



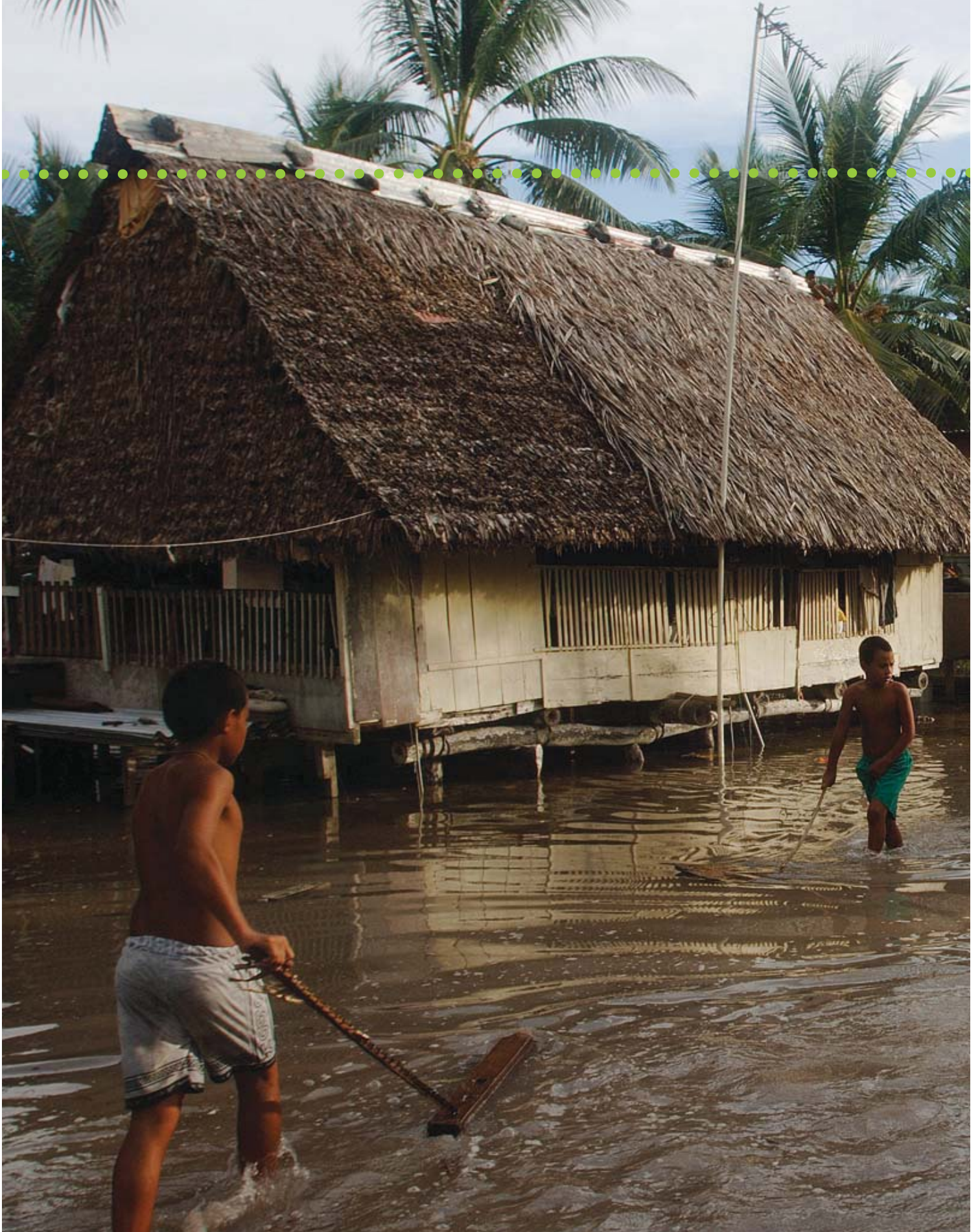
*Oxfam briefing paper 2009*

# The future is here: climate change in the Pacific



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07.12.09 Copenhagen  
act on climate change





Tuvalu: Boys take advantage of the extreme high tide to play with their toy boats in the salty tidal flood waters that have intruded up through the ground on Funafuti, the capital atoll island. Photo: Jocelyn Carlin/Panos

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## **The future is here: climate change in the Pacific**

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**Cover:** Tuvalu. A man observes the shifting coastline. More adaptation resources should be directed towards local communities and draw on local knowledge in developing responses to climate change. Older Pacific islanders have knowledge of changes, over many decades, to coastlines, forests and access to water. Photo: Jocelyn Carlin/Panos.

# Acronyms



ADB	Asian Development Bank
AOSIS	Alliance of Small Island States
AusAID	Australian Agency for International Development
CAN	Climate Action Network
CSO	Civil Society Organisation
DRM	Disaster Risk Management
EDF	European Development Fund
FAO	Food and Agriculture Organisation
FEMA	Federal Emergency Management Agency
FFA	Forum Fisheries Agency
FSM	Federated States of Micronesia
GEF	Global Environment Facility
GHG	Greenhouse gas
ICCAI	International Climate Change Adaptation Initiative
IPCC	Intergovernmental Panel on Climate Change
KAP	Kiribati Adaptation Program
LDC	Least Developed Country
NAPA	National Adaptation Program of Action
NDMO	National Disaster Management Office
NGO	Non-government Organisation
NZAID	New Zealand Agency for International Development
ODA	Overseas Development Assistance
OI	Oxfam International
PCC	Pacific Conference of Churches
PEG	Pacific Energy and Gender network
PIFACC	Pacific Islands Framework for Action on Climate Change 2006 – 2015
Ppm	Parts per million
REDD	UN Programme on Reducing Emissions from Deforestation and Forest Degradation in Developing Countries
SIDS	Small island developing states
SOPAC	Pacific Islands Applied Geoscience Commission
SPC	Secretariat of the Pacific Community
SPREP	Secretariat of the Pacific Regional Environment Program
TuCAN	Tuvalu Climate Action Network
UNDP	United Nations Development Program
UNFCC	United Nations Framework Convention on Climate Change
UNHCR	United Nations High Commission for Refugees
USP	University of the South Pacific



Tarawa Atoll, Kiribati. In preparation for king tides, coral rocks are used to build temporary walls, that break the swell, to protect homes. Kiribati is one of the world's least developed countries and has a limited capacity for adaptation. Photo: Jocelyn Carlin/Panos.

# Executive summary

*“For a highly vulnerable country like Tuvalu, we cannot just sit back and watch our homeland slowly disappear. If necessary, we will use whatever legal means available to us to seek the necessary restitution for all damages created by climate change. Hopefully, the international community will respond before such action is necessary. But time is running out fast. Climate change could well be the greatest challenge that humanity has ever known. I make a very strong plea to all to act quickly and responsibly, to ensure that countries like Tuvalu do not disappear.”<sup>1</sup>*

– Tuvalu Prime Minister Apisai Ielemia

**Developing nations in the Pacific are at the frontline of global climate change. Livelihoods and food and water sources that have sustained communities over generations are being threatened. People are losing land and being forced from their homes. Unless wealthy, developed countries like Australia and New Zealand take urgent action to curb emissions, some island nations in the Pacific face the very real threat of becoming uninhabitable.**

## **Impacts of climate change in the Pacific**

Climate change has the potential to affect almost every issue linked to poverty and development in the Pacific. In a region where half the population lives within 1.5 kilometres of the sea, few people will be untouched by the consequences of climate change. Natural weather variability in the region means developing island countries in the Pacific already face severe threats to human security and economic losses arising from extreme weather events like storm surges, cyclones and king tides. Projected sea-level rise and increases in the intensity of natural disasters like cyclones will exacerbate these problems. Scientists have also projected an increase in diseases such as malaria and dengue fever, together with significant soil and coastal erosion as a result of climate change.

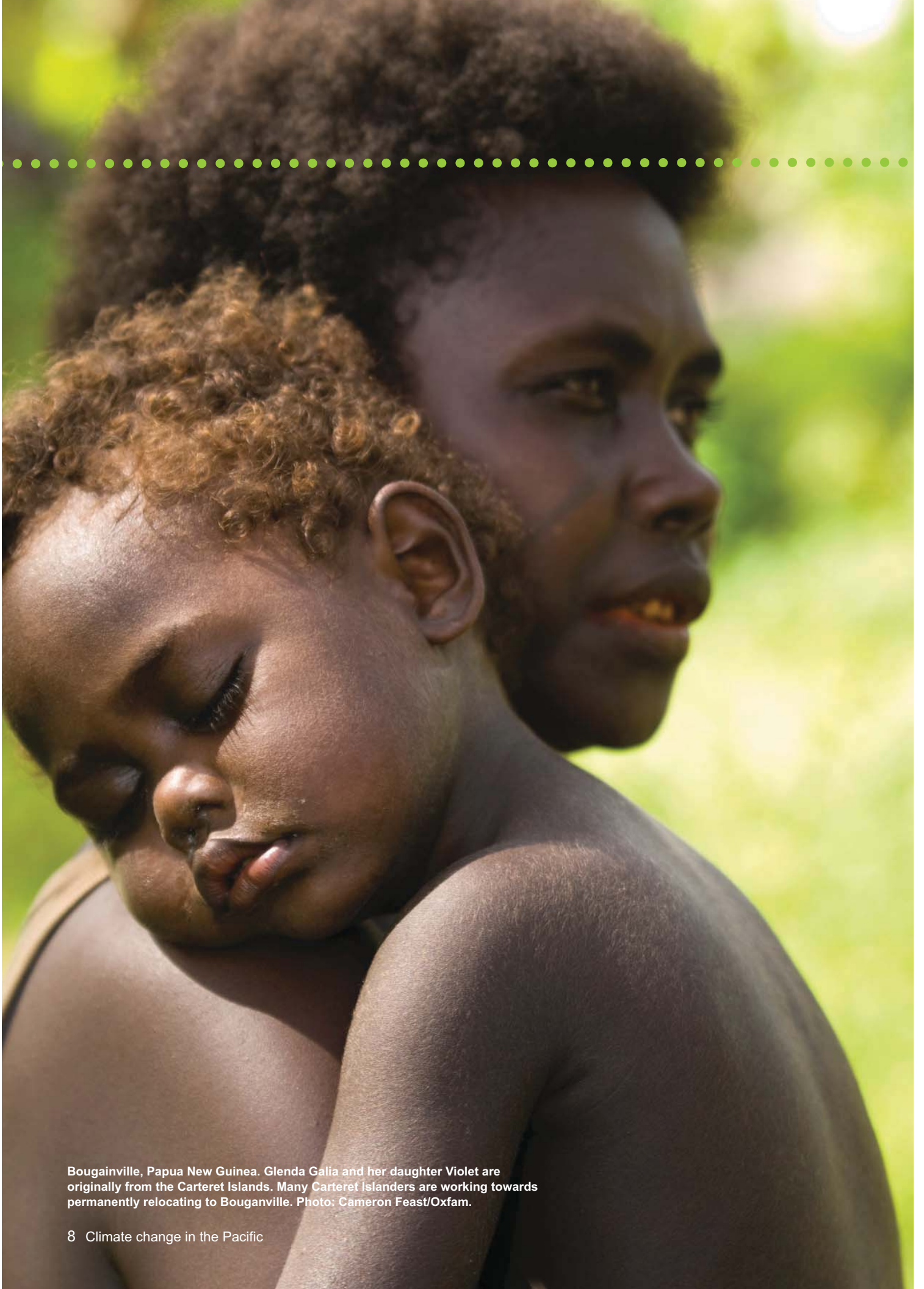
## **Combating climate change in the Pacific**

The fairest and most cost-effective way of dealing with climate change in the Pacific is to ensure that the most extreme climate impacts are avoided altogether.

Preventing catastrophic climate change in the Pacific means keeping warming as far below 2°C as possible compared to pre-industrial temperatures. To achieve this, wealthy, polluting countries such as Australia and New Zealand must reduce their emissions by at least 40% by 2020, and at least 95% by 2050.

The current emissions reductions targets set by Australia and New Zealand fall short of their international obligations and do not go far enough to contribute to a safe, fair global climate agreement.

Pacific island communities must also be supported to implement low carbon development plans. Australia and New Zealand can play a critical role in supporting local efforts to explore and access a range of renewable energy sources and protect forests across the region.



Bougainville, Papua New Guinea. Glenda Galia and her daughter Violet are originally from the Carteret Islands. Many Carteret Islanders are working towards permanently relocating to Bougainville. Photo: Cameron Feast/Oxfam.





## ***Adapting to the impacts of climate change in the Pacific***

Pacific communities urgently need support to adapt to the impacts of climate change they are already experiencing. Adaptation efforts range from planting mangroves in order to reduce coastal erosion to building rainwater tanks to maximise fresh water supplies.

Governments, civil society and local communities have a critical role to play in planning and implementing adaptation strategies in the Pacific. This will help to ensure the best use of adaptation funds and the effective use of traditional knowledge.

While initial support from the Australian and New Zealand governments has been welcome, the scale of the problem means that much more money is needed. Moreover, financial support for adaptation in the Pacific must be in addition to existing aid commitments so that crucial efforts to alleviate poverty and promote development across the region are not compromised.

At least double the current level of adaptation funding is required simply to address the most urgent adaptation needs. Meeting these needs will require between AUD \$365 million/NZD \$455 million and AUD \$668 million/NZD \$834 million.

Of course, it is critical to ensure these funds are spent effectively. To this end, a greater proportion of adaptation support for the Pacific must be allocated to basic resilience programs at a community level. There is also a need to safeguard access to food and water for Pacific communities.

## ***Climate displacement and migration***

By the year 2050, about 75 million people could be forced to leave their homes in the Asia-Pacific region due to climate change. Pacific island governments are already tackling climate change-related relocation and resettlement.

Given the significant implications of these population movements for our region, it is vital that Australia and New Zealand governments hold discussions with Pacific island governments about this issue now. Planning for climate displacement will require looking at the most effective ways to support Pacific islanders who are forced to move from their homes, including through appropriate immigration policies.

## ***Time to act***

Climate change is affecting our region now. Its impacts are profound. The lives, homes, livelihoods, food and water of many Pacific communities are under threat. Wealthy, developed countries like Australia and New Zealand must act urgently to:

- reduce their own emissions;
- support Pacific communities to follow low carbon pathways to development;
- help those communities adapt to the impacts of climate change they are already experiencing, and
- work with Pacific island governments to plan for displacement that is likely to be caused by climate change.

Australia and New Zealand not only have a responsibility to take such action, it is also in our best interests. Acting now will save money and save lives. Most importantly, it will help to create a safer, more sustainable and more peaceful future for the Pacific.

# Recommendations



## **RECOMMENDATION 1:**

**The Australian and New Zealand governments must set higher medium and long-term emissions reduction targets to reduce greenhouse gas emissions.**

Preventing catastrophic climate change in the Pacific means keeping warming as far below 2°C as possible compared to pre-industrial temperatures. To achieve this, wealthy, polluting countries such as Australia and New Zealand must reduce their emissions by at least 40% by 2020, and at least 95% by 2050.

The current emissions reductions targets for both countries do not go far enough to meet their international obligations and contribute to a safe, fair global climate agreement.

The impacts of climate change are already undermining the lives of millions of the world's poorest people, including people in the Pacific. Developed countries like Australia and New Zealand have a critical role to play in tackling climate change and must act urgently to safeguard the rights of poor communities across our region.

## **RECOMMENDATION 2:**

**The Australian and New Zealand governments must support developing countries to follow low-carbon pathways to development.**

Catastrophic climate change can only be avoided through cooperative efforts in which rich countries like New Zealand and Australia take responsibility for both reducing their own emissions and providing vital support to developing countries to pursue low-carbon development pathways. In the Pacific, there is potential to develop new areas of work, such as village level renewable energy initiatives, through networks such as Pacific Energy and Gender (PEG), which is working with government and community organisations to promote new solar technologies such as solar cookers.

## **RECOMMENDATION 3:**

**The Australian and New Zealand governments must provide new and additional money for adaptation focused on the Pacific.**

As high per-capita emitters of greenhouse gases, Australia and New Zealand are among the developed nations collectively responsible for the damage that climate change has done to the Pacific. Consistent with the “polluter pays” principle<sup>2</sup>, Australia and New Zealand have a responsibility to fix the problem they have helped to create. But adaptation funding has fallen well short of requirements in the Pacific.

Pacific island countries are calling for new and additional money for adaptation in the region, rather than donors continuing a pattern of reallocating existing official development assistance. Adaptation funds should be provided as grants, not loans.

Globally, Oxfam has estimated that at least AUD \$187 billion/NZD \$233 billion is needed each year, to finance emissions reduction and adaptation efforts in developing countries. As developing countries cannot afford this on their own, wealthy countries, which have contributed three-quarters of the carbon in the atmosphere now, and who have grown wealthy by burning fossil fuels, must provide this finance, as they promised to do at the United Nations climate negotiations in Bali in 2007.

Australia's fair share of this is AUD \$4.3 billion a year; New Zealand's fair share is NZD \$792 million. Oxfam also calls on Australia and New Zealand to support the establishment of a single Global Climate Finance Mechanism. This mechanism would minimise effort wasted by Pacific island nations on red tape by replacing funding currently provided through numerous multilateral and bilateral mechanisms.



#### **RECOMMENDATION 4:**

**More adaptation resources should be directed towards local communities and draw on local knowledge in developing responses to climate change.**

In assisting Pacific communities to adapt to the impacts of climate change, a greater proportion of funding needs to be allocated to basic resilience programs at a community level, rather than on more consultants and scientific testing. Efforts should also be made to promote the use of local knowledge and local history to help adapt to the impacts of global warming. Older Pacific islanders have knowledge of changes over many decades to coastlines, forests and access to water, as well as practical adaptation information like how to find food in times of disaster.

#### **RECOMMENDATION 5:**

**Adaptation efforts should be focused on livelihoods, food and water security.**

Ensuring access to sustainable sources of food and water must be a central priority in efforts to assist Pacific communities adapt to climate change. It will also be important to ensure Pacific islanders are able to pursue sustainable livelihoods at a community level. Focusing on these key areas will help to develop community resilience in the face of climate impacts and natural disasters.

#### **RECOMMENDATION 6:**

**The Australian and New Zealand governments should prepare for climate displacement.**

By 2050, approximately 150 million people may be displaced because of climate change<sup>3</sup>. Seventy-five million of these are likely to be in the Asia-Pacific region, with that number growing to around 150 million<sup>4</sup> by 2100. Many people will resettle within their own country, and Pacific island governments are already tackling climate change-related relocation and resettlement. But not all people forced to leave their homes will have the option of moving within their country. Both those people who relocate internally and those who are forced to relocate to another country will require assistance. The Australian and New Zealand governments have been slow to address this issue.

The potential for forced displacement among the Pacific islands' population of about 8 million people demands urgent debate on what future resettlement and relocation might involve. It is vital that local communities have the opportunity to participate in this debate.

Australia and New Zealand need to engage in dialogue with Pacific island governments, plan to address issues of climate displacement, and develop immigration policies which support Pacific island communities that are forced to move from their homes.

#### **RECOMMENDATION 7:**

**Pacific governments must ensure that women and men participate equitably in all decision-making about climate change and that their differentiated needs are reflected in adaptation efforts.**

Women are disproportionately affected by climate change, because they tend to depend more on the natural environment for their livelihoods than men and they also bear the brunt of the impact of climate-related disasters and diseases like malaria. Yet women are often left out of the conversation about climate change. An effective climate change strategy requires governments to recognise that women have specific needs in climate change policies and to insist on greater participation by women in decision-making at all levels.



Kanabea, Papua New Guinea. Elizabeth Asiah holds her baby while she is treated for malaria at Kanabea Rural Hospital. Malaria is spreading into more mountainous areas of PNG. According to Kanabea locals, five years ago malaria was rare, but now accounts for 90% of admissions to the hospital. Photo: Dave Tacon.

# Introduction

*“Some industrialised countries might be arguing that climate change would hurt their economic development. Sadly, I say no. Climate change is not an issue of economic growth. It is an issue of human survival.”*

– Kiribati President, Anote Tong, 2008

**Developing nations of the Pacific are at the frontline of global climate change. With many Pacific islands lying just a few metres above sea level, they are particularly vulnerable to even the smallest changes to global climatic patterns.**

For countries like Kiribati, Tuvalu, Tokelau, the Marshall Islands, Fiji, Vanuatu, Papua New Guinea and the Federated States of Micronesia, climate change is not something that could happen in the future, but something they are experiencing now. Their residents are among the world’s most vulnerable to changes in rainfall and extreme weather events like storm surges or king tides, despite being among those least responsible for causing climate change. The threat of major sea-level rise in coming years means countries like Tuvalu and Kiribati could become uninhabitable.

With underdeveloped economies, limited resources and widespread poverty, Pacific island countries are ill-equipped to meet this climatic challenge alone. This means that without a significant effort to reduce greenhouse gases, industrialised nations like Australia and New Zealand will face increasing economic and social costs in the region. These will include the high costs of coping with disasters and extreme weather events that devastate neighbouring developing countries and the possibility of absorbing significant numbers of the Pacific islands’ 8 million inhabitants who will be displaced as a result of rising sea levels and the impact of climate change on food, water and livelihoods.



**Funafuti, Tuvalu. Young Tuvaluan men walk over land on Fogafale Islet, flooded by an extreme 3.4 metre king tide. The threat of sea levels rising in coming years means countries like Tuvalu could become uninhabitable. Photo: Jocelyn Carlin/Panos.**

# Impacts of climate change in the Pacific

## Impact of climate change on small islands

In its Fourth Assessment Report, the Intergovernmental Panel on Climate Change (IPCC) expressed high or very high confidence that the following impacts of climate change would be realised:

- “Small islands, whether located in the tropics or higher latitudes, have characteristics which make them especially vulnerable to the effects of climate change, sea-level rise, and extreme events.”
- “Sea-level rise is expected to exacerbate inundation, storm surge, erosion and other coastal hazards, thus threatening vital infrastructure, settlements and facilities that support the livelihood of island communities.”
- “There is strong evidence that under most climate change scenarios, water resources in small islands are likely to be seriously compromised.”



- “Climate change is likely to heavily impact coral reefs, fisheries and other marine-based resources.”
- “It is very likely that subsistence and commercial agriculture on small islands will be adversely affected by climate change.”
- “Sea-level rise, inundation, seawater intrusion into freshwater lenses, soil salinisation, and decline in water supply are very likely to adversely impact coastal agriculture.”
- “New studies confirm previous findings that the effects of climate change on tourism are likely to be direct and indirect, and largely negative.”

**Vokeo Island, Papua New Guinea. This woman and child were among the 38,000 people affected by a tidal surge in 2008. Half the population in the Pacific lives within 1.5 kilometres of the sea, making them particularly vulnerable to sea level rise and natural disasters. Photo: Neil Crossley/OxfamAUS.**

Climate change has the potential to affect almost every issue linked to poverty and development in the Pacific. In a region where half the population lives within 1.5 kilometres of the sea, few will be untouched by the consequences of climate change. Natural weather variability in the region means developing island countries in the Pacific already face severe threats to human security and economic losses arising from extreme weather events like storm surges, cyclones and king tides. Projected increases in sea-level rise and the intensity of natural disasters like cyclones will exacerbate these problems. Scientists have also projected an increase in diseases such as malaria and dengue fever, together with significant soil and coastal erosion as a result of climate change.

### **Cyclones and storm surges**

Many Pacific countries have long been faced with natural disasters like cyclones and storm surges. The IPCC's Fourth Assessment Report suggests the region will face more intense tropical cyclones and storm surges. Cyclones cause major damage to infrastructure in Pacific countries. Samoa was hit by two cyclones in successive years, Cyclones Ofa (1990) and Val (1991) causing damage of AUD \$576 million/NZD \$686 million, an amount greater than the country's annual average GDP.

Cyclone Heta, which hit the small island state of Niue in 2004, caused massive social and economic disruption to the island, which has a population of 1,550 people. The damage bill of AUD \$30.3 million/NZD \$37.7 million was nearly three times the value of Niue's annual GDP, and there were a range of social and environmental impacts:

*"Waves in excess of 30 metres in height destroyed 43 houses that were more than 25 metres above sea level ...Heta completely destroyed the Huanaki cultural centre where people would regularly congregate for cultural displays and dances, as well as the national museum and 90% of its collection. There were other significant intrinsic losses such as the loss of personal possessions and records, many land title and health records ... and the loss of the national hospital in which most Niueans were born."*<sup>5</sup>

There is evidence of increased cyclonic activity in some areas of the Pacific. For example, before 1985 the Cook Islands were regarded as beyond the main danger area for cyclones, with their easterly position meaning a cyclone might hit every twenty years. But in the months of February and March 2005, the Cook Islands were hit with five cyclones. Three were classified as Category 5, destroying 75% of houses on the island of Pukapuka.<sup>6</sup>

### **Coral bleaching**

Fringing coral reefs are a major resource for many Pacific island communities, providing the environment for subsistence fishing and acting as a major attraction for hundreds of thousands of tourists who visit each year.

Warmer ocean surface temperatures have led to the bleaching of coral reefs around the world, which occurs when reef-building corals, reacting to stress, lose the colourful algae that help feed them.<sup>7</sup> If conditions don't change, the bleached coral dies.

The 1997–1998 El Niño led to substantial bleaching of coral reefs around the Pacific — much more severe than in the past,

**Morikao village, Abaiang Island, Kiribati. Boys run in a race during sports class. Kiribati president, Anote Tong, has said climate change is not an issue of economic growth, but an issue of human survival. Photo: Jocelyn Carlin/Panos.**



## CASE STUDY:

### Costs of flooding and storm surges

In late 2008 and early 2009, there were a series of floods around Australia and the Pacific islands region which brought home the impact of these changing climatic conditions. Government estimates of the damage — running to tens of millions of dollars — highlight the threat to developing countries from increased weather events and natural disasters.

- In February 2009, the Solomon Islands declared a national disaster after 13 people died and another seven went missing when flooding and torrential rain damaged homes and bridges on the main island of Guadalcanal. Flooding on Guadalcanal and Savo Island led to the evacuation of more than 70 villagers to Honiara, with the Red Cross, Australia and France providing emergency aid.
- In Fiji, 11 people were killed while many others were forced to flee to higher ground when torrential rains caused flash flooding in January 2009. Fiji's military-run interim administration declared a state of emergency and imposed curfews to stop looting. Interim Prime Minister Voreqe Bainimarama said the flooding was the worst ever in Fiji's history, with direct effects on more than 116,328 people in the Western Division and 30,667 people in the Central Division. As well as millions of dollars of damage to food supplies and sugar crops, the floods severely disrupted international tourism. The flooding caused more AUD \$10 million/NZD \$12.6 million damage to roads and bridges, losses for the sugar cane crop estimated at 68,960 tonnes, more than AUD \$6 million/NZD \$7.6 million damage to the water reticulation system and millions more for damage to schools, hospitals and electricity and telecommunications infrastructure. Australia contributed AUD \$3 million (NZD \$3.7 million) in humanitarian aid to assist people affected by the Fiji flood.
- Over 38,000 people were affected by flooding in Papua New Guinea in early December 2008, with the PNG government allocating 50 million kina (AUD \$24 million/NZD \$30 million) in relief and recovery funds.
- In December 2008, a state of emergency was declared in both the Marshall Islands and the Federated States of Micronesia, when a combination of three-metre waves and heavy storms caused widespread flooding. The United States Federal Emergency Management Agency (FEMA) and Australia's AusAID sent emergency supplies to assist with disaster recovery.



**Ariligo village, north-west Guadalcanal, Solomon Islands. Mary, Jennifer and Komy, two weeks after a flood that inundated their village. Mary and Jennifer both had young children who were swept away. All three women lost their houses and are living in temporary camps. Photo: Lara McKinley/OxfamAUS.**



leading to secondary impacts on surrounding ecosystems and tourism. Now, there are signs that coral bleaching is becoming more regular in South Pacific waters. Over the past decade, bleaching has affected reefs in Polynesia (Tahiti) and Micronesia (Palau) and parts of Melanesia (Papua New Guinea and the Solomon Islands). Isolated reefs off the Cook Islands and Tonga also are affected.

## Drought

Even in the “liquid continent” of the Pacific, drought is a concern, as shown during the last major El Niño event in 1997–1998. Beyond normal weather variability, there are longer term trends for higher temperatures.<sup>8</sup>

In Fiji, drought wiped out some two-thirds of the 1998 sugar crop. In 1998, Australia spent more than AUD \$30 million (NZD \$37.3 million) supplying food aid to isolated areas in Papua New Guinea affected by drought, with PNG’s coffee harvest badly affected.

Low rainfall during the 1997–1998 El Niño caused 40 atolls in the Federated States of Micronesia to run out of potable water and the government was forced to introduce water rationing.<sup>9</sup> The US government brought in desalination equipment to support the urban centres of the neighbouring Marshall Islands.

Dry periods can also increase the stress on food supply and result in poorer nutrition among local populations. This occurred during a long dry spell in the Solomon Islands in 2007, where the loss of breadfruit and other seasonal fruit crops left local people in some rural areas entirely dependent on imported foods such as rice and noodles.

## Fisheries

Under a high emissions scenario, the ability of reef systems in the Coral Triangle to provide food for coastal populations will plummet by 80% by 2100 compared to their ability to provide food today.<sup>10</sup>


The Secretariat of the Pacific Community (SPC) has noted that climate change threatens Pacific fisheries in a variety of ways, including changes to the abundance and distribution of tuna, a decline in coral reef and coastal fishing, damage to port and wharf infrastructure, greater costs for fishing at sea and difficulties in developing freshwater aquaculture.<sup>11</sup>

Changes in ocean circulation patterns and temperatures affect fish stock in the Pacific. Some fish in the Pacific, such as tuna, tend to follow warmer water. If the effects of El Niños are more frequent, tuna migratory patterns will change:

*“The 1997–1998 El Niño affected the migratory patterns of tuna to the extent that some countries like Samoa went without catching tuna for months, while others had more than their usual catch.”<sup>12</sup>*



Titiana village, Ghizo Island, Solomon Islands. Oscar Sitau is a fisherman reliant on tuna fishing for income and food. It is predicted that changes in ocean circulation and temperature will affect fish stocks in the Pacific. Some fish in the Pacific, such as tuna, tend to follow warmer water. Seventy per cent of the world’s catch of some types of tuna are caught in the Pacific, providing more than AUD \$2.5 billion/NZD \$3 billion annually to the region. Photo: Lara McKinley/OxfamAUS.



With 70% of the world's catch of specific tuna species being caught in the Pacific, worth more than AUD \$2.5 billion/NZD \$3 billion annually to the region, this has significant economic impacts, as migratory fish move in and out of a nation's jurisdiction.

### **Health impacts**

The World Health Organisation is concerned that global warming will increase the impact of problems like malnutrition which causes more than 3.5 million deaths per year around the world, diarrhoeal diseases which kill more than 1.8 million people, and malaria which kills almost 1 million people.<sup>13</sup>

Warmer temperatures can increase the spread of mosquito-borne diseases such as malaria and dengue fever, because temperature is a crucial factor in the malaria transmission cycle. In Melanesian nations like Papua New Guinea, the Solomon Islands and Vanuatu — among the poorest countries in our region — researchers are beginning to document the link between climate change and health.

In Papua New Guinea's Western Highlands Province, the number of malaria cases has been increasing in recent years, from 638 recorded cases in 2000 to 4,986 cases in 2005.<sup>14</sup>

As with other sectors, climate change and natural disasters present a major threat to health sector infrastructure, particularly related to water supply and physical damage to clinics and hospitals. For example the only hospital in Niue was badly damaged in the 2004 Cyclone Heta. Similarly, in December 2008, flooding off the northern coast and islands region of Papua New Guinea washed away hospital equipment.

### **Disaster response**

The number of people affected by climatic crises is projected to rise by 54% to 375 million people over the next six years, threatening to overwhelm the world's ability to respond. Yet Pacific island countries have very few resources to deal with such disasters, suggesting that much of the extra associated costs of climate change related disasters would fall to Australia and New Zealand.

In May 2005, researchers from the University of the South Pacific (USP) and Pacific Island Applied Geoscience Commission (SOPAC) conducted a major study looking at the most cost-effective and efficient allocation of resources for disaster risk management in the region.<sup>15</sup> The study, which incorporated detailed case studies on Fiji, Niue, Tuvalu and Vanuatu, found serious problems with disaster planning, response and risk management, including too few resources and staff, no systematic collection of data on disasters and little integration of disaster risk management into national planning.

Studies by the World Bank and International Federation of Red Cross and Red Crescent Societies have found that for each dollar invested in disaster risk reduction, two to ten dollars are saved in avoided or reduced disaster response and recovery costs.<sup>16</sup>

### **Human security and human rights**

Pacific governments and security analysts are increasingly focusing on the implications of climate change for national security and border protection.<sup>17</sup> On 3 June 2009, the United Nations General Assembly unanimously adopted a resolution titled "Climate Change and its Possible Security Implications". The resolution, proposed by Pacific island governments, calls on the UN Security Council and relevant UN agencies to investigate the issue.<sup>18</sup>

Climate change is expected to lead to increased conflict over land and maritime borders as rising seas, severe flooding and drought change the world map. It is also expected to lead to more disputes over scarce resources such as energy, water, arable land and fish stocks, as well as over the status of migrants.<sup>19</sup>

Climate change is a matter of human security, as it undermines people's rights to life, security, food, water, health, shelter and culture.<sup>20</sup> Oxfam argues that human rights principles must be put at the heart of international climate-change policy making. Protecting the right of each person in the Pacific to life's essentials — such as food, water, shelter and security — should be central to policy decisions by Australia and New Zealand on climate change.

Emanuel Mori, President of the Federated States of Micronesia (FSM) states:

*“Climate change also impacts our human rights. It impacts international peace and our own security, territorial integrity and our very existence, as inhabitants of the very small and vulnerable island nations.”<sup>21</sup>*



Funafuti, Tuvalu. The narrowest part of Fogafale Islet is just 20 metres in width. During king tides and storm surges, water and debris from the ocean wash right into the lagoon. Tuvalu Prime Minister Apisai Ielemia has made a strong plea “to all to act quickly and responsibly to ensure countries like Tuvalu do not disappear”. Photo: Jocelyn Carlin/Panos.



Funafuti, Tuvalu. Girls from Fetuvaln High School wander home, passing by a point on the lagoon side of the atoll where the water laps over the road at full tide. Photo: Jocelyn Carlin/Panos

# Combating climate change in the Pacific

*“In 2002, heavy rain caused major landslides in Chuuk. From my own family it killed five people. My mom and most of my relatives who were close in to the landslide were actually buried in the mud. The people who were affected by that — who were actually under the mud — even today, whenever they hear the rain continuously for about three to four hours, they evacuate their homes.”*

– Tina Takashy, Chuuk State, Federated States of Micronesia

## Reducing emissions

The fairest and most cost-effective way of dealing with climate change in the Pacific is to ensure that the most extreme climate impacts are avoided altogether. The Alliance of Small Island States (AOSIS) has been a leader in calling for ambitious emission reduction targets to be agreed to at Copenhagen. In June 2009, AOSIS called for at least 45% reductions by 2020. AOSIS unites 43 countries and territories from oceans around the world, including the Pacific — more than 20% of the membership of the UN General Assembly.

Emerging climate science has highlighted the need for much more stringent reduction targets than those the Australian and New Zealand Governments have committed to, in order to avoid catastrophic consequences in the Pacific.

To avoid catastrophic climate change, global temperature rise must be kept below 2°C. To do this, developed countries — responsible for three-quarters of the carbon in the atmosphere — must cut their emissions by 40% on 1990 levels by 2020, and 95% by 2050.

Currently, the Australian Government’s emissions reduction target is only 5–15% by 2020, with a promise of a 25% cut if a global agreement is reached. Meanwhile, New Zealand is one of only two developed countries to have failed to set a medium-term target for 2020, while its long-term target is limited to a 50% reduction in net emissions from 1990 levels by 2050.<sup>22</sup>

Industrialised countries, responsible for the bulk of historical emissions, have a dual responsibility to vulnerable developing countries. First, they must commit to ambitious new targets to reduce their own emissions by at least 40% below 1990 levels by 2020. Second, they must provide finance to enable developing countries to develop along low-carbon pathways and additional finance to help them adapt to the impacts of climate change they are already experiencing. Oxfam calculates that, globally, there is a need for developed countries to provide AUD \$187 billion/NZD \$233 billion per year in order to support developing countries.

## Promoting low carbon development in the Pacific

Compared to other developing countries, small island developing states in the Pacific generate very few greenhouse gas emissions from burning fossil fuels — less than 0.06% of global totals. In rural areas and outlying islands across the Pacific, villagers often cook over open fires or using kerosene. But energy is increasingly expensive in poorer communities and some fuels can have adverse environmental effects (for example, gathering

fuel wood from local forests can be unsustainable). Most electricity comes from diesel powered generators and the combined impacts of climate change, high oil prices and rural poverty mean that island nations are looking more to renewable and sustainable energy sources.

Villagers are taking up renewable technologies such as solar, wind or biogas at a time when fuel oils like diesel and kerosene have increased in price. According to the Secretariat of the Pacific Regional Environment Program — the major intergovernmental organisation charged with protecting and managing the environment and natural resources — for every USD \$10 (AUD \$12.50/NZD \$16) increase in the price of oil on global markets, national incomes drop by 4% in small island states like Kiribati and the Federated States of Micronesia, as the cost of doing business rises as energy costs increase.<sup>23</sup>

Pacific Energy and Gender network co-ordinator Koin Etuati says:

*“There’s lots of potential to increase the use of solar technology in rural areas. Our network is looking at ways to ensure that the new technologies can benefit all members of the community, especially the women who use a lot of energy for their daily household work.”<sup>24</sup>*

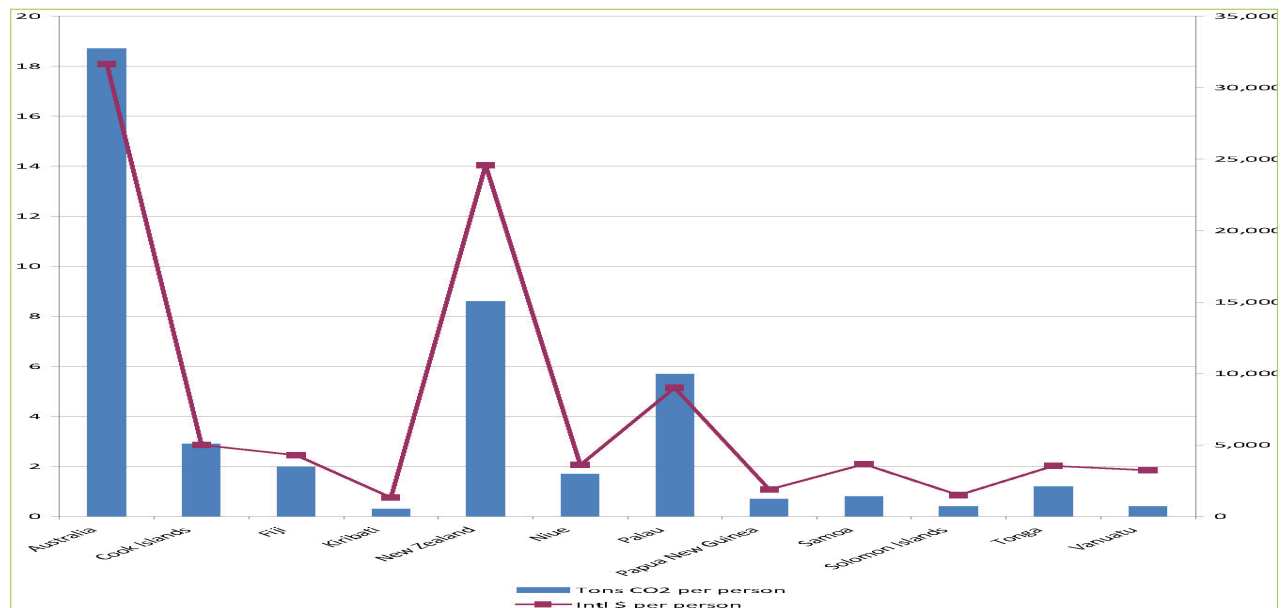
Pacific communities must be supported in their efforts to explore and implement a range of technologies to access renewable energy sources.

Enabling developing countries to develop a low-carbon pathway also involves supporting the region to prevent deforestation, given that deforestation accounts for around 17% of global greenhouse gas emissions.<sup>25</sup> This should include tackling illegal logging in the region and addressing demand-side drivers of deforestation in Australia and New Zealand. An essential step in curbing the market that drives destruction of forests is for countries such as Australia to ban the importation of timber and wood products from illegal sources. While the Australian Government has promised a suite of measures to curb illegal logging, it is yet to implement them.

Further research and consultation is required on the issue of creating forest carbon sinks in the Pacific and on the local impacts of the proposals being discussed within the international climate negotiations for Reducing Emissions from Deforestation and Degradation in Developing Countries (REDD).<sup>26</sup>

It is increasingly becoming accepted that substantial emissions reductions will not be achieved without the inclusion of forests in an international climate agreement.

However, as people in developing countries play a vital role as the custodians of the world’s forests, their right to free, prior and informed consent for any change in the use of their forest resources, must be upheld.





## **RECOMMENDATION 1:**

**The Australian and New Zealand governments must set higher medium and long term emissions reduction targets to reduce greenhouse gas emissions.**

Preventing catastrophic climate change in the Pacific means keeping warming as far below 2°C as possible compared to pre-industrial temperatures. To achieve this, wealthy, polluting countries such as Australia and New Zealand must reduce their emissions by at least 40% by 2020, and at least 95% by 2050.

The current emissions reductions targets for both countries do not go far enough to meet their international obligations and contribute to a safe, fair global climate agreement.

The impacts of climate change are already undermining the lives of millions of the world's poorest people, including people in the Pacific. Developed countries like Australia and New Zealand have a critical role to play in tackling climate change and must act urgently to safeguard the rights of poor communities across our region.

## **RECOMMENDATION 2:**

**The Australian and New Zealand governments must support developing countries to follow low-carbon pathways to development.**

Catastrophic climate change can only be avoided through cooperative efforts in which rich countries like New Zealand and Australia take responsibility for both reducing their own emissions and providing vital support to developing countries to pursue low-carbon development pathways. In the Pacific, there is potential to develop new areas of work, such as village level renewable energy initiatives, through networks such as Pacific Energy and Gender (PEG), which is working with government and community organisations to promote new solar technologies such as solar cookers.

## **Adaptation**

While every effort must be made to avoid and reduce the effects of climate change in the Pacific and elsewhere, communities must also be supported to adapt to the impacts of climate change they are already experiencing.

Adaptation to the impacts of climate change ranges from planting mangroves to reduce coastal erosion, to building rainwater tanks to maximise freshwater supplies.

Governments, civil society and local communities have a critical role to play in planning and implementing adaptation strategies in the Pacific in order to ensure adaptation funds are spent wisely, and the effective use of traditional knowledge. Women in Pacific island communities must also be included in decision-making at all levels as they are often in the best position to provide workable solutions for adaptation.

A greater proportion of adaptation funding should be allocated to basic resilience programs at a community level in the Pacific to ensure that vital resources are not soaked up by consultants and scientific studies before reaching those most in need. A central priority for adaptation work should be supporting civil society and communities in their efforts to develop community resilience through disaster risk reduction and “climate proofing” villages. There also needs to be a focus on developing community responses to issues of food and water security to ensure continuing access to the staples of life.

**Table: Total CO<sup>2</sup> emissions in 2005 (excludes land use and forestry).**  
**Source: Climate Analysis Indicators Tool (CAIT) Version 6.0 (Washington, DC: World Resources Institute, 2009).**



## **CASE STUDY:**

# **Climate-proofing communities in Fiji**

Sitting round the kava bowl, the Fijian men of Korotarase village tell of the chaos on the day their village was flooded. Ratu Emosi Rokotuibua, the turaga-ni-koro (village chief) at Korotarase, says many houses and food gardens were damaged and the community's playing field was 1.5 metres under water.

Korotarase is located on low-lying swampy land alongside a river and beach on Fiji's northern island of Vanua Levu. In March 2007, the co-incidence of heavy upstream rainfall and a king tide from the ocean led to the village being flooded.

## **Working together**

Now, the people of Korotarase have joined with five other Fijian villages, in an innovative program of community climate adaptation. The villagers are working to climate proof their homes and communities, in preparation for future impacts caused by tidal surges, coastal erosion or flooding caused by heavy rainfall after cyclones. They are trialling salt-resistant varieties of staple foods such as taro, planting mangroves, native grasses and other trees to halt coastal erosion, protecting fresh water wells from salt-water intrusion, and relocating homes and community buildings away from vulnerable coastlines.

The program, supported with funding from Australia, is coordinated by Lavinia Tawake and Patrina Dumaru at the Institute for Applied Science (IAS) through the University of the South Pacific (USP) in Suva.

The 2007 flood at Korotarase village greatly increased erosion along the riverbank, and today some houses and the community hall are at risk of collapsing into the river. The problems are increased because sedimentation from upstream logging operations is changing the river's path.

"There has been erosion of the river bank and in the longer term we need to stabilise the land and prepare for future floods," Ratu Emosi says. "The erosion and siltation are changing the course of the river and affecting the fishing at the river mouth. The village was fearful of further flooding, so we decided to seek help to develop a long-term plan."

## **Human and natural causes**

At Buretu village, located on the Rewa Delta alongside the Navolau River, villagers also face serious problems of coastal erosion. The natural changes to the river flow are impacted by changing rainfall patterns and also human-induced effects (including foot traffic along the riverbank and waves generated



by outboard motors). With falling coconut trees, risk to buildings like the community's church, and the long-term danger of flooding due to tidal surges or cyclone-induced rainstorms, the community is acting to address the erosion.

Faced with the options of retreating to higher ground or expensive dredging works in the river, the community has chosen to plant appropriate trees and grasses along the bank. By planting rows of vetiver hedgerows along the eroded bank and mangroves and creepers along the water's edge, the community hopes to slow the erosion of the riverbank.

### **Community planning**

Increasingly, the villagers are drawing on the expertise of outside researchers or government staff to complement local initiatives. At Korotarase village, project staff and the local provincial liaison officer organised a forestry workshop with Eliko Senivasi, a forester from the Ministry of Primary Industry. The villagers discussed options such as developing a community watershed plan, establishing a community nursery and working with local logging firms to limit adverse effects from forestry operations upstream of the village.

The project is based on a belief that local knowledge can help document the changes to the environment that are occurring over longer periods. Villagers have noticed, for example, that the seasonality of certain nuts and fruits is changing, with the ivi nut appearing in September rather than December.

For researchers Lavinia Tawake and Patrina Dumaru, current efforts at climate adaptation build on previous community initiatives, like creating marine reserves to control overfishing.

"Rural communities have lots of ideas on how to protect their local environment," Patrina says. "Our role is to support them to analyse the vulnerabilities and develop environmental management plans that can help with future climate change."

"Overseas donors need to direct more resources to community level to ensure that climate adaptation efforts are really helping the people that need the greatest assistance."

**Korotarase village, Fiji. Climate researchers Patrina Dumaru and Lavinia Tawake are working with rural villages in Fiji to "climate proof" their homes, addressing problems of water, food security and coastal erosion. Photo: Nic Maclellan/OxfamAUS.**





### **More adaptation efforts to be focused on food security and water supply**

Ensuring access to sustainable sources of food and water must be a central priority in efforts to assist Pacific communities adapt to climate change. The changing climate is affecting food and water supplies in economies already buffeted by rising prices for energy and imported foods.

For example, to feed their families, people in Kiribati have long relied on fishing and staple crops like breadfruit and babai (swamp taro) — a plant that grows very slowly and only in swampy land. But extreme weather events like storm surges have inundated village babai pits and low-lying agricultural land, increasing salinity as the flood waters recede. A drought affecting the country in 2007–2008 cut production of copra — a coconut product that is major income earner for rural communities — as coconut trees failed to bear fruit.

The effects of cyclones, storm surges and heavy rains particularly impact low-lying agricultural land. In April 2008, the Governor of Pohnpei (one of the four states in the Federated States of Micronesia) declared a state of emergency for municipalities in Pohnpei's outer islands because of saltwater incursion into taro fields. FSM President Emmanuel Mori told the UN General Assembly in September 2008:

*“The nexus between food security and climate change cannot be overlooked. In Micronesia, the farmlands and the inhabitants occupy the low-lying fringes and islands barely a few metres above sea level. Taro patches, which provide the main staple of our people for centuries, are now under threat by sea-level rise. Already, many islands have experienced inundations of their taro patches and other food crops by salt water, resulting in decreasing production and crop destruction.”<sup>27</sup>*

#### **CASE STUDY:**

### **Climate insecurity in the Federated States of Micronesia**

The Government of the Federated States of Micronesia (FSM) already has difficulties providing services and employment opportunities to outlying atolls. Now changing climatic conditions are beginning to impact on agriculture, according to Augustina Takashy, a community activist from Chuuk State in FSM:

*“Most of the people there are really suffering from food insecurity and lack of water, because of the intrusion of sea water. They don't feel secure because the water surges have been coming in and actually inundated their area. So there is a concern within the government now that we need to be addressing issues of relocation and having our people to be climate proofing — to do projects that at least it can help them in the short term. But they're pretty sure they're going to have to move in to the bigger islands.*

*“There is really a sense of being alienated from their lands, from their culture, from their livelihoods and just a sense of who they are. In the smaller islands, everybody knows everybody; they identify themselves by their islands or island groupings. They have a sense of spiritual connection with the land, so if they are going to be displaced, they're going to feel like not belonging. They have been disenfranchised from the whole rural community so there's going to be a real social stress on meeting their social obligations and commitments to their people as well as trying to earn a living, because the economic situation in FSM is not very good.”*

In Tuvalu, members of the Tuvalu Climate Action Network (TuCAN) are looking at climate adaptation initiatives to address issues like coastal erosion and food security:

*“With our root crops like pulaka [taro], it takes years to be harvested. But with the current sea surges, the salty water gets in the pulaka pits, which makes it harder to grow. We’re looking at getting species from other countries to help with this. Our coconut trees on the coast fall down because of erosion.”<sup>28</sup>*

The UN’s Food and Agriculture Organisation (FAO) has released a major study on food security and climate in the Pacific, with detailed case studies on Vanuatu, Marshall Islands and Cook Islands.<sup>29</sup> It documents how, without adaptation measures, damage to the food sector by 2050 could amount to 2–3 % of Fiji’s GDP and 17–18 % of Kiribati’s GDP.

### **Using “soft technologies” and local knowledge for adaptation**

Around the Pacific, there are a number of innovative projects at community level to climate proof villages and develop community resilience in the face of climate impacts and natural disasters. Bodies like Red Cross and the Secretariat of the Pacific Regional Environment Program (SPREP) have produced useful resources and toolkits for local communities to assess vulnerability and develop local adaptation programs.<sup>30</sup>

Climate researchers Patrina Dumaru and Lavinia Tawake are engaged in a major project in Fiji to build community resilience to climate change (see case study on page 24). Dumaru argues that there is a need to develop local solutions to the impacts of global warming:

*“We’re trying to encourage people to go with nature rather than fight against nature. For example, to protect their coastline from erosion, the villagers are looking at soft technologies like planting mangroves rather than harder solutions like building seawalls.”<sup>31</sup>*

Fiu Elisara, director of the Samoan environment group O Le Siosiomaga agrees that:

*“The use of mangroves will dissipate the effects of tsunamis yet coastal mangroves are still being destroyed. We need to develop projects with communities to revive use of local technologies.”<sup>32</sup>*

In Tuvalu, climate activists are working on community level responses to flooding of agricultural land, drawing on local knowledge:

*“What we’re doing as NGOs is coastal management programs, such as planting mangroves with the communities. We also do disaster risk management plans so people can survive using their own traditional ways rather than methods that they’re not familiar with.”<sup>33</sup>*

Lofeagai, Tuvalu. Sisters Litia (left) and Allainetta Homasi do their homework under the coconut and pandanus trees on the coastal side of Fanafuti atoll at low-tide. Community leader Annie Homasi says as land on the coast is eaten away, disputes are arising as people want to relocate saying, “We’re losing our land; we need to move a bit in.” Photo: JockeyIn Carlin/Panos.



## CASE STUDY:

### Adaptation for Kiribati?

Small island states such as Kiribati have a very limited capacity for adaptation. Hence some Pacific island governments are concerned that increased attention on their urgent adaptation needs may take the focus off the need for industrialised states to cut their greenhouse gas emissions.

The “adaptation, mitigation or relocation” question is sharply posed for the Republic of Kiribati, one of the world’s least developed countries. The low-lying atoll nation is made up of 33 atolls and reef islands stretching 5,000 kilometres across the central Pacific.

The Kiribati Adaptation Program is made up of a range of actions, including raising awareness, improving the Tarawa weather station and meteorological services, protecting key government infrastructure such as the maternity wards at Tarawa Hospital (which can flood at high tide) and securing water supply.

However, Kiribati President Anote Tong has stressed that adaptation funding alone will not address the problems facing the country:


*“While we require adaptation measures, our adaptation options are extremely limited, given the nature of our islands. We are a country of low-lying coral atolls with most islands rising no more than two metres above sea level.”*

*“Adaptation measures of moving inland and to higher ground are impractical for us. We cannot move inland due to the narrowness of our islands, nor are there higher grounds to which we could escape from the rising seas.”<sup>34</sup>*

According to President Tong, Kiribati must develop a “long-term merit-based relocation strategy which involves the up-skilling of our people to make them competitive and marketable at international labour markets”, given the possibility that all 100,000 people in Kiribati must one day move elsewhere.<sup>35</sup>

**Bonriki, Kiribati. Planting mangroves helps protect eroding coastlines and dissipate the effects of storm surges. This is one way Pacific islanders are looking at using soft technologies to climate proof their villages.**  
Photo: Nic Maclellan/OxfamAUS.





Increasingly, Pacific researchers are drawing on the historic knowledge of villagers to supplement modern use of GIS and satellite mapping technology. One example of this traditional knowledge is provided by Iteli Tiatia from Samoa:

*“Before the [1950s], we used to depend on the knowledge of our old folks. These old people know what wind is blowing just by feeling the wind or looking up at the tree tops. They have names for winds from any direction, like the To’elau, La’i, La’ilua, Tua’olua and many others. But wind patterns have dramatically changed — the direction but also the timing. For example, the old folks know in which months hurricanes are possible — late January, February and March were the worst months; November and December used to be the best. But hurricane Valerie, one of the most destructive in Samoa, was in December 1991.”<sup>36</sup>*

There are many instances where government departments have relied on local knowledge. One example comes from the Papua New Guinea National Disaster Centre (NDC), which sent a team in 2007 to survey drought prone islands in the outlying Trobriand Islands of PNG’s Milne Bay province. On Kuyawa Island where the population is less than 300 people, the narrowest part is only 50 metres. Speaking to a 50-year-old man, NDC investigators found that the island had lost about 10 metres of beachfront. The shoreline he remembered from his childhood was now under shallow water, about 5–8 metres away.<sup>37</sup>

More resources could be allocated to a systematic approach, recording and documenting the knowledge and awareness of older people regarding the changes in climatic patterns over many decades. This could include knowledge of changes to coastlines, forests, weather and places to access water, as well as practical adaptation measures like how to secure food resources in times of disaster and how to construct housing to resist cyclone damage.

### **Australian support for adaptation in the Pacific**

In the 2008–2009 budget, the Australian Government followed through on a pre-election commitment to spend AUD \$150 million on adaptation over three years as part of an already committed 9% increase in the overall aid budget to AUD \$3.7 billion (0.32% of Gross National Income).

Whilst this initial investment is welcome, the scale of the problem means that much more money is needed. Australia’s efforts to support adaptation in the Pacific also need to be in addition to the aid program so that they do not diminish broader efforts to alleviate poverty and promote development in the region.

The focus of the International Climate Change Adaptation Initiative (ICCAI) funding has also been heavily on science and research, which while important, does not address the urgent on-the-ground needs for adaptation in the Pacific.

So far, investments of around AUD \$35 million have been announced under the ICCAI including:

- AUD \$3 million for a Pacific Future Climate Leaders program to train future Pacific climate change leaders through scholarships, exchange programs and community education;
- AUD \$6 million over three years to the Global Environment Facility’s Small Grants Program, to support community-based adaptation programs in the Asia-Pacific region;
- AUD \$5 million to help deliver and coordinate scientific and technical assistance to tackle climate change;
- AUD \$800,000 towards strengthening Pacific meteorological services in partnership with New Zealand and Pacific island countries, and to support efforts under the UNFCCC to identify new and innovative tools to limit the financial risks of climate change in developing countries;
- AUD \$20 million for scientific research and building a regional science network.



## ***New Zealand support for adaptation in the Pacific***

The New Zealand Government supports a range of activities on climate change in the region but, like Australia, it has largely failed to commit sufficient new and separate funds to adaptation. In 2008–2009, NZAID allocated NZD \$6.5 million for its Pacific Regional Environment and Vulnerability program.<sup>38</sup> NZAID provides separate assistance of approximately NZD \$10 million to Pacific regional organisations that work on sustainable natural resource management, disaster risk reduction, renewable energy and climate change.

NZAID is providing NZD \$1.5m towards the Kiribati Adaptation Program.<sup>39</sup> Like Australia, New Zealand contributes bilaterally with coordinated disaster relief immediately after natural disasters. NZAID also has multi-year funding arrangements with SOPAC; the Ministry of Civil Defence and Emergency Management (MCDEM); the New Zealand Meteorological Service (weather forecasting, cyclone tracking and some risk mitigation work in PICTs); and Radio New Zealand International. NZAID has also supported a regional environmental education initiative.

## ***The need for greater adaption support in the Pacific***

As high per-capita emitters of greenhouse gases, Australia and New Zealand are among the developed nations collectively responsible for the damage done to the Pacific by climate change now and in the future. Consistent with the “polluter pays” principle,<sup>40</sup> Australia and New Zealand have a responsibility to fix the problem they have helped to create. Equitable adaptation funding cannot be achieved by redirecting existing financial efforts to alleviate poverty and promote development in the region.

A recent study by the Overseas Development Institute (ODI) stresses that this will be a central issue in the 2009 climate negotiations in Copenhagen:

*“Northern countries should be expected to assist where countries in the South are unable to meet present financing needs, but not through a donor-recipient relationship, but rather in terms of proportionate payments for damage already inflicted on global public goods.”<sup>41</sup>*

Pacific island countries have argued for greater funding to be allocated for adaptation programs by major donors like Australia and New Zealand, as they have insufficient resources to address the extensive adverse effects of global warming. A central message coming from Pacific governments is that this funding should be new and additional money rather than the reallocation of existing ODA funds. The Pacific Islands Forum leaders’ communiqué in 2008 stressed:

*“The priority of Pacific SIDS [Small Island Developing States] is securing sustainable financing for immediate and effective implementation of concrete adaptation programmes on the ground.”<sup>42</sup>*

Oxfam estimates that AUD \$187 billion/NZD \$233 billion is needed every year to fund adaptation and emissions reductions in developing countries on top of existing aid commitments. Australia’s fair share of this is AUD \$4.3 billion a year; New Zealand’s fair share is NZD \$792 million.

Oxfam argues this should be delivered through a single Global Climate Change Finance Mechanism to avoid wasting money and resources in a myriad of bilateral and multilateral schemes.

Over the next three years Pacific Island countries will need at least double Australia’s current commitment to adaptation funding, just to complete the most urgent adaptation tasks, based on the National Adaptation Programmes of Action [NAPAs] submitted by Pacific island countries to date.<sup>43</sup> In the Australian Journal of International Law, McGoldrick estimated that between AUD \$365 million/NZD \$454 million and AUD \$668 million/NZD \$830 million would be required. The AUD \$35 million that Australia is due to spend in the Pacific in 2008–2009 would not even cover the most pressing adaptation needs of three of the region’s most vulnerable and least developed countries — Kiribati, Tuvalu and the Solomon Islands.



### **RECOMMENDATION 3:**

**The Australian and New Zealand governments should provide new and additional money for adaptation focused on the Pacific.**

As high per-capita emitters of greenhouse gases, Australia and New Zealand are among the developed nations collectively responsible for the damage done to the Pacific by climate change. Consistent with the “polluter pays” principle<sup>44</sup>, Australia and New Zealand have a responsibility to fix the problem they have helped to create. But adaptation funding has fallen well short of requirements in the Pacific.

Pacific island countries are calling for new and additional money for adaptation in the region, rather than donors continuing a pattern of reallocating existing official development assistance. Adaptation funds must be provided as grants, not loans.

Globally, Oxfam has estimated that at least AUD \$187 billion/NZD \$233 billion is needed each year, to finance emissions reduction and adaptation efforts in developing countries. As developing countries cannot afford this on their own, wealthy countries, which have contributed three-quarters of the carbon in the atmosphere now, and who have grown wealthy by burning fossil fuels, must provide this finance, as they promised to do at the UN climate negotiations in Bali in 2007.

Australia’s fair share of this is AUD \$4.3 billion a year; New Zealand’s fair share is NZD \$792 million. Oxfam also calls on Australia and New Zealand to support the establishment of a single Global Climate Finance Mechanism. This mechanism would minimise effort wasted by Pacific island nations on red tape by replacing funding through numerous multilateral and bilateral mechanisms.

### **RECOMMENDATION 4:**

**More adaptation resources should be directed towards local communities and draw on local knowledge in developing responses to climate change.**

In assisting Pacific communities to adapt to the impacts of climate change, a greater proportion of funding needs to be allocated to basic resilience programs at a community level, rather than on more consultants and scientific testing. Efforts should also be made to promote the use of local knowledge and local history to help adapt to the impacts of global warming. Older Pacific islanders have knowledge of changes over many decades to coastlines, forests and access to water as well as practical adaptation information like how to find food in times of disaster.

### **RECOMMENDATION 5:**

**Adaptation efforts should be focused on livelihoods, food and water security.**

Ensuring access to sustainable sources of food and water must be a central priority in efforts to assist Pacific communities adapt to climate change. It will also be important to ensure Pacific islanders are able to pursue sustainable livelihoods at a community level. Focusing on these key areas will help to develop community resilience in the face of climate impacts and natural disasters.



Tinputz district, Bougainville, Papua New Guinea. Ursula Rakova, Executive Director of NGO Tulele Peisa, stands in her community's new prospective home. She is coordinating the re-location of families from the Carteret Islands, where food crops are being inundated by salt water and shores are being eroded. Photo: Cameron Feast/Oxfam.



# Climate displacement and migration

*“The potential for some Pacific islands to become uninhabitable due to climate change is a very real one. Consequently some in our region have raised the issue of their citizens becoming environment refugees ... potential evacuation of island populations raises grave concerns over sovereign rights as well as the unthinkable possibility of entire cultures being damaged or obliterated.”<sup>45</sup>*

– Pacific region environment ministers, July 2007

**Rising sea levels, heavier floods, more frequent and severe storms, extensive drought, contamination of drinking water and other effects of climate change are expected to cause large-scale human displacement.<sup>46</sup>**

By 2050, up to 150 million people may be forced to leave their homes because of climate change.<sup>47</sup> Seventy-five million of these will be in the Asia-Pacific region. Recent science indicates that sea level rise is likely to be 1m or more by the end of this century.<sup>48</sup> Although many of these people are likely to be displaced within national borders, some will have no choice but to migrate internationally.

According to the latest Australian immigration figures,<sup>49</sup> almost 4,000 people from Pacific island countries settled in Australia in 2007–2008. This represented 1.9% of all immigrants to Australia in that year.

New Zealand introduced a special access category for Pacific island countries in 2002 in order to facilitate immigration from Pacific neighbours it has especially close ties with. This scheme allows for a quota of 1,100 Samoans, 75 people from Kiribati and Tuvalu, and 250 Tongans each year.

Even if the majority of people forced to leave their homes because of climate change resettled within their own countries, it seems clear that climate change is likely to place significant pressure on existing migration policies in Australia and New Zealand.

## **Forced displacement in the Pacific islands**

The potential for climate displacement is especially a concern for low-lying atoll nations in Polynesia and Micronesia. With land areas just metres above sea-level and narrow strips of land just 50–100 metres wide in some atolls, there is no retreat to higher ground from the ravages on the coast. Tuvaluan community leader Annie Homasi notes:

*“In countries like Papua New Guinea or Fiji you can move to higher land, but Tuvalu is all flat. So even moving a little bit, it will be impossible because you have the lagoon on one side and the ocean on the other side. Right now we have land issues for people living at the edges of an island. As the land on the coast is eaten away, people want to relocate saying, ‘We’re losing our land; we need to move a bit in’. Other families reply, ‘This is our land, this is where it stops’. So this is creating disputes amongst the communities in Tuvalu. Land in Tuvalu is communal land, so its not one person arguing with another, it becomes a wider dispute with family versus family.”<sup>50</sup>*

The problem of internal displacement and resettlement has also affected the larger Melanesian nations like Papua

New Guinea, where large land area and significant internal mobility affords the option of internal relocation. PNG's Prime Minister Michael Somare has noted that coastal regions in his home province East Sepik have been devastated by tsunamis or storm surges:

*"In my own village we have moved for the fourth time in one generation in order to escape flooding on one side and sea-level rise on the other. We are probably amongst the first environmental refugees. Our mangrove ecosystems and, in fact, our very way of life is being destroyed."*<sup>51</sup>

There are a number of examples where people from low lying islands are considering relocation after being affected by extreme weather events, tectonic land shifts, tsunamis or climactic change. The case of the Carterets Islands in Bougainville is well known, where the non-government Tulele Peisa organisation is assisting families from the outlying islands to resettle on church-donated land on the main island of Buka.<sup>52</sup>

There are similar problems looming in a number of outlying atoll communities, such as the Duke of York atolls (a number of small low-lying islands in St George's Channel near Rabaul in Papua New Guinea) or the Mortlock Islands in Chuuk State, Federated States of Micronesia. In the Solomon Islands, tectonic plate movement and sea-level rise may lead to the displacement of people in outlying atolls like Ongtong Java (Lord Howe) or artificial islands like Walande in Malaita Province. Loti Yates, Director of the Solomon Islands National Disaster Management Office (NDMO) notes:

*"The provincial government in Malaita is looking to find land on the main island for future resettlement of people from these low-lying outer atolls."*<sup>53</sup>

Some Pacific governments are reluctant to focus on displacement issues, because they feel this will acknowledge defeat and undermine negotiating positions at the international level, as they press for stronger emission reduction targets in the international climate change agreement to be reached in Copenhagen in December 2009.

Speaking to the UN General Assembly in September 2008, Tuvalu Prime Minister Apisai Ielemia stated:

*"We strongly believe that it is the political and moral responsibility of the world, particularly those who caused the problem, to save small islands and countries like Tuvalu from climate change, and ensure that we continue to live in our home islands with long-term security, cultural identity, and fundamental human dignity. Forcing us to leave our islands due to the inaction of those responsible is immoral and cannot be used as quick-fix solutions to the problem."*



A girl hangs up her family's washing on a beachside shanty town just out of Kerema, the provincial capital of Papua New Guinea's least developed province, the Gulf Province, Papua New Guinea, Friday, May 29, 2009. Such coastal settlements are at great risk from rising sea levels. Photo: OxfamAUS



**CASE STUDY:**

## **Past experience of environmental displacement**

From 1946, the United States conducted 67 atomic and hydrogen bomb tests at Bikini and Enewetak atolls in the Marshall Islands. Marshall Islanders were evacuated from their homes on these atolls “for the good of mankind and to end all world wars”. Fifty years on, many Bikinians still live on Majuro, Ebeye and other islands after their relocation. The Marshall Islands government lodged a “changed circumstances” petition to the US Congress in 2000, seeking to increase the level of compensation provided by the United States for damage to people and property caused by US nuclear tests — but the US government has refused to agree to extra compensation.<sup>54</sup>

The sad history of the Micronesian people of Banaba (Ocean Island) provides another example.<sup>55</sup> After decades of phosphate mining on Banaba and then Japanese occupation during World War II, Banaban islanders were relocated to Rabi Island in Fiji at the end of the war. Rabi was purchased by the British authorities using funds from the Provident Fund established to benefit the islanders. The campaign group Abara Banaba (Our Homeland Banaba) still seeks recognition of the rights of the community remaining on the mining-ravaged island in the Republic of Kiribati, who are separated from family living as Fiji citizens on Rabi.

British colonial policy of resettling Gilbertese communities from the Gilbert and Ellice Islands colony to the British Solomon Islands Protectorate has left legacies today. Indigenous Melanesian islanders displaced by the 2007 tsunami could negotiate with extended clan members for support and land to resettle. The non-indigenous Micronesians did not have the same land rights, even though the families had been living in Solomon Islands since the 1950s.

## **Australian and New Zealand response to climate displacement**

Australia and New Zealand have been slow to address the issue of people displaced by climate change. The current Pacific Islands Framework for Action on Climate Change (PIFACC) makes no mention of displacement or migration.

Tuvaluan delegates say they raised the issue of a resettlement scheme with Australian officials in Canberra in 2001. There was not a positive response, according to Paani Laupepa of Tuvalu’s Ministry of Natural Resources and Environment:

*“The statement was hardly out of their mouths before the Australian delegation shut it up. Australia is absolutely against opening up any dialogue or discussion on this ... We share this little corner of the earth called the South Pacific Ocean. We were expecting Australia to be a bit more supportive.”<sup>56</sup>*

In November 2006, the Secretary of the Department of Immigration, Andrew Metcalfe, told a Senate estimates hearing that the Australian Government had done no planning on how people movement caused by climate change in the Asia-Pacific region might affect Australia.<sup>57</sup> While the Rudd Government promised in Opposition to address this issue, there has been little evidence of a significant change to date.

New Zealand has not yet made specific provision for people displaced by climate change. However, in 2002, the New Zealand government established the Pacific Access Category to facilitate migration by its Pacific island neighbours. While the government has stressed this is not a special category aimed at accommodating people displaced by climate change, it has added a new quota of 75 residents from the climate-vulnerable nations of Tuvalu and Kiribati and 250 each from Tonga and Fiji<sup>58</sup> each year to an existing special quota for Samoans of 1,100 people each year. There is likely to be mounting pressure for these quotas to increase, given that applications by residents from Kiribati have already risen from around 300 a year in 2002 and 2003 to around 3,000 a year in 2007 and 2008. Similarly, applicants from Tuvalu have increased from 100 applicants in 2002 and 2003 to around 600 in 2007 and 2008.<sup>59</sup> Tongan applications have risen from around 3,000 to around 8,000 over the same period.

It is critical that Australia and New Zealand develop immigration policies which allow for the eventuality of people displaced from the Pacific due to climate change, before this escalates to an emergency situation. Expanding immigration programs to accept people displaced by climate change should not come at the expense of existing refugee and humanitarian quotas.



Titiana village, Ghizo Island, Solomon Islands. Tarie Benefasi is from a Gilbertese community that originally resettled to Ghizo Island in the 1950s. He does not have the same land rights as Melanesians and has struggled to rebuild his life after the 2007 tsunami. The complexity of land ownership and resettlement in the Pacific results from a British colonial policy of resettling Gilbertese communities from the Gilbert and Ellice islands colony to the British Solomon Islands Protectorate.  
Photo: Lara McKinley/OxfamAUS.

*“They talk about us moving. But we are tied to this land. Will we take our cemeteries with us? For we are nothing without our land and our ancestors.”*

*– Babaga Island resident, Solomon Islands<sup>60</sup>*


### **Planning for relocation and resettlement**

The potential for forced displacement because of climate change demands extensive and long term community debate, in which those who are likely to be affected have the opportunity to participate. Betarim Rimon of the Ministry of Environment in Kiribati says that:

*“In Kiribati, we are talking about relocation over time rather than forced displacement. We think about relocation as a long, thought out, planned process.”<sup>61</sup>*

Kiribati President Anote Tong reaffirmed this in his address to the opening session of the 2008 UN General Assembly:

*“The relocation of the 100,000 people of Kiribati, for example, cannot be done overnight. It requires long-term forward planning and the sooner we act, the less stressful and the less painful it would be for all concerned.”*



*This is why my Government has developed a long-term merit-based relocation strategy as an option for our people. As leaders, it is our duty to the people we serve to prepare them for the worst-case scenario.”<sup>62</sup>*

Pacific island governments have raised a number of long-term options to deal with the worst-case scenario of relocation, including:

- investing in real estate in Pacific Rim Countries;
- developing education and skills training programs to increase labour mobility and remittances for threatened islanders; and
- developing a safer islands policy, concentrating limited resources (for seawalls and other infrastructure) on a few crucial population centres and implicitly ceding some outer islands to the ocean.

Tuvalu Government spokesman Kilifi O’Brien has argued that the worst-case scenario for Tuvalu, where all citizens are forced to evacuate together, should not mean the end of Tuvalu as a national entity:

*“If we lose our land we risk losing our identity. We know if the worst comes to the worst, we would have to relocate. But we would be looking at taking one sovereign country to another — we would want to keep our economic exclusion zone, our United Nations seat and so on. We would want to keep our identity as Tuvalu, in another location. The government is considering how to do this, and Australia is certainly seen as an option.”<sup>63</sup>*

### **RECOMMENDATION 6:**

#### **The Australian and New Zealand governments should prepare for climate displacement.**

By 2050, approximately 150 million people may be displaced because of climate change.<sup>64</sup> Seventy-five million of these are likely to be in the Asia-Pacific region, with that number growing to around 150 million<sup>65</sup> by 2100. Many people will resettle within their own country, and Pacific island governments are already tackling climate change related relocation and resettlement. But not all people forced to leave their homes will have the option of moving within their country. Both those who relocate internally and those who are forced to relocate to another country will require assistance. The Australian and New Zealand governments have been slow to address this issue.

The potential for forced displacement among the Pacific islands’ population of around 8 million people demands urgent debate on what future resettlement and relocation might involve. It is vital that local communities have the opportunity to participate in this debate.

Australia and New Zealand need to engage in dialogue with Pacific island governments, plan to address issues of climate displacement, and develop immigration policies that support Pacific island communities that are forced to move from their homes.

### **RECOMMENDATION 7:**

#### **Pacific governments must ensure that women and men participate equitably in all decision-making about climate change and that their differentiated needs are reflected in adaptation efforts.**

Women are disproportionately affected by climate change, because they tend to depend more on the natural environment for their livelihoods than men and they also bear the brunt of climate-related disasters and disease like malaria. Yet women are often left out of the conversation about climate change. An effective climate change strategy requires governments to recognise that women have specific needs in climate change policy and to insist on greater participation by women in decision-making at all levels.



A young girl in Bougainville. Photo: Cameron Feast/Oxfam

# Conclusion

Pacific island countries are clearly feeling the early effects of global climate change, with environmental migration and loss of land already occurring in some parts of the region.

Without a significant effort by developed countries now, some island nations in the Pacific face the very real threat of becoming uninhabitable in the decades ahead.

Developed countries such as Australia and New Zealand should take urgent action to tackle climate change and safeguard the rights of Pacific island communities to life, livelihoods, food, water, health and security.

It is in Australia and New Zealand's best interests to take this action now. The more frequent disasters caused by climate change will require Australia and New Zealand to respond, and the displacement of people in the Pacific due to rising sea levels will force them to look for new homelands.

Moreover, it makes financial sense to act now, given that for every \$1 spent on disaster preparedness and risk reduction, two to ten dollars is saved in disaster response.

The key first step is to prevent further climate damage to the Pacific by urgently adopting tougher targets — reducing emissions by at least 40% on 1990 levels by 2020, and at least 95% by 2050.

Equally, there is an urgent need to increase support for adaptation in the Pacific and to plan for forced migration and climate displacement. People across the Pacific are already adapting with the resources they have, but they cannot do it alone. More adaptation resources need to be directed towards local communities and draw on local knowledge in developing responses to climate change. Adaptation efforts should be focused on livelihoods, food and water security and developing countries need to be supported to follow low-carbon development pathways.

These steps simply represent Australia and New Zealand's fair share of what is needed to address climate change in the region and support our neighbours to become resilient climate change survivors.



**Teaoraereke, Kiribati. Two young dancers in traditional dress show pride in their culture. Australia and New Zealand need to contribute their fair share of what is needed to address climate change in the region and support Pacific neighbours to become resilient climate change survivors. Photo: Nic Maclellan/OxfamAUS.**


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**Tuvalu. Wrecked cars are used to break swells and tidal surge on the coast.**  
Photo: Jocelyn Carlin/Panos.

**Back Cover: Kup village, Simbu Province, Papua New Guinea. People can no longer predict when the wet season will come because of changed climatic patterns. These changing patterns are also evidenced by increasing temperatures which can mean the spread of mosquito-borne diseases like malaria and dengue fever. Photo: Jerry Galea/OxfamAUS.**



