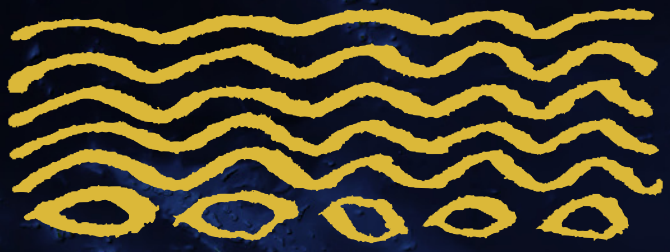
CLIMATE CHANGE AND FOOD SECURITY IN THE PACIFIC



POLICY BRIEF

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CLIMATE CHANGE AND FOOD SECURITY IN THE PACIFIC

This FAO/SPREP/SPC/USP Policy Brief has been written by Willy Morrell and Nadia El-Hage Scialabba, FAO, in cooperation with the **Pacific Expert Group on Climate Change and Food Security**, and thanks to the generous financial support of the Swedish International Development Cooperation Agency (SIDA).

PACIFIC YEAR OF CLIMATE CHANGE 2009

FOOD AND AGRICULTURE ORGANIZATION OF THE UNITED NATIONS, ROME 2009

EXECUTIVE SUMMARY

This brief has been prepared for the UN Convention on Climate Change meeting in Copenhagen, December 2009, to raise awareness of the imminent impacts of climate change on food security in Pacific island countries and territories and to urge participants to consider the importance of mainstreaming food security in climate-related policies, strategies and programmes.

By providing a snapshot of the imminent impacts of climate change on food security[1] in Pacific Island Countries and Territories (PICTs), this report illustrates the need to mainstream food security within climate change policies, strategies and programmes and the need to combat climate-related vulnerability through the effective implementation of National Adaptation Programmes of Action (NAPAs).[2] It also advocates "climate proofing" existing food security initiatives and broadening the NAPA process to include all PICTs as further steps to improve food security and combat the impacts of climate change in the region.

Currently, food security and climate change have disconnected policy agendas. At the Copenhagen COP15 climate change negotiations, PICTs must ensure that food security and climate change policies are harmonized and mutually supportive. Careful consideration must be given to the impact of climate change on food security, and building the resilience of the agriculture, fisheries and forestry sectors to safeguard food security in a time of multiple crises and risks.

Despite the fact that PICTs make negligible contributions to global greenhouse gas emissions rates (0.03 percent), they find themselves – unfairly – facing the frontline of climate change impacts. Climate change seriously threatens ongoing regional development and the very existence of some low-lying atoll nations in the Pacific. It is projected to increase the inherent vulnerability of PICTs, many of which rely heavily on imported fuel and food products and are susceptible to natural disasters and climate variability. In addition, climate change and climate variability are projected to have heavy impacts on the agricultural, forestry and fishery sectors within PICTs, threatening complex food webs, livelihoods and, ultimately, the ability of Pacific Island people to produce and access safe and nutritious foods that meet their dietary and cultural needs.

1 The Food and Agriculture Organization of the United Nations (FAO, 2002) defines food security as a "*situation that exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food that meets their dietary needs and food preferences for an active and healthy life*." This definition comprises four key dimensions of food security: availability, stability, utilization and access.

2 A National Adaptation Programme of Action (NAPA) is a process used to identify the urgent and immediate needs of a Least Developed Country (LDC) to adapt to the present threats from climate change. To date this process has targeted LDCs (Kiribati, Samoa, Tuvalu, Solomon Islands and Vanuatu) with funding through the Global Environment Facility's LDC Fund.

EXECUTIVE SUMMARY

Within the contexts of globalization, urbanization and rapidly growing PICT populations, PICT governments and their development partners work must harmoniously to ensure that food security issues are adequately mainstreamed into regional and national climate change adaptation programmes, and that the region's existing initiatives to improve food security and build a minimum degree of food self-resilience are adequately "climate proofed". Failure to take action will significantly undermine basic human development in PICTs and erode the inroads that have been made towards achieving Millennium Development Goal 1, which aims to eradicate extreme poverty and hunger.

Recommendations to Strengthen Food Security in the Pacific

- **Adopt a coherent cross-sectoral approach.** Combating food insecurity in PICTs under the shadow of climate change, international economic crisis, growing populations and urbanization will require a coordinated and cross-sectoral approach that explores the linkages between poverty, trade, gender, sustainable livelihoods, nutrition, and regional food production and distribution practices.

- **Build an enabling environment for action.** The adoption of a "no regrets" approach to climate change and food security in the Pacific region is critical. It is imperative to start immediately to establish the type of policies that will enable robust and best-practice climate change adaptation measures to be implemented effectively. Failure on the part of PICT governments and development partners to act urgently (and substantively) is likely to lead to increased poverty, political instability and conflict.

- **Mainstream food security into adaptation initiatives.** Reviewing policy is necessary to determine where it is necessary to mainstream food security into regional and national climate change adaptation and disaster risk reduction initiatives. For example, the Pacific Islands Regional Oceans Policy (PIROP) does not currently address climate change. PICT governments, multilateral organizations and regional agencies should be supported and adequately resourced to undertake this important mainstreaming work.

- **Climate-proof existing food security initiatives.** Existing food security initiatives within the region should be assessed and, where necessary, amended to ensure that they adequately address the longer term impacts of climate change. Such an approach provides a "win-win" opportunity to reduce food insecurity and poverty in the short term while building longer term national and regional resilience to climate change.

- **Implement NAPAs for all PICTs.** All PICTs face common and serious physical and socio-economic impacts of climate change, indicating the need to review and strengthen existing NAPAs. All PICTs should be supported and resourced to prepare and implement NAPAs that identify and address national climate change adaptation priorities including food security. This process should not draw attention away from the ongoing work within Least Developed Countries but rather allow other developing PICTs to reap the benefits of a comprehensive and globalized climate change adaptation planning process.

- **Implement action-orientated tools to address climate change.** There is a strong call from PICT governments to implement practical, action-orientated climate change adaptation measures that have short- as well as long-term development outcomes. These measures should include the development of Pacific-specific "toolkits" of simple and effective steps that individuals and communities can follow to improve food security by increasing the productivity and sustainability of the agriculture, fishing and forestry sectors. For example, an adaptive strategy could include the adoption of organic agriculture practices based on careful management of nutrient and energy flows, and spatial and temporal integration of plants and animals, e.g. through agroforestry and crop rotations. Establishing ecofunctional features increases agro-ecosystems resilience to climatic stress, enhances the soil's ability to retain or drain water and to sequester carbon, while also intensifying food production and exporting to a growing market.

- **Support research, development and cooperation.** There is strong justification for intensifying research and development in the agriculture, forestry and fisheries sectors that specifically consider the context of PICTs. This includes identification and use of salt- and drought-resistant crop varieties, the rehabilitation of coastal forests and infrastructure development in vulnerable coastal areas. The current high reliance on extrapolated climate change data and case studies from other regions presents unacceptable risks for the highly vulnerable Pacific region. The answer for rectifying this untenable situation is to promote a collaborative approach among PICT governments, CROP agencies, multilateral organizations and other development partners to fill information gaps and effectively share information.

CLIMATE CHANGE IN A VULNERABLE PACIFIC

AN UNCERTAIN FUTURE

The Pacific region is home to 14 Pacific Island countries[3] and 5 territories.[4] This "sea of islands" spreads over almost 20 million km of ocean and hosts a population of approximately 9 million, a number expected to increase by 50 percent by 2030. Climate change is expected to act as a "threat multiplier" to these already ecologically and economically vulnerable countries.

PICTs are geographically diverse. Some atoll nations lie just a few meters above mean sea-level, while those of volcanic origin rise steeply to altitudes in excess of 4 500 meters. They also vary substantially in size –from Nauru, which is just 21 km², to the resource-rich nation of Papua New Guinea with over 460 000 km². Despite the strong geographical and cultural differences that characterize the region, many PICTs share common ecological and economic vulnerabilities because of their:

- small size and land and water insecurity
- limited economies of scale and isolation from markets
- agricultural homogeneity and food import dependency
- growing dependence on fuel imports
- relative poverty, growing populations and urbanization
- fragile ecosystems
- susceptibility to natural disasters.

While there is still substantive uncertainty surrounding the magnitude, distribution and timelines of climate change in the Pacific region, the International Panel on Climate Change Fourth Assessment Report (IPCC 4AR) confirmed that PICTs are highly vulnerable[5] to climate change. In fact, it found that climate change will act as a "threat-multiplier", with impacts that include rising ocean levels, ocean warming and acidification, changing precipitation patterns, changing sunshine hours and cloud cover, altered ocean and atmosphere circulation patterns, and increased intensity and frequency of extreme weather events, including tropical cyclones, depressions and droughts.

According to the IPCC 4AR, climate change impacts within the region will be differential. For example, agricultural decline associated with climate change will differ markedly among PICTs due to their differing geomorphologies and vulnerability to sea-level rise and extreme climate events. High islands such as Viti Levu (Fiji) may expect relatively modest decreases in their gross domestic product (GDP) of between 2 and 3 percent by 2050, whereas low-lying countries such as Kiribati may

3 Cook Islands, Fiji Islands, Kiribati, Republic of the Marshall Islands, Federated States of Micronesia, Nauru, Niue, Palau, Papua New Guinea, Samoa, Solomon Islands, Tonga, Tuvalu and Vanuatu.

4 French Polynesia, Guam, New Caledonia, Pitcairn Island and Tokelau.

5 A 2009 World Bank study indicated that the East Asia and Pacific Region is facing the highest climate change adaptation costs of any region in the world (USD19.5 to 28.7 billion per annum).

face reductions equivalent to 18 percent of their GDPs. It should be noted, however, that these suppositions are fraught with uncertainty and are based upon rainfall projections that provide little certainty with respect to the magnitude, or even direction of the change, at the sub-regional level (Table below). Such uncertainty is of great concern in a region where many countries rely heavily on rain-fed agricultural production and depend on rainfall as a source of drinking water.

In the Pacific there is growing evidence that tropical cyclone activity will intensify as the Pacific Ocean continues to warm (IPCC 4AR). The El Niño Southern Oscillation (ENSO), which strongly dictates the development and distribution of cyclones within the Pacific region, will be affected by changing air and ocean temperatures. Some PICTs in the central and eastern Pacific will face more frequent storms and tropical cyclones if El Niño-like spatial patterns begin to dominate as many researchers predict (Box 1). Given that many Pacific islands lie no more than a few metres above sea level, the combined impact of tropical cyclones and sea-level rise[6] will be extreme and devastating for some low-lying atoll nations including Kiribati, Republic of the Marshall Islands and Tuvalu.

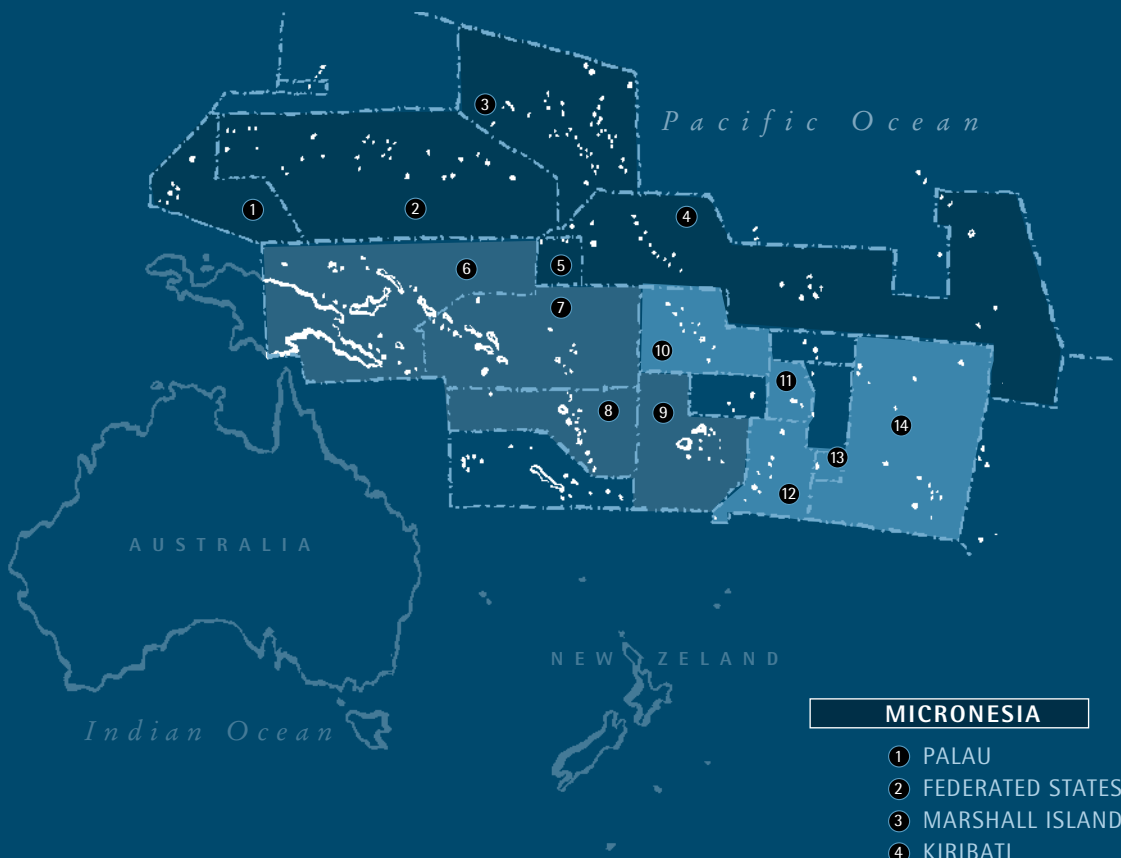
PROJECTED INCREASES IN SURFACE AIR TEMPERATURE (°C) AND CHANGES IN RAINFALL (%) BY REGION RELATIVE TO THE 1961–1990 PERIOD

AIR TEMPERATURE	2010–2039	2040–2069	2070–2099
Northern Pacific	0.49 to 1.13	0.81 to 2.48	1.00 to 4.17
Southern Pacific	0.45 to 0.82	0.80 to 1.79	0.99 to 3.99
RAINFALL	**2010–2039**	**2040–2069**	**2070–2099**
Northern Pacific	-6.3 to +9.1	-19.2 to +21.3	-2.7 to +25.8
Southern Pacific	-3.9 to +3.4	-8.23 to +6.7	-14 to +14.6

Source: IPCC 4AR Tables 16.1 and 16.2

6 IPCC 4AR projections indicate that mean sea level will rise between 0.19 to 0.58m by the end of the 21st century. Research outlined by the International Alliance of Research Universities (2009) in the lead up to Copenhagen indicates that we are presently tracking towards the upper boundary of these 4AR projections and that if trends observed over the past 120 years continue, a sea level rise of around 1 metre or more may be realised.

MAP OF PACIFIC ISLAND COUNTRIES(*)



0 800 1 600 2 400

Kilometers

MICRONESIA

1. PALAU
2. FEDERATED STATES OF MICRONESIA
3. MARSHALL ISLANDS
4. KIRIBATI
5. NAURU

MELANESIA

6. PAPUA NEW GUINEA
7. SOLOMON ISLANDS
8. VANUATU
9. FIJI

POLYNESIA

10. TUVALU
11. SAMOA
12. TONGA
13. NIUE
14. COOK ISLANDS

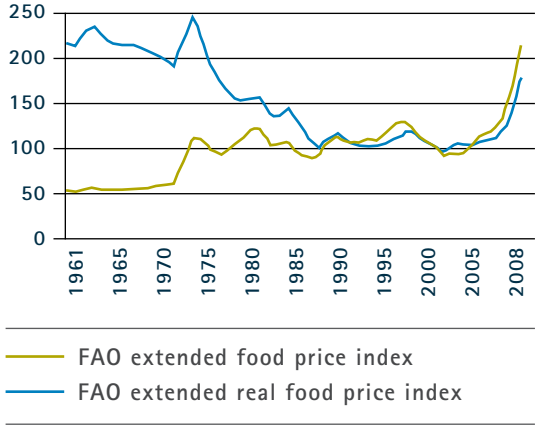
(*) FAO MEMBER COUNTRIES

FOOD SECURITY IN A GLOBALIZED PACIFIC

Pacific islanders have traditionally enjoyed comparatively good food security, mainly because they have secured food in a variety of ways including subsistence farming, trading and selling products, fishing and hunting. Now, this historic food security is being eroded by urbanization and a growing reliance on cheap and often poor quality imported foods that have little nutritional value. Unless resilience is built within the food system, climate change will increase food insecurity and malnutrition.

In PICTS' traditional diets that include root crops, leaves, fish, coconuts and fruit are being replaced by imported foods such as rice and flour – carbohydrates that have become the largest suppliers of energy for consumers.[7] These changing diets and cooking practices have led to alarming increases in the incidence of obesity, non-communicable diseases and malnutrition.[8] In addition, the growing reliance on food imports is problematic for PICT food security, given the volatility and long-term upward trend of international commodity and input prices that saw food prices reach a 30-year high in 2008.

FAO FOOD PRICE INDEX



Source: SOCO, 2009

Many of the aforementioned impacts of climate change are highly interrelated and will lead to cumulative and adverse impacts on food security in PICTs, through causing land and marine ecosystem degradation, salinization of soils and water resources, proliferation of plant diseases, pests and invasive species, increased frequency of fires and, of course, sea water inundation of low-lying arable land. These impacts are likely to cause multiple and potentially compounding changes to complex ecosystems, biological processes and food webs (see Boxes 1 to 3).

Schmidhuber and Müller (2009)[9] predicted that as global urbanization increases, food security will be determined primarily by access to food and the stability of food supplies. They also suggested that international trade will serve as an adaptation measure to offset changing local food production capacities caused by climate change. In the Pacific context, improved international and intra-regional trade are clearly needed but must be coupled with initiatives to promote and sustainably increase the productivity of PICT subsistence systems in agricultural, forestry and fishery sectors. Such an approach will help build self-reliance, diversify food sources and reduce reliance on imported food products.

7 WHO. (2002). *Diet, Food supply and Obesity in the Pacific*: World Health Organization.

8 UNICEF. (2008). *Situation Reporting: Food Price Increases/nutrition Security in the Pacific Islands* (Report No.1). Suva, Fiji.

9 Schmidhuber, J. and Müller, A. (2009) Climate Change, Food Security and Future Conflict. *Technology* Vol.11 Issue 3.

FISHERIES: A Fundamental Part of Pacific Life

Fish and fishing are fundamental to life and culture in the Pacific. Both subsistence and commercial fishing, particularly of tuna species, are mainstays of many PICTs economies and are already threatened by overexploitation and environmental degradation of marine and coastal habitats. Climate change seriously threatens the sustainability of the fishing industry and has the potential to undermine food security in a region strongly reliant on fish as a source of protein[10] and the income derived from renting the sea to foreign fleets.

Climate change is likely to impact fisheries in a number of ways. Increasing ocean temperatures and acidification, and changing currents are projected to damage marine ecosystems, disrupt complex food webs and change fish distribution patterns.

Warmer oceans are also anticipated to intensify cyclone activity, which will-in-turn damage fishing infrastructure, coral reefs and coastal ecosystems which, *inter alia*, act as important nurseries for a variety of fish and crustacean species.

To combat the effects of climate change, Governments, regional organizations, and development partners must focus on building awareness and capacity within national fishing industries to adapt to potentially abrupt environmental and industry change. Climate change will inevitably force PICT fishing industries to diversify the ways they produce, process and distribute fish. Efforts to carefully manage and reduce existing pressures on coastal fisheries will be critical to build the resilience of existing fisheries and habitats to climate change. With the support of donors, PICTs are also encouraged to promote the use of inshore fish aggregating devices (FADs) and aquaculture as a means to secure fish as an ongoing and integral part of PICT food security.

10 Per capita fish consumption in many PICT communities exceeds 50 kg/year.

BOX 1

CLIMATE CHANGE AND TUNA FISHERIES

Tuna fishing boats (bonitiers) damaged by a cyclone in French Polynesia (Ph. F. Sodter)

Western and Central Pacific Ocean tuna fisheries represent the world's most valuable tuna stocks. They have a total landed value of around USD 2 billion and an estimated market value of USD 6–8 billion. About half of this annual catch is taken from the territorial waters of PICTs. Annual licensing fees for the predominantly foreign fishing fleets provide revenues of about USD 60–70 million to the region. However, over-fishing is threatening two of the most valuable species, yellow-fin and big-eye tuna.

Climate change threatens to further undermine the Pacific tuna industry and subsistence coastal fishing alike by impacting fish habitats, industry infrastructure and distribution patterns. Over the past two decades, there have been significant shifts in the distribution of tuna catches in the Pacific. Increasing surface ocean temperatures are thought to be changing the frequency and duration of El Niño Southern Oscillation cycles and affecting fish migration patterns. These changes may lower overall productivity and alter the spatial distribution of tuna stocks in the longer term.

Fishing infrastructure within PICTs in the central and eastern Pacific may become more susceptible to cyclones and storm damage if El Niño-like spatial patterns become more prevalent, as many researchers predict. El Niño conditions are associated with a weakening of trade winds and warming of the surface layers in the eastern and central Pacific. Under these conditions, warmer waters can extend eastward into the central Pacific by nearly 4 000 km. This can increase tuna catches in the central Pacific and, conversely, reduce them in other areas of the Pacific. Changes in the distribution and abundance of tuna have serious implications for the long-term viability of industrial fisheries and canneries in the western Pacific.

FORESTRY:
An Undervalued Resource

The role of forests is often overlooked in the context of food security but they are vitally important in PICTs. Forests and trees provide important staple crops in the Pacific such as breadfruit, mangos, citrus fruits and the ubiquitous coconut. Furthermore, trees have long played a pivotal role in traditional agroforestry systems by providing shelter, shade and protection against the ravages of wind, salt spray and sun. Mangrove forests and other coastal trees also play multiple roles in protecting coastlines, buffering wind and wave action, and contributing to food webs.

Temperature increases and changing water regimes in PICTs will adversely impact the functioning and species composition of forests and their ability to provide important ecosystem services such as water cycle regulation, maintenance of soil fertility and biodiversity conservation. Under projected climate change scenarios, forest and tree resources will be further threatened by increased cyclone and storm activity, invasive species, pest and diseases and fire. The proliferation of Merremia peltata, a vigorous vine that has the potential to smother host trees, provides an excellent example of how Pacific forest ecosystems can be adversely impacted by invasive species. While the aggressive establishment of this vine in many PICTs is not presently attributed to climate change, it is inevitable that climate change will trigger the spread and growth of other invasive species within the region.

Climate change impacts, coupled with ongoing overexploitation of PICT forest resources,[11] will place immense pressures on remaining forests. It is vital that development partners support PICT governments in managing forests sustainably and in promoting the role of trees for coastal protection and within integrated agroforestry systems. The dual role of PICT forests, particularly within larger Melanesian countries including Fiji, Papua New Guinea, the Solomon Islands and Vanuatu, in sequestering atmospheric carbon must also be recognized in the global efforts to mitigate greenhouse gas emissions. Melanesian PICTs need ongoing support to assess and, where appropriate, participate in forestry-based mitigation programmes, such as the UN REDD programme,[12] which has the potential to channel vital funding into PICTs to combat climate change.

11 FAO data indicates that about 3.8 million m^3 of unprocessed timber was exported from the Solomon Islands and Papua New Guinea alone in 2007.

12 United Nations Collaborative Programme on Reducing Emissions from Deforestation and Forest Degradation.

BOX 2

THE ROLE OF MANGROVE FORESTS

Mangrove encroachment in Tonga, 2009 (Ph. Willy Morrell)

Mangrove forests play a vital but often undervalued cultural and ecological role in many PICTs. In addition to mitigating coastal erosion, salt spray incursion and coral siltation, they provide protection from storm surges and tsunamis, and provide important habitats for a wide variety of bird, crab and shellfish species. Mangroves also form important habitats and nurseries for numerous pelagic and coastal fish species, many of which form a vital source of protein for Pacific islanders.

Mangroves also are a source of timber, fuel, medicine and handicraft materials and accordingly are being overexploited in some PICTs. Urbanization and poor land use planning is also driving the reclamation of low-lying mangrove areas in some PICTs: placing low-income communities at risk of health impacts, storm surges and sea level rise.

Given the complex and multiple roles of mangroves in food security and food webs, far greater emphasis must be placed on the sustainable management of mangroves in the region. This will help ensure that mangroves continue to play a role in sequestering carbon, and contributing to food webs within the Pacific region.

AGRICULTURE: A Highly Vulnerable Sector

Climate change poses a broad and complex array of consequences for agriculture in the region. Climate-induced changes in rainfall, temperature, and soil and air moisture regimes will impact agricultural yields and the type of crops that can be grown in PICTs. Resulting heat stress, soil erosion, salinization and nutrient depletion, increases in pests, diseases, invasive species, drought and flooding, and sea water inundation of low-lying arable soils are expected to cause production losses. Crops in many low-latitude PICTs are already close to their maximum heat tolerance and accordingly even minimal atmospheric warming and rainfall changes may result in substantive decreases in crop yields.[13]

Along with cyclone impacts, drought and the emergence of new pests (plant diseases, weeds, arthropod and vertebrate pests) and disease vectors pose some of the more acute and serious risks to agricultural production in PICTs.

Governments and development partners need to act swiftly to assess the vulnerability of PICT agricultural systems and where necessary build this sector's resilience to climate change and climate variability. There is also an urgent need to ensure that farmers receive the best available information and guidelines on the choice of crop varieties, and soil and water management options under changed environmental conditions. Those PICTs that have focused on developing monoculture crop production will need to assess their food security potential closely, as diversified agricultural systems will fare better under all climate change scenarios. In particular, integrated systems of crops, trees and possibly livestock offer opportunities for sustainable intensification of food production while creating a more resilient ecosystem. Organic agriculture applies such diversification practices in order to optimize nutrient flows and increase farm productivity and ability to cope with uncertainties.

13 Stern, N. (2007). How Climate Change Will Affect People Around the World. In: *The Economics of Climate Change: The Stern .Review* (pp. 65-103). Cambridge University Press

BOX 3

CYCLONE IMPACT ON AGRICULTURE

Cyclone Percy damage in the Cook Islands, Feb. 2005 (Source unknown)

Of all the climatic phenomena, tropical cyclones are considered to have the greatest potential to wreak havoc on PICTs' infrastructure, land resources, agricultural production and food security. Cyclones Ofa and Val, which hit Samoa in 1990 and 1991 respectively, caused economic losses in the order of USD 440 million. In Niue in 2004, Cyclone Heta caused an estimated USD 27 million in damages, a figure equivalent to about 200 years of Niue's agricultural exports. The cleanup and reconstruction process following Heta cost the region an estimated USD 150 million dollars.

The El Niño-induced drought in Fiji in 1998 and the taro leaf blight that hit Samoa in the early 1990s illustrate the serious impacts of drought and disease on crop yields. The Fiji drought severely impacted about 40 percent of the country's sugar cane crops and directly impacted an estimated 28 000 households. In the case of the taro leaf blight, Samoan taro exports fell to less than 2 percent of pre-blight levels within a year of the disease's establishment in 1993. More than 15 years later, the taro export industry in Samoa has failed to recover fully.

While scientists are still unable to unequivocally attribute the increase in cyclone activity in the South Pacific over the past two decades to climate change, there is growing evidence to suggest that the region can expect to experience a greater frequency of more intense cyclones on account of warming oceans and a shifting balance in the El Niño Southern Oscillation.

ACTING BOTH WAYS

CLIMATE-PROOFED FOOD SYSTEMS

PICT governments and their development partners work must harmoniously to ensure that food security issues are adequately mainstreamed into regional and national climate change adaptation programmes, and that the region's existing initiatives to improve food security and build a minimum degree of food self-resilience are adequately "climate proofed".

Mainstreaming Food Security and Climate Change

Recent studies by FAO[14] and UNICEF[15] suggest that several PICTs (i.e. Nauru, Kiribati, Tuvalu and the Republic of the Marshall Islands) are particularly vulnerable to food insecurity. Their extremely limited soil and water resources and heavy reliance on fishing and imports create major challenges. As the impacts of climate change and climatic variability impact fisheries and commercial and subsistence agriculture systems within the region, food insecurity is likely to engulf other PICTs.

Addressing food security in the region requires a multi-pronged approach that explores the linkages among factors such as long- and short-term climatic variability, food procurement and trade modalities, poverty disparities between rural and urban communities, issues contributing to sustainable livelihoods, nutrition and health, and viable agriculture, forestry and fishing practices. SPREP argues that strengthening an adaptation-enabling environment must start now with a focus on win-win measures and the adoption of a 'no regrets' approach to climate change. This will need to include legislation and policy adjustments relating to food sources, coordination among and across key stakeholders, and research and development, as well as the implementation of adaptation measures such as expanding seed banks, improving salt-tolerant crop varieties and increasing investments in primary food sources.

There also is a clear need to mainstream food security into the various and, largely, poorly linked climate change initiatives that are being conducted in the region by a wide variety of stakeholders. The Pacific Adaptation Climate Change Programme (PACC), implemented SPREP, has successfully integrated long-term food security initiatives. Opportunities also exist to integrate food security within the many disaster risk reduction programmes[16] that are being implemented within the region at all levels.

14 FAO (2009) Climate Change and Food Security in Pacific Island Countries.

15 UNICEF. (2008). *Situation Reporting: Food Price Increases/nutrition Security in the Pacific Islands* (Report No.1). Suva, Fiji.

16 Disaster risk management and related initiatives are being carried by numerous PICT Governments and other development partners including; NZAID, AusAID, UNESCO, UNOCHA and the UNDP.

Similarly, PICT governments and development partners are looking to ensure that existing food security initiatives, such as FAO's activities implemented under it's the regional Food Security and Sustainable Livelihoods Programme, adequately address the present and pending impacts of climate change. This mainstreaming work requires a harmonized and regional approach in which an array of PICT governments, regional organizations and development partners[17] must work closely together to climate-proof and augment food security initiatives in the region.

NAPAs and Food Security in the Pacific

The establishment of the Global Environmental Facility's Least Developed Country Fund in November 2002 saw funds allocated to the Pacific region's five LDCs[18] to aid in the preparation of their NAPAs. Within the NAPA process, each LDC has identified priority climate change adaptation projects that are eligible for GEF funding.

Although a lack of resources and, in some cases, limited national capacity to undertake stringent application and reporting requirements, has slowed project formulation and implementation for some Pacific LDCs, other developing PICTs have seen the benefits of the NAPA process in identifying climate change vulnerabilities and mapping out appropriate and country-specific adaptive measures to address climate change.

Accordingly, there has been a widespread call by developing PICTs for similar activity and funding to be made available to non-LDCs. This proposal was formally raised at a UNFCCC Working Group meeting in June 2008[19] by several countries, including the Cook Islands. While an agreement in principle was reached at the meeting to broaden the NAPA process to non-LDCs, to date the decision has not been formalized by the UNFCCC Conference of the Parties and details such as financing and sourcing of technical support have still to be formulated.

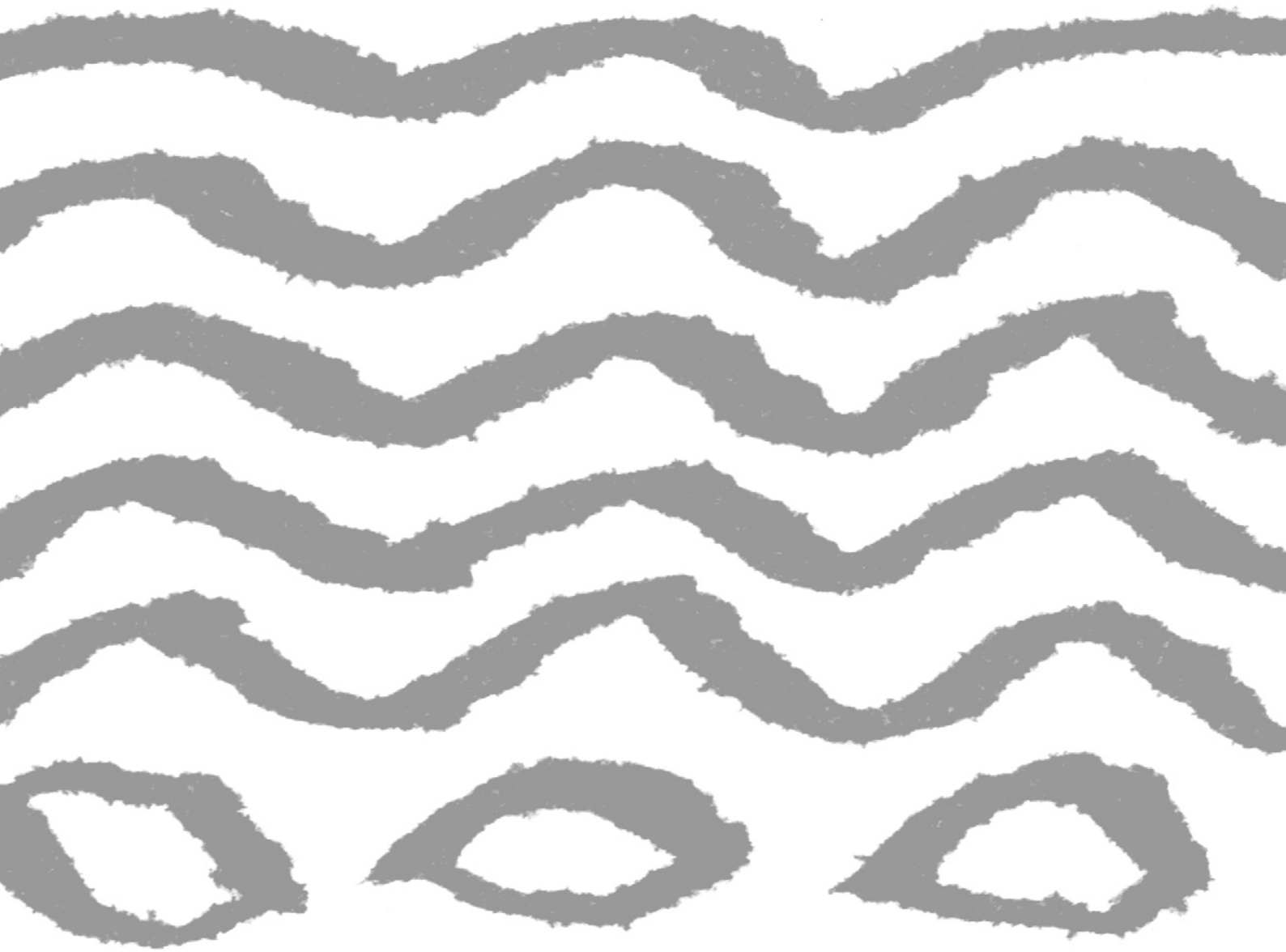
17 These include AusAID, IFAD, EU, FAO, NZAID, SPC, the World Bank and CROP agencies.

18 Namely, Kiribati, Samoa, Solomon Islands, Tuvalu and Vanuatu.

19 Session II of the UNFCCC *ad hoc* Working Group on Long-term Cooperative Action under the Convention (Bonn 2-12 June 2008).

"I see the change
when the waves tumble
over places where
rocks once were
rocks that I once sat on"

Crystal Kabua,
Marshall Islands,
Climate Change School Competition
Winning Entry, 2009



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