been erosion, loss of natural habitat and the animals that First Australians hunted as traditional foods. They’re not able to go back to the places where they used to be able to go.”

MARIAN KICKETT,
WESTERN AUSTRALIA

Undermining traditional ways in Australia

CARITAS



Marian Kickett says First Australians are paying the price for expansion of mining in Western Australia.

While mining has boosted Australia's economy, it has impacted on First Australians' traditional practices and food sources, according to Marian Kickett, Chief Executive of Unity of First Peoples of Australia, based in Western Australia.

"There's been a lot of destruction of sacred grounds, there's been erosion, loss of natural habitat and the animals that First Australians hunted as traditional foods," she says. "They're not able to go back to the places where they used to be able to go, so it's a breakdown of the ecosystem. But it's also a breakdown of some of their traditional practices and knowledge, and that needs to be maintained because it's got to be passed on to my children's generation, but also their children's and future children's generations to come."

For example, in Warmun in the Kimberley area, the Argyle diamond mine is located near a significant women's sacred place. The waterholes and swimming holes are particularly rich in freshwater fish, as well as freshwater crocodiles that Aboriginal people were not afraid of. "But now with the erosion from the mining, there are more saltwater crocodiles which are more aggressive ... It has made a significant impact, so women can't go back to those places."

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Puletini Tuala

Caritas Samoa Director Puletini Tuala says there is increased risk of erosion, flooding and health and safety hazards. The Ministry of Natural Resources and Environment currently has limited powers to act.

Puletini personally experienced this issue in his own village of Leauva'a on land adjoining his property. Initially, the village council did not want to sell; but then individual council members were lobbied, and they came round to supporting it. Eventually a pit was dug – the size of two tennis courts and well over the height of a person. Concerns were raised with the Ministry of Natural Resources and Environment.

However, the village council has reconsidered the extraction issue, and has resolved that no more quarrying will be allowed in the village lands. "It was not an easy decision," says Puletini, "as some chiefs and some families really needed this as income generation for their developments, like building a new home, but after a long deliberation, the ban was agreed."



Honiara,
Solomon Islands.

ADRIAN HEKE

7 All at sea – what’s happening to our oceans?

The ocean knows no boundaries – we in the Pacific are connected and united by the sea. But its rich diversity and source of life are threatened in so many ways: a changing chemistry, overharvesting and coral-reef destruction.

The value of the Pacific Ocean to the whole world is illustrated by the Coral Triangle. Straddling the Western Pacific and Southeast Asia, it is the most biologically and economically valuable marine ecosystem on Earth. It has been called the ‘Amazon of the Seas’ and is home to the world’s largest tuna fishery.¹ Its natural resources sustain the lives of more than 130 million people living within it, and millions more worldwide.² The Triangle covers the waters around Papua New Guinea and Solomon Islands, as well as Indonesia, Timor-Leste, Malaysia and the Philippines. Its coral reefs are threatened by overfishing and local pollution as well as the world’s oceans becoming warmer and more acidic.

Fish and other seafood are an important food source for rural Solomon Islanders, says Gregory Bennett of Worldfish in Gizo, **Solomon Islands** – 87 per cent of their protein needs come from sea resources. And for most fishermen living in and around Gizo, it is a good source of income.

However, it is now harder for most people to get fish. Weather patterns have changed, leading to unusually heavy rainfall, even outside the normal wet season. Earlier this year, torrential rainfall sent a huge amount of sediment into the sea. “It impacted the fishermen – they have to paddle further off shore because the reefs so murky. There’s no clear visibility within the nearby fishing grounds.”

The local population has also increased in recent years. “A lot of people come to Gizo to look for jobs and money,” says Gregory. And with more demand, fishers have to go further away, and the price of fish increases. On weekends, it can be sometimes double or triple in price.



GREGORY BENNETT

Heading out to fish in Gizo, Solomon Islands.

1 Tory Read, 2014: *Stewarding Biodiversity and Food Security in the Coral Triangle: Achievements, Challenges, and Lessons Learned*. USAID/CTSP.

2 World Resources Institute (WRI), 2012: *Reefs at Risk Revisited in the Coral Triangle*.



GREGORY BENNETT



Preparing edible seaweed for market in Gizo, Solomon Islands.

Other commercial seafood such as shellfish, sea cucumbers and snails are also affected.

Another issue arises from communities building their own sea walls, in response to higher tides and coastal erosion.

“They pick up corals from the nearby reefs to build sea walls,” says Gregory. “That changes the balance in the sea too – destruction of the sea habitat where the fish live.”

That means women have to go further away to get seaweed for consumption. “Not only the seaweed, but these are homes for

little reef fish and shellfish. They no longer live there now.”

In **Fiji**, the organisation Social Empowerment Education Programme (SEEP) reports lots of negative effects on sea resources due to inland development like logging, river-gravel extraction and mining. “The main issue is how the coral reefs have been damaged and covered in sediments as a result of inland extraction or even unsustainable agricultural practices,” says Leo Nainoka.

Fr Michael McVerry of the Marist Tutu Rural Training Centre on the smaller Fijian island of Taveuni highlights the threat to reefs from logging, but also how it can be done in a controlled way.

“When you log, you get the water and the dirt and everything comes down to the rivers and it just goes out, and all the dirt kills the reefs,” he says. Brown, silt-laden water drifts around their coastline. “We don’t have it at the moment. We’re a little bit on top of that. We do sawmilling ourselves – it’s good. Sawmilling’s a good thing to do, but it’s selective, not bringing down hillsides.”

Preserving the reefs is important, he says, and tourist operators are particularly concerned. Dead or damaged reefs are likely to lead to an increase in ciguatera fish poisoning – caused by increase in a type of toxic algae that thrive off dead or damaged coral surfaces. They accumulate in reef-feeding fish, which will poison people if eaten. Symptoms of diarrhoea, vomiting, weakness, fatigue and headaches will last one to two weeks usually, but may persist for years.

Similar issues of sedimentation are affecting coastal areas around **Papua New Guinea**. “Tailings from mines are disposed into streams and river systems as well as dumping them into the ocean floor,” says Peter Bosip of the Centre for Environmental

“When you log, you get the water and the dirt and everything comes down to the rivers and it just goes out, and all the dirt kills the reefs.”

FR MICHAEL MCVERRY, FIJI

Coral reefs – why should we be concerned?

Rising greenhouse gas emissions are making ocean waters warmer and more acidic.

Warming water bleaches coral, and more acidic water slows coral growth. By 2030, almost all reefs in the Coral Triangle region are projected to be threatened, with 80 per cent in the high, very high or critical categories. By 2050, all the region's reefs are projected to be threatened.

Local stressors are threatening more than 85 per cent of reefs within the Coral Triangle region. These include overfishing, destructive fishing techniques, and pollution from rivers and coastal development. When these local threats are combined with global ones (such as climate change), the proportion of threatened reefs in the region rises to more than 90 per cent, much greater than the global average of 75 per cent.

Countries most vulnerable to coral-reef degradation include Fiji, Kiribati, Vanuatu, Papua New Guinea and Solomon Islands. Their reefs face high threat levels, people depend on them a lot and the people's capacity to adapt is limited.

People depend on coral reefs for food, livelihoods and shoreline protection. Papua New Guinea is among the three countries in the world with the greatest numbers of people who fish on reefs, while Solomon Islands has more than 80 per cent of households

engaged in fishing. Coral reefs protect 70 per cent of Solomon Islands' shoreline from storm damage and erosion.

SOURCE: World Resources Institute (WRI), 2012: *Reefs at Risk Revisited in the Coral Triangle*.

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Coral reefs protect the shoreline of islands such as this one in the Ha'apai group of Tonga.

Law and Community Rights. "The impact of tailing disposal, sedimentation and increased turbidity [muddiness] leads to water pollution, loss of aquatic species and destruction of marine life."

Mathias Ire, Kimbe Diocesan Caritas coordinator in West New Britain, says sediment from mining, logging and intensive agriculture is turning estuaries and river mouths brown. People don't fish in such places any more. Instead, they go further up the coastline, where it can be more dangerous.



**The fishing is still good around
Kapo, Papua New Guinea where the
community has kept control of
land and seas around their island home.**

8 What they do in the depths

What's happening off-shore in the depths, 'out of sight and out of mind'? Deep-sea mining and drilling are breaking new boundaries and dabbling with new dangers.

PAUL BOOCOCK



Nikora Wati (front) and Shannon Makowharemahihi (centre, back) lead the charge against deep-sea drilling at a Kaikōura beach protest, February 2014.

In 2013, the Ngāti Kurī people of the South Island, **Aotearoa New Zealand** became concerned about deep-sea oil exploration in the Pegasus Basin off their coast. Seismic surveying could adversely affect the marine mammals that support the locally grown Whale Watch tourism venture, while an oil spill from exploratory or production drilling would be disastrous.

Ngāti Kurī are kaitiaki (guardians) of the land and adjoining

ocean in their rohe (tribal area). The coast off Kaikōura is one of Aotearoa New Zealand's richest marine environments and large parts of it are designated for special protection in legislation to be passed in 2015.

Caritas Aotearoa New Zealand supported Ngāti Kurī in their attempts to protect the local economy and communities, saying that the needs of economic development must be weighed against the needs of environmental protection and the social impact on local Māori communities. Good stewardship requires consideration of both present and future generations.

Ngāti Kurī's interests are represented by the wider tribal body Te Rūnanga o Ngāi Tahu (Council of Ngāi Tahu). The General Manager – Tribal Interests for Te Rūnanga, James Caygill, expects a lot more mineral exploration offshore, particularly for oil and gas. Ngāi Tahu does not seek a blanket ban on such exploration, but considers each proposal on a case-by-case basis.

They opposed a phosphate mining application seeking to dredge the top metre of seabed off the Chatham Rise – a ridge of high

“Good stewardship requires consideration of both present and future generations.”

CARITAS AOTEAROA
NEW ZEALAND



ground on the ocean floor stretching from the top of the South Island to the Chatham Islands.

“We see it as fundamentally destructive,” says James, “and that’s really what we’re interested in. We don’t ever take a ‘lock it up and throw away the key’ approach – that’s not Ngāi Tahu’s historic approach to the environment. It’s always been heavily focused on mahinga kai, about sustainable use of the resource.... how what’s proposed can be sustainable, and if it’s not, if it’s doing irreparable harm to the environment, then that’s going to present a fundamental problem to us.”

Deep-sea mining got underway properly this year, when a Canadian company finalised a deal with the **Papua New Guinea** government to extract copper, gold and other metals from its Solwara 1 exploration site. Off the coast of Rabaul, East New Britain at a depth of 1,500 metres, robotic machines will be mining the top layer of the seabed, and pumping the ore as a slurry for processing on the surface. Wastewater will be piped back down to the seafloor.

Deep-sea mining is a fledgling industry, though prospecting, exploring and ‘testing of the waters’ has been going on for years. Appropriate environmental controls are still being developed, and the rules are inconsistent. For example, hydrothermal vents around which many undersea minerals occur are protected from regulated fishing, but not from mineral extraction. The United Nations’ International Seabed Authority is still developing guidelines for the environmental management of seabed mining outside national jurisdictions, while the Secretariat of the Pacific Community (SPC) is working on regional guidelines for Pacific nations.

Deep-sea mining is scaring a lot of people, says Pelenatita (Tita) Cara of **Tonga’s** Civil Society Forum. Earlier this year she attended an SPC workshop to help establish a legal framework for Pacific Island nations drafting relevant local legislation. Such legislation to allow deep-sea mining has been passed by the Cook Islands and Papua New Guinea, while Fiji and Tonga are close to passing.

Organisations such as Tita’s, seeking to protect local communities, are calling for “free, prior and informed consent” before deep-sea mining and prospecting goes ahead, and application of the precautionary principle – that something should not be done if the consequences are uncertain and potentially dangerous. Companies need to do their homework properly on environmental risks, and governments need to enforce the law.

Three companies are currently exploring the seabed off Tonga, says Tita, but no mining has started yet. “The only thing that’s stalling them is that the government haven’t had their Act ready.”

“What’s going to happen to all our creatures in the sea? I think you need to explain the good and bad.”

SR SENOLITA VAKATA,
TONGA

So what's so special down there?

Deep-sea mining primarily targets 'sea-floor massive sulphides' (SMS) – huge masses of black mineral deposits containing precious metals such as gold, silver, zinc and copper. The sulphides form around hydrothermal vents – underwater hot springs on the sea-floor that produce clouds of metal sulphides that settle and solidify around the vents in large mounds.

Deep-sea miners are chasing deposits around both active and inactive vents. Scientists are only beginning to understand deep-sea ecosystems. Conditions around hydrothermal vents are found nowhere else on Earth, and could be where life began on the planet.

They house extreme and surprising life – one such place in an emerging undersea volcano near American Samoa has been nick-named 'Eel City' because of the deep-sea eels that

NOAA PMEL EOI PROGRAM



Scientific monitoring at an active hydrothermal vent in the northeast Pacific. A bed of tube worms covers the base of this 'black smoker'. (Sourced from www.pmel.noaa.gov/eoi/gallery/smoker-images.html)

live there. The eels are unusual because hydrothermal vents are predominantly inhabited by invertebrates that live off the chemosynthetic bacteria that thrive on the warm, acidic waters. These bacteria produce organic material from sulphur compounds rather than from sunlight using photosynthesis.

A University of Queensland paper on deep-seabed mining says organisms at various hydrothermal vents have been investigated, but the connections between them and the potential for recovery of plant and animal life has not been closely studied, while "the ecology of populations at inactive deposits is largely unknown." Predicting the impacts of SMS mining is challenging – let's be careful out there.

SOURCE: Dr Tina Hunter & Madeline Taylor, 2014: *Deep Sea Bed Mining in the South Pacific: A background paper*. Centre for International Minerals and Energy Law, The University of Queensland.

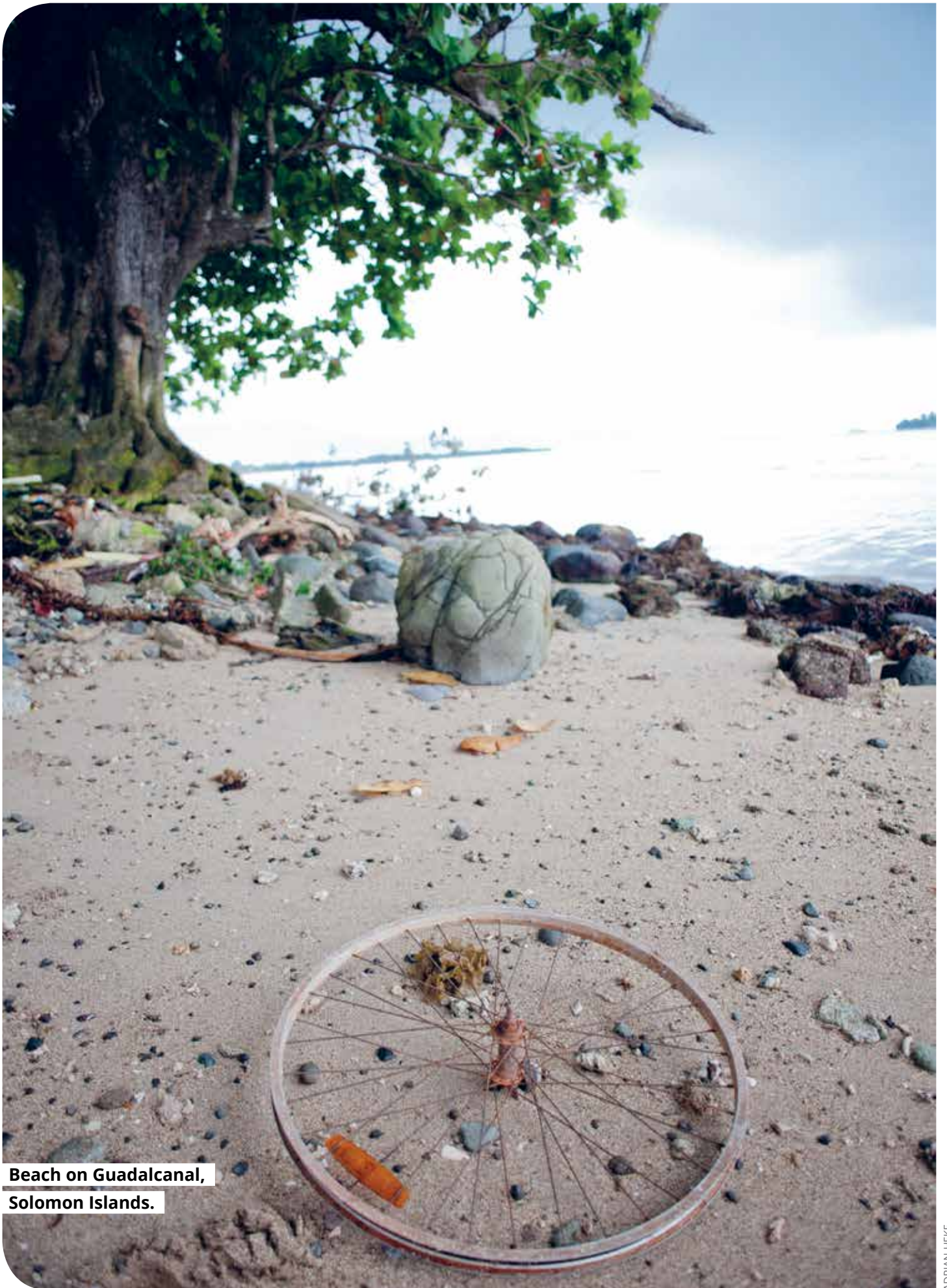
CARITAS



Sr Senolita Vakata

At a deep-sea mining workshop in April 2014, Caritas Tonga Director Sr Senolita Vakata (pictured) raised concerns about the scientific implications: "What's going to happen to all our creatures in the sea? I think you need to explain the good and bad, and make the people understand what scientific things are happening."

While there was a lot of talk about the natural resources offshore and the money that could be made, she said people were disturbed, and information needed to be shared more widely.



**Beach on Guadalcanal,
Solomon Islands.**

ADRIAN HEKE

9 Wasted – rubbishing our oceanic home

Solid waste is an increasing problem across the Pacific, especially on small islands with no organised recycling, waste collection mechanisms or places to put the rubbish.

“Pollution and the growing volumes of solid and hazardous wastes are major threats to the environments and sustainable development of the Pacific islands,” according to the Secretariat of the Pacific Regional Environment Programme. More consumer-based economies are generating more solid and liquid wastes, and increasing the risk of coastal and marine pollution.

CARITAS



Fr Stephen Te'e

Fr Stephen Te'e, parish priest of St Peter the Apostle parish in Gizo, **Solomon Islands**, says non-decomposable, plastic and metal-based rubbish is creating “unpleasant surroundings, potential risk of increase in malaria infection, dengue fever,

diarrhoea, dysentery”.

Caritas **Tonga** Director Sr Senolita Vakata says in her country, many people don't care or don't know how to dispose of rubbish properly – “we see the dumping of diapers around in the bush”. There needs to be more awareness-raising and training in environmental care.

Waste disposal is an acute problem in **Kiribati**, which consists

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Recycling cage at the market in Vava'u, Tonga.

of 33 mainly low-lying coral atolls spread out across a vast expanse of the central Pacific.

Rubbish accumulation, including ‘dead’ vehicles on the side of the road, is one of the main environmental problems in Kiribati says Br Chris Poppelwell, a Marist brother who heads St Louis high school on the main island of Tarawa. He says the waste provides a habitat for pests and a

A nurse working in remote islands would have to be creative in managing medical wastes and ensuring public safety where there is no proper machinery or equipment for disposing of medical wastes.

TERAMIRA SCHUTZ,
KIRIBATI



health hazard, especially for children playing in rubbish-dumps.

Youth leader Boore Moua says Kiribati's outer islands have no place for waste disposal, but in densely populated South Tarawa, there are now waste collections, recycling and bulky waste collection. The New Zealand High Commission has assisted with green bags for waste disposal.



CARTAS

Rubbish accumulating on a Kiribati beach.

Boore's Caritas Youth Group has twice worked with the Ministry for the Environment on 'Clean up Tarawa days', and has arranged other clean-up days for designated areas.

SUPPLIED



Mathilda Miria-Tairea

The waste collected is disposed of at one of three landfills on Tarawa.

Mathilda Miria-Tairea, a **Cook Islands** government worker and parishioner of St Mary's, Arorangi, led the project to design and establish engineered landfills on Rarotonga and Aitutaki islands. The landfills use special plastic liners to stop leaching into the soil, and are expected to last another 11 years.

She also helped introduce a recycling scheme for plastics, aluminium and glass.

Special shipping containers were developed to transport recyclables several times a year to Aotearoa New Zealand.

However, the waste facility has not been shipping recyclable products for the last three years, since the return on the price of recyclable plastics is very little. Alloy cans have been crushed, baled and compacted and may be sold to a local company, rather than shipping them out.

Mathilda says glass is no longer shipped – instead it is crushed and placed in the landfill or stockpiled. The rest of the refuse is baled by a commercial baler, reducing the size, and compacting the waste into small bales for placing in the landfill. This minimises space, and saves costs for topsoil to cover the waste – tidier and safer, and free of flies and vermin.

“Any of that soil may be contaminated. No one should be growing food in their gardens there without doing extensive soil testing.”

NICKY CHAPMAN,
PORT CHALMERS,
OTAGO, AOTEAROA
NEW ZEALAND



Nicky Chapman

While these efforts indicate a good tidy-up, an **Aotearoa New Zealand** experience highlights the future risk landfills can pose. Dunedin environmental campaigner Nicky Chapman relates how a successful community garden in Port Chalmers was undermined by old waste: “We had a community garden going here in Port and everyone was really enthusiastic, and then they went to put some trees in. They decided to do more soil testing before they put fruit trees in. When they did the soil testing, they discovered it was very contaminated because the soil was all landfill – I believe it had come from an old gasworks – so the whole garden had to be ripped out. It was just heartbreaking for people.”

The affected area also includes a school, a kindergarten, a childcare centre and state housing – all built on old landfill. “Any of that soil may be contaminated,” says Nicky. “No one should be growing food in their gardens there without doing extensive soil testing.”

Sharp edge of waste disposal in Kiribati

The problem of rubbish disposal in Kiribati is highlighted by problems surrounding medical waste. I-Kiribati woman Teramira Schutz worked as a nurse in Kiribati, until she migrated to Aotearoa New Zealand in 2006.

The disposal of medical waste was difficult, especially sharps (items such as needles). The outer islands have no special facilities for proper medical waste disposal – yellow waste containers for sharps would just be set aside for each clinic – sometimes accessible to other people.

“A nurse working in remote islands would have to be creative in managing medical wastes and ensuring public safety where there is no proper machinery or equipment for disposing of medical wastes,” says Teramira. It was costly to send these full, sharp, yellow waste containers from rural areas to the main island for proper storage. Different places would have different levels of adequacy of management.

She says Tarawa had better systems after completion of the new hospital in the early 1990s. The medical wastes were properly managed back then with the use of an incinerator. Used-sharp wastes were disposed of in safe places surrounded by high walls in the main hospital in Tarawa. Installation and regular maintenance of medical waste-disposal equipment are crucial.



**Ferry in Auki,
Solomon Islands.**

BETTY-ANN KAMP

10 Lethal legacy: poisoning the Pacific

Poisons banned in many developed countries may continue to be used in developing countries, including many Pacific Islands. Uncontrolled use of agricultural pesticides, fertilisers and other chemicals is affecting soil, waterways and the sea, while land-use practices are putting pressure on water quality.

The Keerom area of Jayapura, **West Papua** is a large, flat plain. Fr Timotius Sefire from the Catholic Justice and Peace Office SKP-KC says transmigrants from other parts of Indonesia have transformed it for agriculture. “They grow corn, chillies, vegetables, chocolate and so on,” says Fr Timotius. Chemicals are sprayed on the grass to dry it out for gardening.

“These pesticides go into the soil, wellwater and become poisonous and harmful to humans,” says Fr Timotius.

Early in 2014, he helped people in his own village in Keerom to pump out polluted water from a well, after flooding washed contaminated water into it. They needed food aid and clean water from the government until they were able to clear the water.

Toxic residue from oil palm plantations is leaving a legacy that is harmful to the surrounding indigenous population – the land is so flat that when it rains and floods, residents fear using wellwater. Oil palm is a crop grown intensively with artificial fertilisers and pesticides, usually after natural forests – which have provided food, medicines and spiritual sustenance to Papuans – have been cut down.

“People say they don’t want oil palm because it isn’t good for the land, but the company doesn’t listen.”

FR TIMOTIUS SEFIRE,
WEST PAPUA

SKP-KC



Oil palm plantation in West Papua.

Fr Timotius says oil palm plantations usually occupy a site for 25-26 years. After that, “The land is no good for new plants. It makes it dry with no water. Compost from oil palm is not good.” People will try to grow taro or banana, but they won’t produce.

“People say they don’t want oil palm because it isn’t good for the land, but the company doesn’t listen.” They often impose their will on indigenous Papuan landowners by co-opting military pressure.



SUPPLIED



Fr Oliver Aro

Fr Oliver Aro, Superior (head of the Church) in **Tokelau** since 2011, says throwing garbage in the sea is common, and affects the whole ocean.

People wash chemical containers in the ocean. “They don’t feel the impact of doing that, but to me it has impact on the living organisms in the sea – seaweed, coral etc.

“There have been some instances where fish have become poisonous – isolated instances. I think it has something to do with the oil, the damage of oil waste thrown in the ocean. There was a boat that sank in a certain part of reef, and there were cases of people becoming sick.”

Contaminants and excess nutrients in rivers are also concerning **New Zealanders**, and there is a national debate over what level of pollution is ‘acceptable’.

The quality and supply of water near her papakainga (home marae) of Tuahiwi in North Canterbury is the key environmental concern for Gabrielle Huria of Ngāi Tahu, who is also a member of Te Rūnanga o te Hāhi Katorika (National Catholic Māori Council).

Gabrielle says, “Our traditional food-gathering places are slowly being destroyed due to heavy metals from drain pipes and cars, and faecal content from stock, in the water. The creeks and streams we gathered watercress from and swam in 10 years ago are not safe for people to swim or eat out of today. We no longer gather kai in the traditional places.

ADRIAN HEKE



Teresa Homan

“On a personal level I would like to see my two sons being able to swim in the Ashley River again like I did at their age.”

Teresa and Stewart Homan, from Upper Hutt parish and Friends of the Hutt River, are concerned about urban and rural pollutants getting into the Hutt River flowing into Wellington Harbour.

“The River is under threat by the way in which we use the land surrounding the river and the amount of water we take from it. It appears healthy ... but this is deceptive,” they say.

“One of the most obvious signs of pollutants and over-use is the growth of algae Cyanobacteria in the summer, which causes restrictions to swimming and playing by the river due to the health risks and by the death of dogs. While the algae may be naturally occurring, it has increased in growth and has become poisonous to people and animals.”

“The creeks and streams we gathered watercress from and swam in 10 years ago are not safe for people to swim or eat out of today. We no longer gather kai in the traditional places.”

GABRIELLE HURIA,
TUAHIWI, NORTH
CANTERBURY, AOTEAROA
NEW ZEALAND

Nuclear contamination – a lingering sore

Nuclear contamination remains a lingering sore in the Pacific, despite the end of nuclear testing almost two decades ago.

Testing by the United States, Britain and France took place in Micronesia, Australia and French Polynesia from 1946 to 1996. Though the tests have ended, radioactive contamination remains in the region and there is the additional threat of fallout from the Fukushima nuclear power plant in Japan, damaged by an earthquake in 2011.

Pacific Islanders face health, environment and displacement issues not addressed by adequate compensation.

Marshall Islands communities have borne the brunt of radiation sickness and long-term cancer risks. Environmental studies show serious radioactive contamination continues at nuclear test sites, including contamination of food plants such as breadfruit and coconut.

Lemyo Abon was living on Rongelap Atoll in the Marshall Islands when the United States conducted its largest ever test, 'Bravo', on neighbouring Bikini Atoll, on 1 March 1954. "Immediately our drinking water turned yellowish and the food was bitter and tasteless," she says. Over time, she joined other villagers relocated from the northern atolls to the main islands of Kwajalein and Majuro. Now in her 70s, she longs to return home. However, only one-quarter of Rongelap has been 'rehabilitated' and made safe for habitation, while the rest remains contaminated. Six decades after 'Bravo', people are still exiled from their island home.

Summarised from ICAN, January 2014: *Banning Nuclear Weapons: A Pacific Islands Perspective*.

GOVERNMENT PHOTO/PUBLIC DOMAIN



The 'Baker' test blast at Bikini Atoll, July 1946.

NIC MACLELLAN



Lemyo Abon at Majuro, September 2013.



**Hayden Whittaker and Bobby Proctor
at Maungapōhatu (highest point)
in the Warawara forest, Hokianga,
Aotearoa New Zealand.**

11 Re-covering the past to restore the future

Many organisations of Pacific peoples are recognising that the past often provides the key to the future. That involves protection and restoration, and integration with the modern world.

The Tutu Rural Training Centre in Taveuni, **Fiji** provides training for young men and women to become self-employed farmers – caring for the land. “Traditional people talk about the vanua, the place, the land, to

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Fr Michael McVerry

which they have a great attachment,” says Fr Michael McVerry who has headed the Centre for more than 40 years. “That concept, you can extend it further to include the soil because the place is the soil, the physical soil that makes up this place that they regard as their own identity, and where they belong.”

He is concerned about the over-use of agricultural chemicals, though they use them themselves to a limited extent – about 20 per cent of what they used to. “We’ve had to be converted ourselves, and I’ve had to be converted – about the environment. It’s new for me, it’s only about 10 or 15 years old inside me ... but the poor man can’t get a big enough crop without the use of chemicals – that’s the issue.

“We’ve taken that up in a big way, not by preaching about the disaster, but by exposing people to the wonderful world of soil, and how soil works, and how you build the soil and the effects of it. In other words, we’re talking about biological farming.

“Biological farming means use of compost, and all the goodies that are available that we didn’t know about whereby you can build the elements in your soil. We run soil schools ... and in the process of doing soil schools, the chemicals are exposed for the evil that they are. But if you just preach on about the thing without understanding, people won’t change. Farmers sweat hard for their crops and attitudinal change is very slow amongst rural traditional farmers. So you’ve really got to get on the inside of them, and develop a LOVE of the soil.”

“Traditional people talk about the vanua, the place, the land, to which they have a great attachment ... the place is the soil, the physical soil that makes up this place that they regard as their own identity, and where they belong.”

FR MICHAEL MCVERRY,
FIJI



In **Aotearoa New Zealand**, the Warawara forest in the Catholic heartland of the Hokianga is entering a new era of conservation and cooperation. The forest, on the west coast of Northland between the Hokianga and Whāngāpē harbours, covers 13,324.5 hectares: 6,758.5 hectares as conservation land and 6,566 hectares privately owned.

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Rongo Bentson

Rongo Bentson, Kairarataki/Environmental Coordinator for Te Rūnanga O Te Rarawa and Project Coordinator for the Warawara Restoration Project, says the hapū has “virtually been locked out of the forest” since it was brought under the control of various government departments. But under a Treaty of Waitangi settlement, the hapū and the Crown through the Department of Conservation will jointly manage and govern the forest reserve – about 6,758.5 hectares. This will be backed up by conservation work outside the reserve among the neighbouring private owners.

“The possums, the rodents, they are killing off bird life, they are eating the seeds, preventing the forest from regenerating,” says Rongo. “The Department of Conservation have issued a report where they admit that the forest is actually dying right now. If nothing is done, it will die. Warawara is of the utmost historical and cultural significance to the hapū of Te Rarawa,” he says.

Te Rarawa kuia the late Dame Whina Cooper, who grew up and lived in Panguru, one of the communities bordering on Warawara, called it ‘Te Wairua o Te Iwi o Te Rarawa’ – the living spiritual being of the Rarawa people.

“Te Rarawa used to get everything from Warawara. The further back you go in time, the more they were dependent on Warawara, and now it’s the forest that needs their support.

“We’re trying to reconnect people with the forest and set up so that they can be actively involved in kaitiakitanga,” says Rongo. This involves an education resource developed by Caritas, at the invitation of the local school Te Kura Taumata o Panguru, on the significance of the forest, and how to exercise kaitiakitanga (guardianship).

“We’re trying to reconnect people with the forest and set up so that they can be actively involved in kaitiakitanga.”

RONGO BENTSON,
WARAWARA FOREST,
NORTHLAND, AOTEAROA
NEW ZEALAND

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Learning the ways of the forest.

Keeping promise with Papatūānuku

Papatūānuku Kī Taurangi – Earth Promise in Ellerslie, Auckland is a community garden that seeks to restore people's relationship with the land and teach the lost arts of growing food and maintaining a healthy soil, while building community with people in need.

"There have been people who have lost connection with the land; and so what we're about is trying to re-establish the connection with the land, and in doing that, there's that restoration of spirit, there's that restoration of relationship," says Sr Bridget Crisp, a Mercy Sister who helped establish the garden. "One of the biggest issues focusing everybody is food security, and the sense of needing to reconnect people with the sense of where their food comes from is I think of primary importance."

As food has become more processed, "we tend to disconnect from the original beauty of the product.... Part of what we are trying to do here is the appreciation of the land, appreciation of the food that's growing on the land, and by doing that – it's an appreciation of the divine." She sees a link between environmental degradation and poverty. "There is a lack of respect for the integrity of the land, and therefore there's a lack of respect for the integrity of the person, the internal mana of the person."

Garden volunteer Joanne Ponds planted a kowhai tree at the garden for her granddaughter's birthday. "She was turning one and I wanted to plant her afterbirth.



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Ping Sim with her son Shi Ming Erb.



JOHN WILLIAMS

Joanne Ponds with her kowhai tree.

It was quite a blessing. It was like having something you never had, growing up," she says.

Ping Sim appreciates the wairua and spirit of Papatūānuku Kī Taurangi as a place to grow food. "It's a real calming oasis. As a volunteer, it's nice to have that calming influence in the middle of your week. It's not about the gardens, it's about the people. I'd rather garden here, be part of a community."



Rongo feels confident they'll be able to save Warawara, and it doesn't matter how long it takes. "As long as we can stop it from getting worse and see a bit of progress in it, so that we have a turnaround in which direction the forest is going."

In **Australia**, the Aboriginal Carbon Fund (ABC) works with Traditional Owners to develop carbon projects and build relationships with corporate Australia. They are currently working on a voluntary market scheme called Fair Carbon which includes the social, cultural and environmental co-benefits of carbon credit production.

They are also actively involved in the development of a new Savanna Enrichment methodology.

"Over the last 40,000 years," says ABC General Manager Rowan Foley, "the traditional owners in Australia managed a landscape that produced food, and if you didn't do that, you starved to death. They actively managed the land and in many cases propagated the seed for those trees to grow, and how they managed the land was they did little, small fires.... when [the trees are] quite young, they're fire sensitive which means they'll get burnt up in a big bush fire, so they did little fires to protect them, and to allow them to grow, and those trees used to be found throughout all of northern Australia, that produced food.

"They had these landscapes that were producing food, and you had these little fires that were protecting these trees, and then, ... as white fellas came and black fellas moved into town, those little fires were replaced with big fires – so you had big fires coming through the landscape because the landscape was depopulated, and with the big fires coming through, those food trees disappeared and were replaced by eucalypt trees or gum trees and acacias or wattles."

In **Tonga**, Caritas Tonga's community development programme supports retention of cultural practices by providing microloans to support small groups making traditional crafts and growing the raw materials to sustain them.

People were becoming alarmed at the decrease of tapa culture in Tonga as the raw material – the mulberry tree – was not being replanted. Pandanus, another important cultural crop used to weave mats, is also under threat.

Tapa and mats are integral parts of Tongan life – they are the traditional Tongan gift, and special tapa and mats will be created or given for key life moments such as birth, first birthday, marriage or death.

"Over the last 40,000 years, the traditional owners in Australia managed a landscape that produced food, and if you didn't do that, you starved to death. They actively managed the land."

ROWAN FOLEY,
ABORIGINAL CARBON
FUND, AUSTRALIA

Growing spaces in the heart of the city

Avondale Community Gardeners (ACG) focuses on promoting a good urban environment – spaces for growing things, for play and for rest. Until the 1960s, the Rosebank Peninsula area was a horticultural heartland for Auckland, growing staple crops, root crops, tomatoes, etc. for Aotearoa New Zealand’s largest city. Imi Tovia still remembers picking strawberries and chatting to the Māori workers whose families had moved down from Northland. Then in 1957 the area was re-zoned and split in half – residential in the south, light industrial in the north.

“Everyone who lives in the area acknowledges that it was horticultural,” says Imi. “We’re just used to it being a food basket area, which it was right up to the ’60s. So it’s got its own bioregional difference, local difference because of the soil. The soil here is loam, it’s a raised marine seabed, so the soil is totally different. People who live elsewhere in Auckland have never seen soil like this.

“Soil is always localised, and it’s localised here on the peninsula. So these are the natural advantages of the area, but bit by bit they’re taking away its individuality, and making it look like any other part of Auckland. [But] it’s got its own unique story, and memory in the soil as well, what’s gone into the soil.”

She says it’s important that people know and understand the history, heritage and stories of the place, and retain some continuity with the past.

ACG’s outreach has included providing tools, gloves, seedlings and timber garden surrounds for St Mary’s school Avondale, where teacher Craig Satherley began a school veg garden back in 2011, to extend language



ST MARY'S SCHOOL

Petelo, Carmelite and Noesis in the garden at St Mary’s school, Avondale.



MALIA DELACEY

Arnica Laiman (left) and Joaquin Delacey help plant a community orchard with Avondale Community Gardeners.

skills and link it to curriculum subjects. Craig says the children are really enthusiastic about the garden. “It gets them out of the classroom doing practical, hands-on work and problem-solving out in the field.”

The school has also joined the ‘Garden to Table’ programme, so the children are now harvesting, preparing and eating healthy food they have grown. They are recycling garden waste through composting and worm farms, and began solid waste recycling this year. They have also learnt about the impact of industry on the environment and undertaken stream planting with the Whau River Catchment Trust to filter out chemicals from stormwater entering the Waitematā Harbour.



In response to identified community needs, Caritas Tonga encouraged project groups to include planting of mulberry and pandanus for tapa making and mat weaving respectively. They will help preserve and protect important aspects of Tongan culture and tradition, and strengthen the role of women.

Amelia Ma'afu, Caritas Tonga Programmes Coordinator, says mats and tapa are being sold overseas and becoming more important than agriculture exports. A recent survey discovered that mats and tapa are being exported out of Tonga at a higher rate than food crops or any other agricultural product. The inaugural Cultural Tourism Convention, held this year, signalled the government's recognition of the importance of traditional crafts such as tapa and mat making in contributing to family incomes.

"Tonga is at a stage of going back to its roots," says Amelia.

“What we’re about is trying to re-establish the connection with the land, and in doing that, there’s that restoration of spirit, there’s that restoration of relationship.”

SR BRIDGET CRISP,
AUCKLAND, AOTEAROA
NEW ZEALAND

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Women from Caritas Ma'ufanga Parish Committee beat tapa at the Tongan Cultural Tourism Convention.



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12 Preparing for the long emergency

For Pacific Islanders facing greater coastal erosion and increased weather risks, being in a constant state of emergency preparedness is vital. They are at the beginning of the 'long emergency' – a term James Kunstler used to describe a convergence of multiple crises such as climate change, water scarcity, economic instability and war. How prepared is Oceania for this 'long emergency'? And what else needs to happen?

KIMANH LE ROUX/ADRA



Tending to the injured in a disaster simulation exercise in Vanuatu.

The Carteret Islanders in northeast **Papua New Guinea** have been among the first to navigate their way through the impact of climate change. Faced with coastal erosion, sea and inland flooding, loss of food sources and disputes over land, they negotiated with the Catholic Church on Bougainville for four land areas on the mainland, according to Ursula Rakova, advocate for the Carteret Islanders through the organisation Tulele Peisa – ‘Sailing in the wind on our own’.

Ursula says those remaining on the islands are supplying fish to those on Bougainville, while those on the mainland provide vegetables and other food crops. “This has been an ongoing exchange since the relocated families moved to Tinputz (on Bougainville) in 2009,” she says.

“It is just a kind of reciprocal giving where families in Tinputz continue to supply their families on the island with food crops to sustain the very simple diet of fish they have every day. When families started to produce enough food for their own sustenance they started to worry about their other family members on the island, wondering what they were having for their meals.”

Cash cropping of cocoa and coconut is the main activity for those on the mainland, but Ursula says they are integrating this with food crops as a family activity. “The families work together in what they call ‘community days’ where support for each other

“By dialoguing with communities, and inviting government divisions into the communities, we’re trying to bridge the gap between science and traditional knowledge.”

AMELIA MA’AFU,
TONGA



PESI FONUJ/MATANGI TONGA



Mele'ana and 'Ana Kofe in the remains of their home in Lifuka after cyclone Ian hit Ha'apai in Tonga in January 2014.

is highly appreciated."

Caritas **Tonga** has brought climate-change threats and emergency risks together in a new climate change adaptation and disaster risk management programme. Caritas Tonga Programmes Coordinator and Climate Change Officer, Amelia Ma'afu, says it grew out of preparing communities for disasters with drill exercises and emergency planning.

"The communities became aware of risks," says Amelia. "Instead of living in fear or ignorance, they now had a baseline, a fair idea of what would happen in a tsunami, for instance, and the importance of such things as evacuation centres and village emergency plans."

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Amelia Ma'afu

However, it needed to go further. "We wanted to achieve community resilience at grassroots level and part of that community resilience is adaptation to climate variance and disaster risk reduction."

When cyclone Ian hit the Ha'apai group in January 2014, Caritas Tonga felt this was the perfect time to introduce the climate adaptation programme. "People are more aware," says Amelia. "This is the time they are most aware about environmental matters, climate variance and the importance of disaster preparedness. Also, the activities identified under the climate change adaptation programme will actually contribute to recovery."

The work has included rehabilitating community rainwater-collection tanks, providing food-crop seedlings and rehabilitating mangrove forests.

Solomon Islands got a taste of what climate change could bring when intense rain and flooding in April 2014 devastated parts of the capital Honiara. But it also had a widespread effect on Visale, where David Rauna lives – a science teacher at St Joseph's School, Tenaru.

"The effect of the waves going inland was clearly visible on where I live," says David. People in low-lying areas had their gardens eroded, and they lost coconuts that they relied on for copra.

"If only people could be convinced on the effect of this climate change I think they will possibly live where we are living now – to move to higher ground, anticipating that any future disaster that might happen will cost life."

The Secretariat of the Pacific Regional Environment Programme (SPREP) and Food and Agricultural Organisation of the United Nations (FAO) have warned that climate change

Traditional knowledge meets scientific forecasting

Caritas Tonga's climate change adaptation and disaster risk management programme includes innovative incorporation of traditional knowledge with meteorological forecasting. One example of such traditional knowledge, says Amelia Ma'afu, is that if there's so much breadfruit that it's just falling on the ground and rotting, that's a classic indication that there will be a cyclone that year.



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Breadfruit tree in Tonga.

"Also, if chickens sleep lower in the mango tree, it means that there will be a strong wind that season.... There's just so much information in the communities that's not being used."

On the other side, the official weather bulletins are often in complicated Tongan language. "It needs to be simplified so that farmers are able to use this weather information," says Amelia. Under the climate change adaptation programme, Caritas Tonga will bring the traditional knowledge from the communities, while the Tonga Meteorological Division will bring the science. "We build a common bulletin out of that, which takes into consideration the traditional knowledge, so one gives credit to the other."

"What we plan to do ... is provide a platform for information sharing, and the documentation of climate information. By dialoguing with communities, and inviting government divisions into the communities, we're trying to bridge the gap between science and traditional knowledge."

could have a "devastating impact on food production systems in Pacific island countries", and that it was "critical to build resilience of food systems" by growing a greater diversity of crops with ability to weather storms, droughts and variable weather.

Currently Pacific development and disaster experts are working on a new strategy for sustainable development in the **Pacific**, to take into account both climate change and disaster resilience. This would supersede the existing Pacific Islands Framework for Action on Climate Change and the Pacific Disaster Risk Reduction and Disaster Management Framework for Action, both due to end in 2015.

Megan Krolik, Program Coordinator for Disaster Risk Reduction (DRR) for Caritas Australia attended a regional consultation on a draft of the integrated Strategy for Climate and Disaster Resilient Development in the Pacific (SRDP).

"There is international acknowledgment that by developing a combined strategy for disaster risk reduction and climate-change adaptation, the Pacific region is leading the world in risk reduction and sustainable development," she says, after attending the 6th Session of the Pacific Platform for Disaster Risk Management, held in Fiji in June 2014. The new Strategy is expected to be adopted by the Pacific Leaders' Forum in 2015.



Conclusion

*Start by doing what is necessary, then what is possible,
and suddenly you are doing the impossible.*

ST FRANCIS OF ASSISI

Vulnerable people throughout Oceania are living with and adapting to environmental changes and challenges every day in the course of their lives. They are actively striving to overcome the immediate consequences of environmental problems, which were not of their making and are beyond their control.

Yet many of the communities and individuals interviewed for this report have hope and faith. Despite the enormous challenges they face, and despite setbacks and trials, they are doing and will do what they can to look after the people who live and depend on the fragile environments of our region. We all can and must do more to work together in support of these efforts.

We thank the groups of Oceania who have shared with us your experiences and perspectives on environmental changes. We have seen and heard your griefs and anxieties. We see and hear your joys and hopes.

We have heard from people and groups dealing with **environmental issues arising from the past**. This includes those living with the consequences of actions undertaken by decision-makers far from our region, such as nuclear-testing and contamination of water and soil. It includes those living with the ongoing consequences of colonisation, from loss of control of rivers and streams in Aotearoa New Zealand to those who risk their lives to protect their traditional lands and forests in West Papua. There is a need to **heal and restore** what has been damaged. There is a need to ensure that people who bear responsibility for traditional kaitiakitanga/ guardianship or customary ownership of land and natural resources are able to exercise that guardianship; they have the knowledge to enable their people to flourish.

We have heard from people and groups living with the **environmental impacts of present day activities**. These include activities such as mining, forestry, pollution and overfishing. From the degradation of rivers and landscapes, to the loss of food sources, there needs to be urgent action to **control and repair environmental damage**. There needs to be more control and regulation of activities affecting the environment. People affected or potentially affected by decisions about resource use need to have a greater say in decisions that affect them. Companies and governments responsible for environmental damage need to be held accountable. They need to move now to invest in sustainable, regenerative solutions.



We have heard from people and groups living with the **present day warnings of future environmental issues**. These include coastal erosion due to rising sea levels and loss of reefs, temperature and season changes, loss of essential fresh water and food supplies, changing weather and increased weather-related disasters. While an immense amount of activity is generated and money spent through international fora to discuss climate change, this seems extremely remote from people on the ground in the Pacific who are building sea walls from sticks, stones, shells and coral. There is a need to minimise the impact of increasing environmental changes, and to intensify our assistance for ongoing community efforts to **plan and prepare**.

Their situations awaken and challenge us as a Catholic advocacy, aid and development agency. We hope and trust that they will also awaken and challenge us all who encounter these stories. From decision-makers at global and national levels, to communities and families at a local level, there is more we can and must do.

In the Catholic social teaching tradition, we approach issues through the steps: See, Judge, Act – Tirohia, Wānangatia, Mahia. This report is part of the SEE process – improving our understanding of what is happening for our partners and networks in Oceania. We invite you all to join us as we enter the process to JUDGE – which is to say, to consider and reflect on what we have seen and heard in the light of our ethical values and principles, and in the context of decisions that are being made at global and local levels. Following this, we each need to find ways to ACT.

Together, as communities, public and private sector organisations and decision-makers we need to commit to:

Listening better to those most affected ...

We all need to continue to SEE, which may in fact mean more listening – continuing to find ways to hear from the people who are most affected by environmental issues in our region. This is a matter of good **stewardship**, which means we care for God's gift of the natural resources of the world, with particular concern for the most poor and vulnerable and for future generations.

Ensuring resources are available for the most poor and vulnerable communities, and they can participate in decision making about their future ...

We need global fora such as the United Nations climate change talks to find agreement on ways to limit further environmental damage. People most affected, such as communities in the Pacific, must be enabled to **participate** in these discussions. Commitments made must be kept; and funds raised for climate change adaptation must urgently reach communities in the Pacific, now, not at some unspecified time in the future. We need a comprehensive, ongoing plan to assist communities in the Pacific to prepare for and respond to increased weather-related emergencies.



Raising awareness to advocate for environmental justice ...

Awareness raising within our donor and supporter communities needs to help people to understand that the disaster to which they respond with generosity and love may result from causes which require advocacy with government and regional decision-makers, as well as personal lifestyle changes. If unaddressed, climate change will wipe out decades of development efforts dedicated to improving the lives of people in our region.

Speaking out for those affected and sharing ways to change ...

For communities, parishes and schools, we can find ways to support environmental initiatives in our own communities, and to add our voices to those asking governments to respond with greater urgency and priority to environmental concerns. Parishes and schools may wish to undertake an environmental audit to see if there are ways to improve our use of resources like power. It is important also to share with others what we are doing, to encourage others to do what they are able to do, and to learn from other groups.

Limiting the impact of extractive industries, while encouraging investment in renewable sources of energy ...

We must find ways to reduce rather than expand extractive industries such as mining and oil exploration. We need also to recognise that replacing fossil fuels with biofuels and alternative energy sources is also having negative impacts on food supply and the wellbeing of traditional landowners. There must be increased investment in new and existing forms of sustainable, renewable energy.

Working for the sustainable development of all peoples in the Pacific ...

For governments and global decision-makers, there is an urgent need to look beyond traditional positions on issues and traditional constituencies. Environmental issues are no respecters of national borders and electoral cycles. We need cross-regional, cross-party agreement and action that looks beyond short-term economic gains, to environmental protection as an investment in the people of Oceania. We need development that is truly sustainable.

Protecting the good of all ...

Environmental protection is also about protecting the **common good**, which is the good of each person and the good of all people. This requires that we recognise **subsidiarity**, which ensures that people who are the most affected by environmental changes are able to **participate** in decisions that will impact on their lives.



Recognising the need to flourish and thrive ...

We recognise that the **human dignity** of people in our region is compromised when they are unable to exercise their rights and responsibilities – for example, to have adequate access to traditional sources of food, or to exercise traditional guardianship of land and water. We need to take a **preferential option for the poor and vulnerable** because environmental degradation affects and will continue to affect the poorest members of our societies the most. Our actions individually and collectively give us an opportunity to show **solidarity**, which is to demonstrate and express a real and deep concern for other people, including those we may never meet.

Integrated thinking and action for a comprehensive response ...

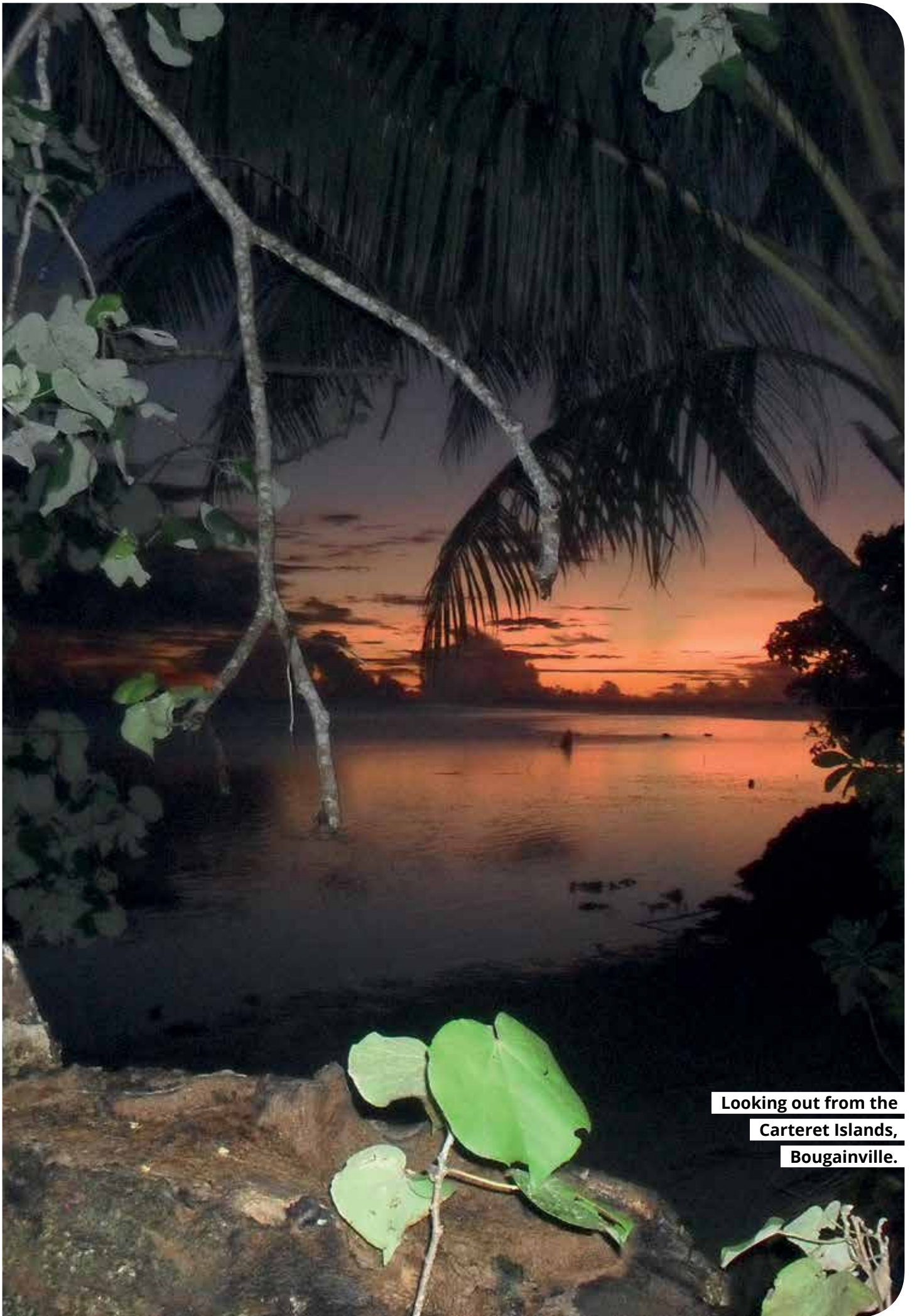
For organisations like Caritas and others responding to issues of poverty and injustice in our region, it requires that we better integrate our thinking and action to respond to environmental issues across the Pacific in a more comprehensive way. We need to leave behind compartmentalised and fragmented approaches, and seek inclusive solutions which bring together the government, NGO and private sectors.

Living more simply ...

There is also a need to restate what we already know. For some individuals and families, responding to the environmental challenges in this report will be about lifestyle changes that we are able to make ourselves. Finding ways to live more simply – in the spirit of St Francis – do make a difference. This may mean growing some of our own food; walking, biking or taking public transport to school or work; reducing rubbish and food waste by reusing and recycling. For Catholics and other Christians, drawing on our religious traditions to give up a little so others have what they need to survive is a source of inspiration and strength that enables us to make these lifestyle changes.

We are small yet strong in the love of God

The peoples of Oceania are small yet strong – small communities within a vast and vulnerable region – but strong in love and determination for protecting this fragile environment and all its peoples. Through **restoring and healing** the environmental damage of the past; **controlling and repairing** the environmental activities of the present; and **minimising, planning and preparing** for the environmental challenges of the future, we can all be part of their work and their response. The griefs and anxieties of the peoples of Oceania are our griefs and anxieties; their joys and hopes are also our joys and our hopes.



Looking out from the
Carteret Islands,
Bougainville.

Small yet strong in the love of God,
like Saint Francis of Assisi, all of us, as
Christians, are called to watch over and
protect the fragile world in which we live,
and all its peoples.




Pope Francis



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