

# A Pacific Regional Perspective on Climate Change Implications for the Pacific

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# Overview

- Climate change science
- Pacific climate change impacts confirmed by IPCC
- Community based approaches
- Risks and opportunities

# Climate change is impacting the Pacific – what PICs suspected

- Increase in extreme events
- Saline intrusion in atolls
- Shifts in tuna stocks and migratory routes
- Increased coastal erosion
- Coral bleaching events increasing
- Anecdotal evidence on the increase



# IPCC key messages

- Global climate change is "very likely" to have a human cause
- temperatures were probably going to increase by 1.8-4C (3.2-7.2F) by the end of the century
- sea levels were most likely to rise by 28-43cm, and global warming was likely to influence the intensity of tropical storms

# Impacts documented in Pacific

- Annual and seasonal ocean surface and island air temperature have increased by 0.6 –1.0°C since 1910 throughout a large part of the region
- Fewer hot days and warm nights, and significantly fewer cool days and cold nights, particularly in years after the onset of El Niño, 1961–2003
- Analyses of satellite and tide gauge data show a maximum rate of sea level rise in the central and eastern Pacific, spreading north and south near 90°E, mostly between 2 and 2.5 mm/year, peaking at over 3mm/year for the period 1950–2000.



# IPCC projections for Pacific

- Increased seasonal surface air temperature ranging from 0.45 to 3.11°C by 2100
- Projected changes in rainfall range from -14.0 to +14.6% by 2100 for the Southern Pacific. More rainfall is projected during summer months, with likelihood of more frequent heavy rainfall events.
- Projected global average sea level rise of 0.19 to 0.58 mm/yr. Models indicate a geographical variation of sea level rise.
- The number of intense cyclones is likely to increase.

# What could these impacts be?

- bleaching coral reefs, decline in total tuna stocks and migration away from current routes. Sea-level rise exacerbates inundation, storm surge erosion, and coastal hazards, threatening infrastructure, settlements, and facilities, eg international airports
- food security, human health, water resources, insurance and tourism, e.g intensity of tropical cyclones increases, gives rise to significant damage to food crops and infrastructure.
- current high health burdens worsened by climate sensitive diseases, eg. morbidity/mortality from extreme weather events, vector borne diseases, food and water borne diseases



# Corals are particularly at risk

- Corals constitute a natural protective barrier, and are also a primary input in tourism – for diving, fishing nursery, sand production for beaches, etc.
- Climate change stresses on corals include bleaching from heat, acidification, increased sedimentation, algal blooms, etc



# Land loss and beach erosion





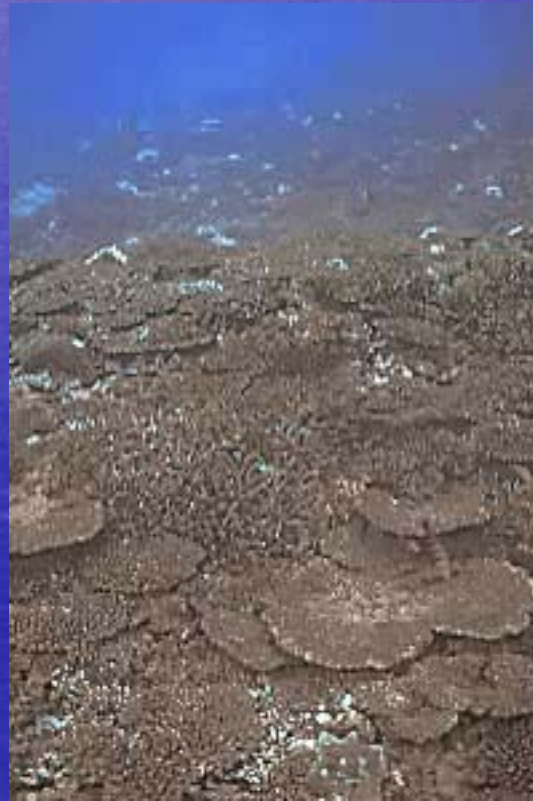
**What do these images  
have in common?**



# Coral Bleaching



before



after



during..

# Adaptation experiences of past climate change programmes

- Pacific Island Climate Change Assistance Programme (PICCAP) – established as an enabling activity project for the then Parties to FCCC, expanded to include all 14 States
- Primarily to enable completion of Initial National Communications to UNFCCC
- Allowed for adaptation activities, through vulnerability and adaptation training and some individual site studies, set stage for future work



# Impacts of PICCAP

- PICCAP as an enabling activity has built capacity largely of Environment/Meteorology Department offices. SPREP is broadening its capacity building programme to reach out to other line government departments and communities
- V and A assessments done using simple models
- Related projects CLIMAP and CBDAMPIC – have enabled us to trial Stage 3 implementation, and to look at risk reduction. PICs are calling for more implementation projects as a result – Pacific Adaptation to Climate Change Project

# Pacific Adaptation to Climate Change Project

- 3 focal areas: water resource management, coastal management and infrastructure, food production and food security
- National consultations resulted in consensus for one project for each SIDS, bearing in mind existing efforts and needs
- Eg. Niue on water mgt, Vanuatu on coastal zone mgt, Fiji on food security



# Lessons learned

- focus on sea-level rise and storm surges from tropical cyclones
- early emphasis on protecting land through 'hard' shore-protection measures rather than "soft" – now changing
- costs of overall infrastructure and settlement protection is a significant proportion of GDP well beyond the means of SIDS
- recent studies on adaptation: water resources and watershed management, reef conservation, agricultural and forest management, conservation of biodiversity, energy security, increased share of renewable energy in the energy supply, and optimized energy consumption
- emphasis has thus become more broad-based and looks at climate change impacts from a more comprehensive perspective.

# Impacts of extreme events

- Cyclone Heta hit Niue
- 2 dead, 200 homeless, 20% of population
- NZ\$50 million damage, \$29,000 for every single Niuean, or 200 years of exports
- Only museum lost 90% of its collection
- All from a single extreme weather event



# Increase in extreme events?

- Prior to 1985, the Cook Islands were considered to be out of the main cyclone belt, and could expect a serious cyclone approximately every 20 years.
- five cyclones within one month in Feb/March 2005, of which 3 were classified Category 5
- caused damage of 10% of the annual budget, destroyed 75% of homes on Pukapuka, but luckily no lives were lost.

# Risks and opportunities

- Stern Report states that early action can achieve good results at low costs (1% global GDP)
- But action needs to start soon, past emissions commit us to some change
- Need to begin peaking by 2020 to achieve lower increases in temperature



# Remaining uncertainties

- Will the Greenland Ice and Antarctic melt quickly, slowly or as a threshold event?
- Will windspeed patterns alter?
- What will be the combined impacts of multiple climate change effects?
- Will we have the presence in the region of particular skills needed to cope?

# Pacific Islands Framework for Action on Climate Change

- Pacific Islands Framework for Action on Climate Change 2006-2015 endorsed by Leaders
- Establishes sets of priorities for action on climate change in the region – involves local, national, regional and international levels
- Adaptation is a major focus: multi-stakeholder, risk management, no regrets, improving safe secure livelihoods, focus on most vulnerable areas and integrate in NSDS and other strategies



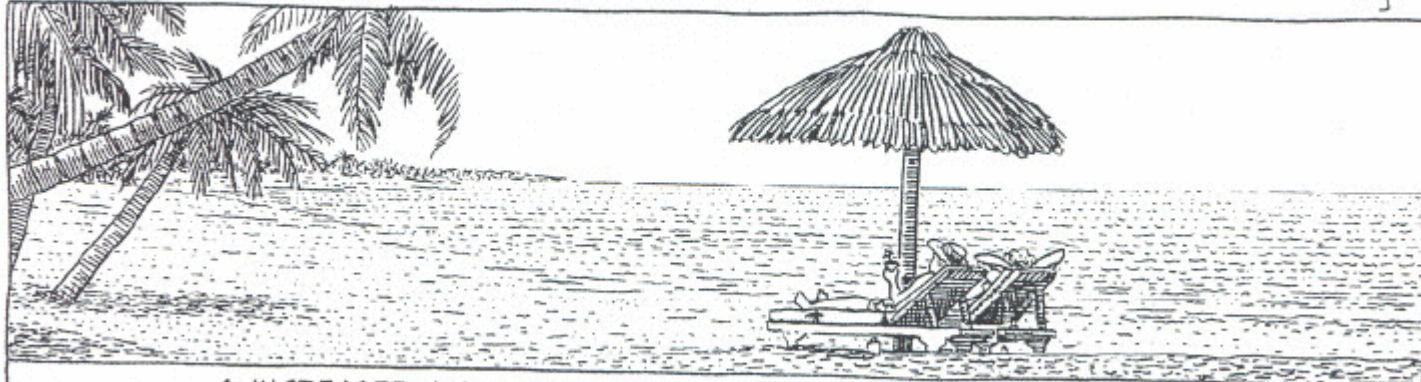
# Establishment of Regional Roundtable on climate change

- To provide a major opportunity for the Governments and communities to build a consensus on what actions should be taken to alleviate climate change impacts
- practical work will be undertaken through regional and national policies as part of regional projects (PACC, PIGGAREP and PI-GCOS), and through NAPAs and SNCs.

# Is there a bright side?

**GLOBAL WARMING** THE PLUS SIDE

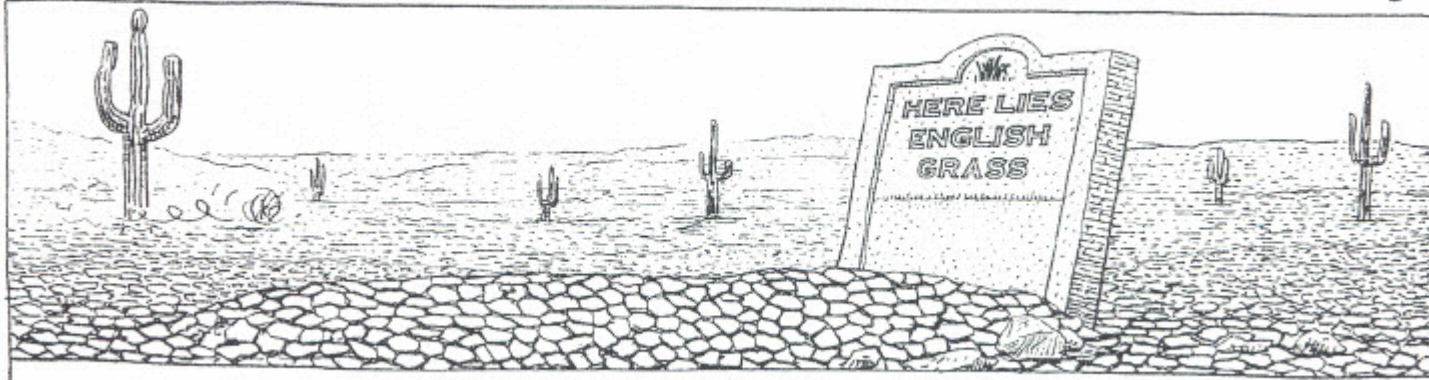
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1. INCREASED HOLIDAY OPPORTUNITIES. NEW BEACHES IN ANTARCTICA.

**GLOBAL WARMING** THE PLUS SIDE

AJP



3. NO MORE MOWING THE LAWN.



**GLOBAL WARMING** THE PLUS SIDE

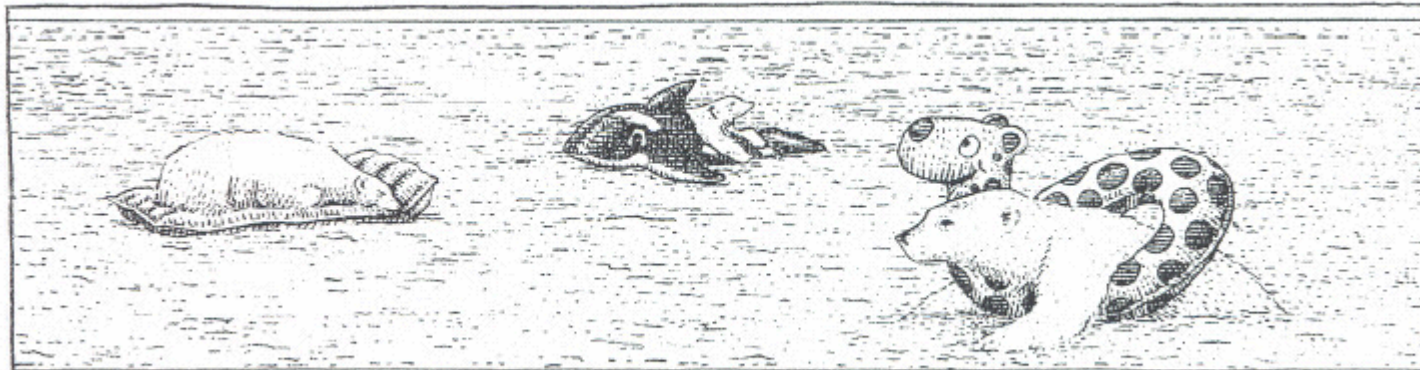
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5. ENGLISH CONVERSATION IS DRAMATICALLY IMPROVED.

**GLOBAL WARMING** THE PLUS SIDE

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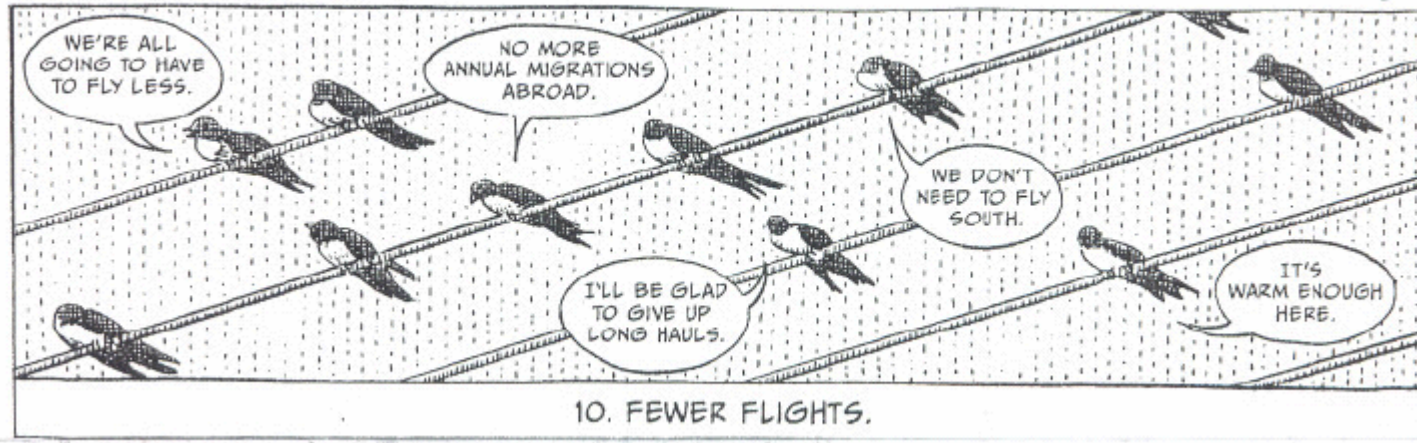


6. NEW MARKET FOR SWIMMING AIDS.



# GLOBAL WARMING THE PLUS SIDE

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10. FEWER FLIGHTS.

# GLOBAL WARMING THE PLUS SIDE

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11. BATSMEN ENJOY HUGE SCORES ALL YEAR ROUND ON DRY PITCHES.



# From SPREP statement to FEMM

"some PICs may become uninhabitable due to climate change, some have raised the issue of becoming environmental refugees. SPREP and the PICs work to formulate assessments and plans for adapting to climate change, so that near term impacts can be addressed, and longer-term impacts can be prepared for. Given the predictions it is clear that without strong measures to reduce GHG emissions, comprehensive adaptation in many PICs will be very difficult. Potential evacuation of islands raises grave concerns over sovereign rights as well as the unthinkable possibility of entire cultures being damaged or destroyed"

Thank you

