Tourism and climate change: lessons learned to date

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Key dimensions

Sustainable Tourism needs to be low-carbon, climate-proofed and disaster resilient

Greenhouse gas emissions and mitigation

Note: emissions from cruise ships are 3 times as high per passenger compared with air travel

The elephant in the room is international air travel

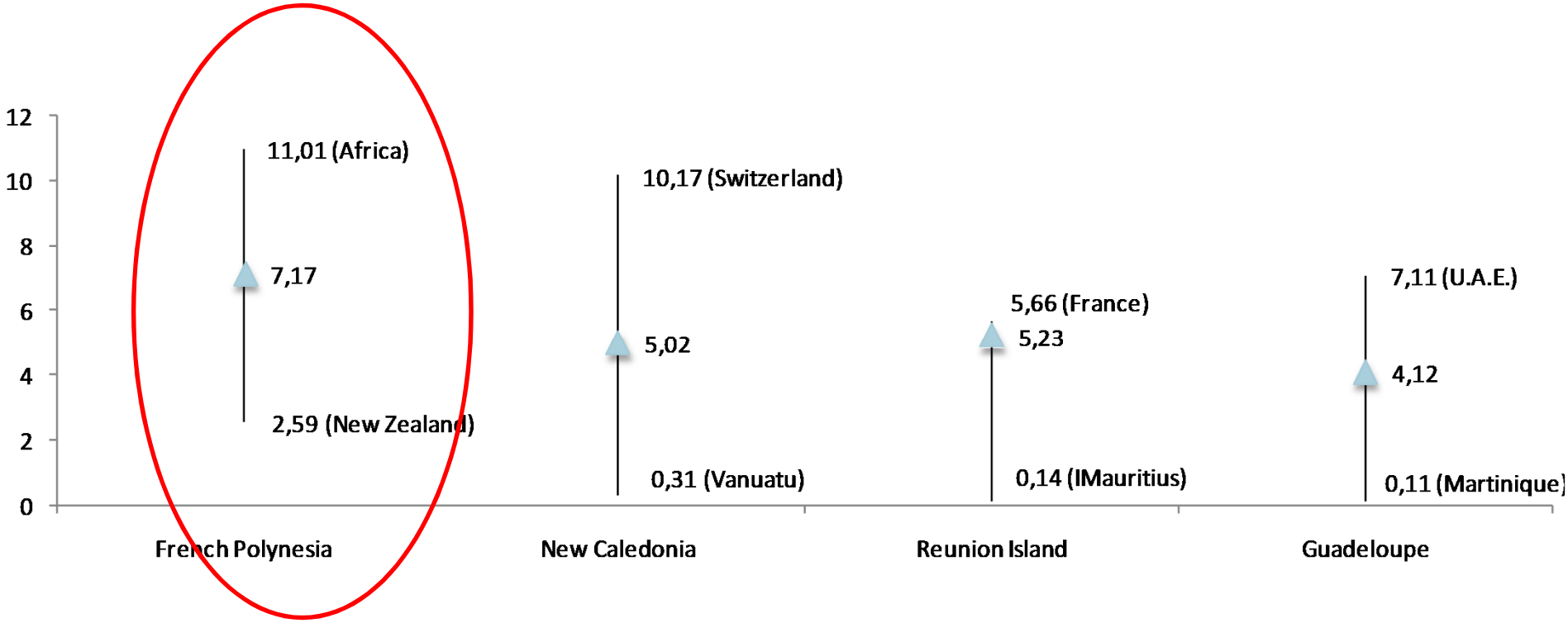
Global Tourism Emissions in 2005: CO_2 only (UNWTO/UNEP/WMO)

Sub-Sectors	CO_2 (Mt)	
Air transport *	**522**	40%
Car transport	**418**	32%
Other transport	**39**	3%
Accommodation	**274**	21%
Activities	**52**	4%
TOTAL	**1,307**	
Total World (IPCC 2007)	**26,400**	
Tourism Contribution	**4.95%**	

Transportation of Tourists = 75% of Sector Emissions

* - does not include non-CO2 emissions and impact on climate

CO2-equivalent (tonnes) per stay in French OT



Source: TEC, using INSEE data

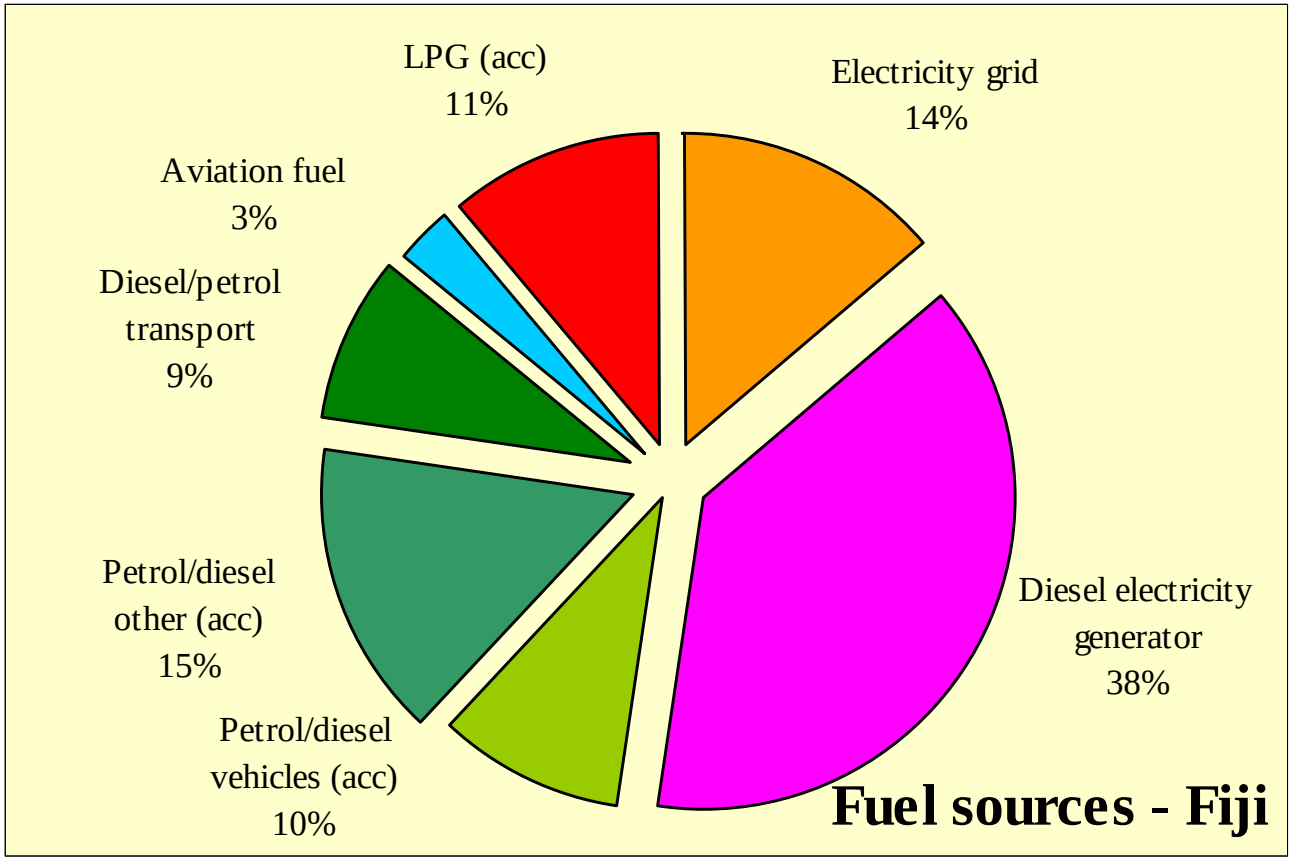
So, how to reduce aviation footprint?

- Airline industry (airlines, manufacturers, air traffic control systems, integration with other transport providers)
- Shorter-distance markets => NZ, Australia, China?
- Longer length of stay
- Higher yield (more $ per carbon emitted)
- Carbon offsetting
- Maximise in-country carbon efficiency!

Understanding a destination’s footprint

For example Fiji

What is the energy profile in Fiji? (based on 2002 data)



Key priority: accommodation energy use

Reduce usage of diesel generators

Note: generators are important as a back up, i.e. enhance resilience

Measure to Manage (M2M)

DUSIT International case study

Ecolab's Ensure™ Laundry Program helps Thai hotel reduce annual energy and water costs by US$15,600 and water use by 4.7 million liters.

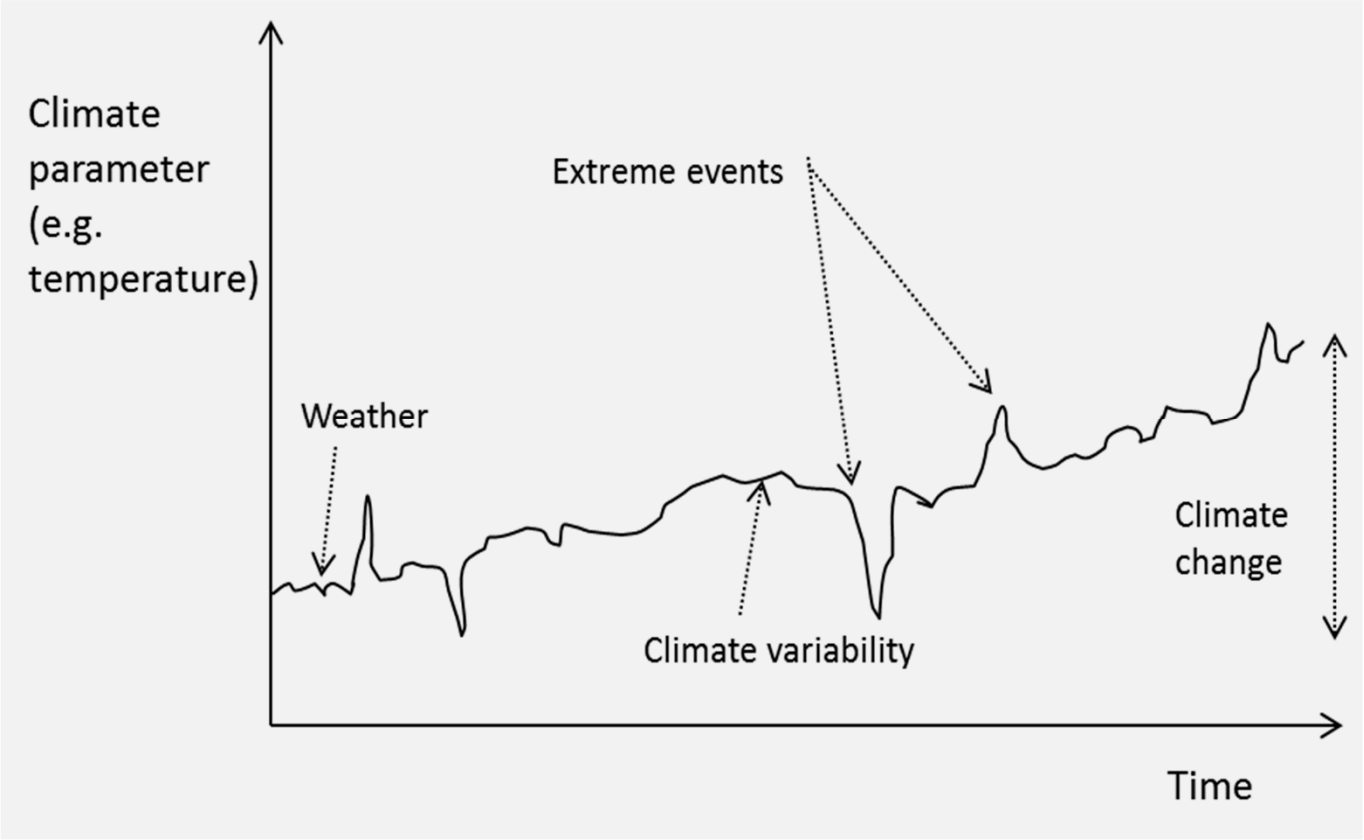
Note: there is a strong business case!

Formula	Water Usage per Load		Energy Usage per Load				Volume
	Water in m^3		Electricity in kWh		Heat (steam) in MJ		
	Baseline	Ecolab Ensure	Baseline	Ecolab Ensure	Baseline	Ecolab Ensure	Loads per Month
White Sheets	2.79	2.25	13.0	11.3	147.9	32.5	360
White Towels	2.79	2.25	14.5	12.5	158.7	32.5	341
White Table Linens	2.88	2.79	15.7	15.0	183.9	176.7	127

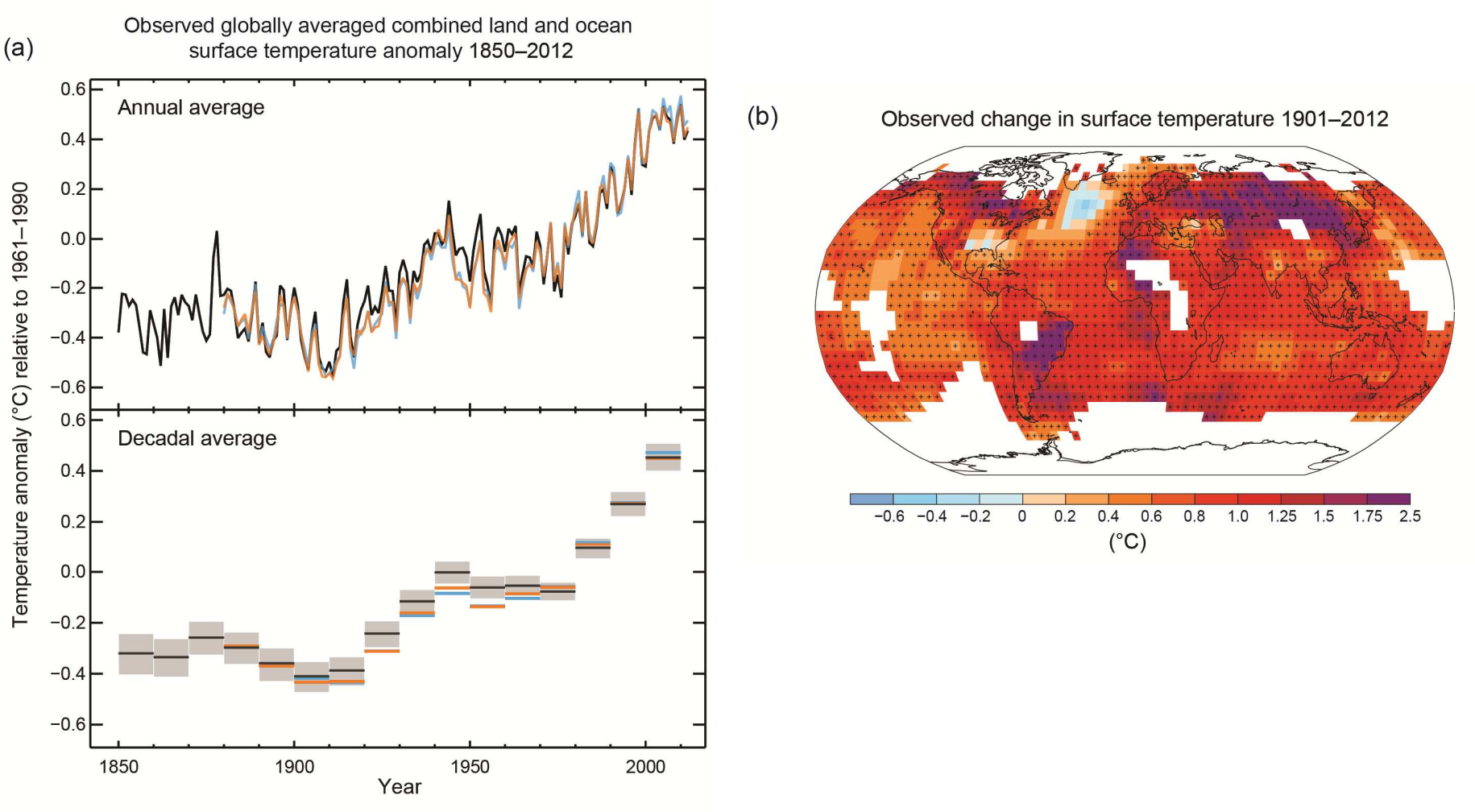
Other ways of reducing destination carbon footprint

Low-carbon supply chains

Climatic events and climate change



IPCC 5th Assessment Report - Observations



Climate projections South Pacific: Temperature

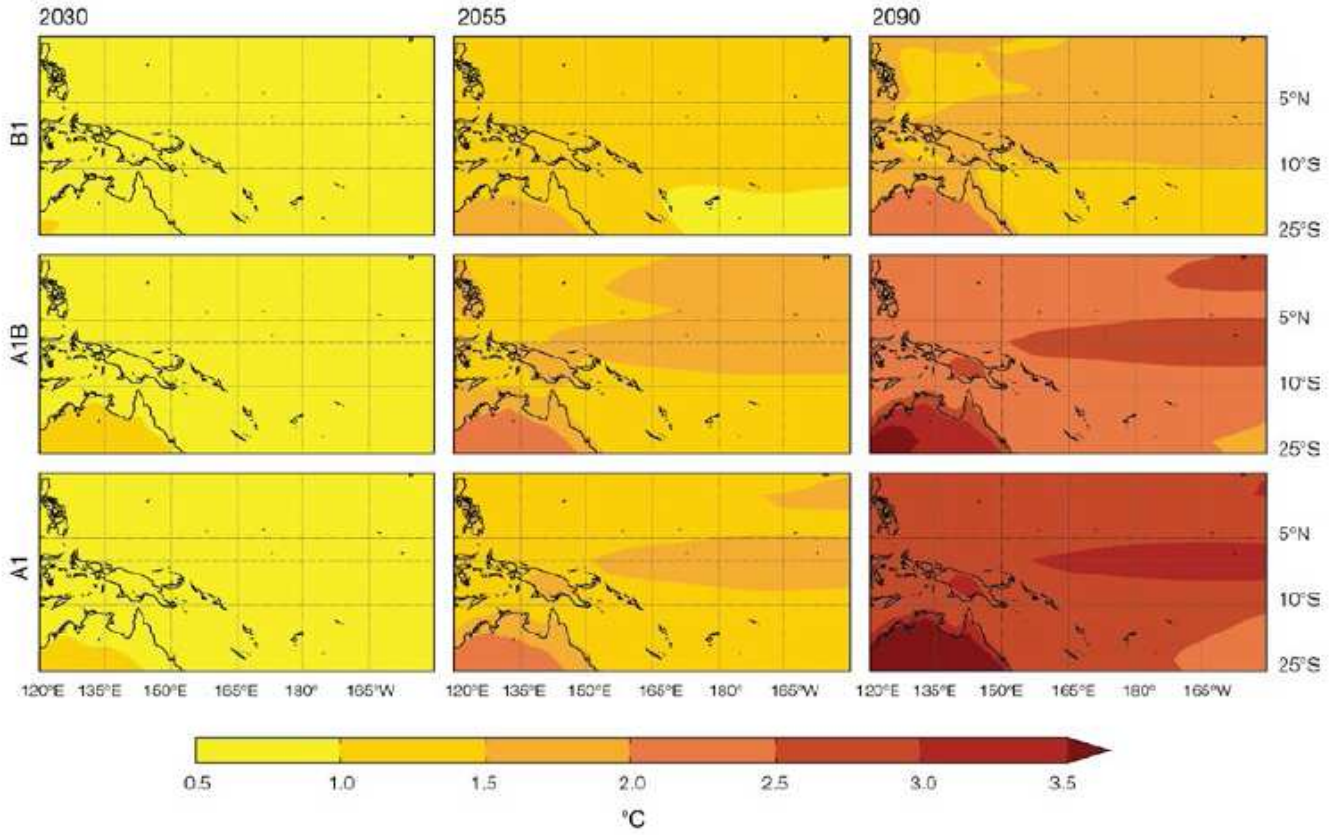


Figure ES.3: Projected multi-model mean changes in annual mean surface air temperature for 2030, 2055 and 2090, relative to 1990, under the A2 (high), A1B (medium) and B1 (low) emissions scenarios. All models agree on warming in all locations.

Source: Fiji Meteorological Service; International Climate Change Adaptation Initiative: www.pacificclimatechangescience.org

Sea level rise projections

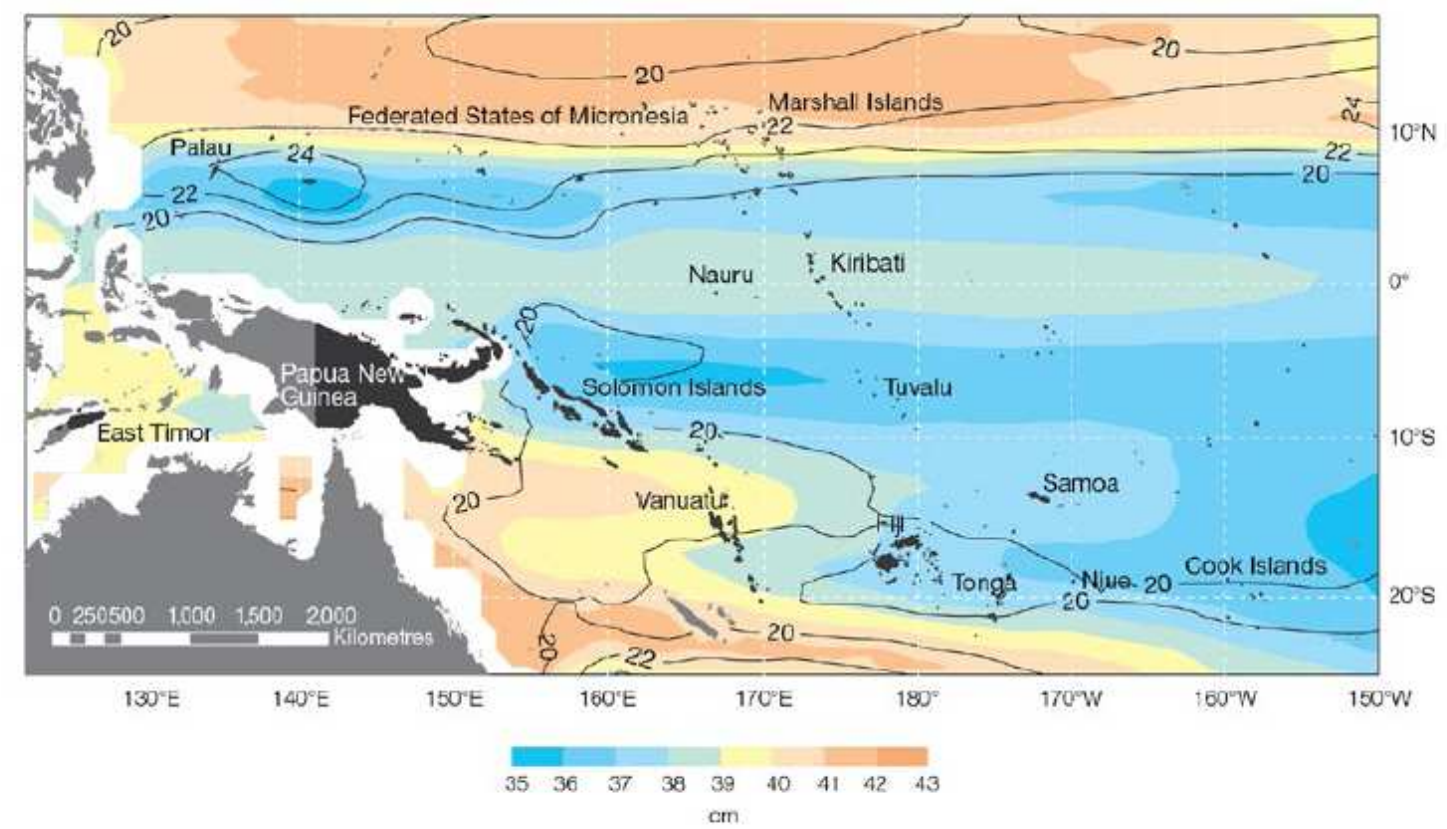
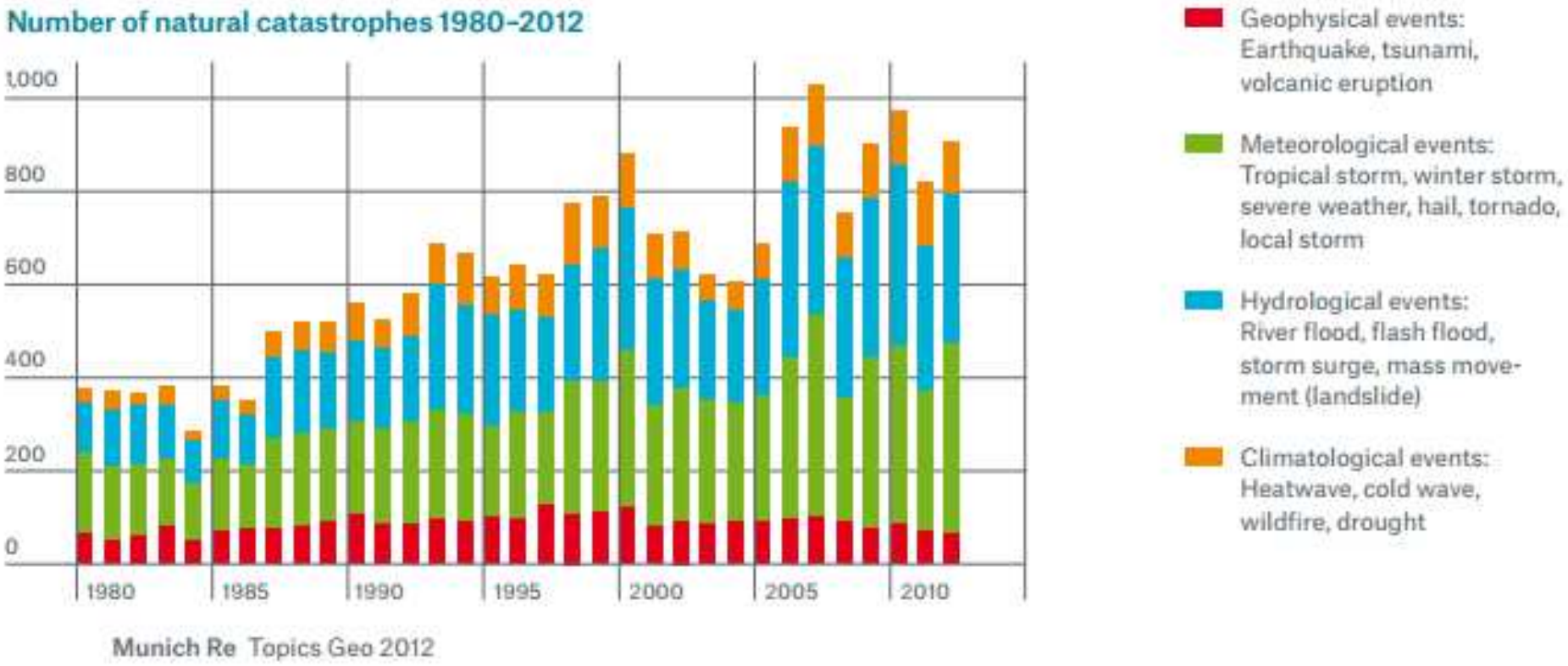


Figure ES.5: Sea-level rise projections for the A1B (medium) emissions scenario in the PCCSP region for 2081-2100 relative to 1981-2000 are indicated by the shading with the uncertainty indicated by the contours (in centimetres). The distribution of the projections of sea-level change is estimated by combining the global average sea-level projections, the dynamic ocean departure from the global average and the regional changes associated with the changing ice-mass distribution. Note that white areas indicate no model data are available for that area.

Source: Fiji Meteorological Service; International Climate Change Adaptation Initiative: www.pacificclimatechangescience.org

Most natural catastrophes are climate-related



Undertake vulnerability assessment

Tourism-specific assessment is needed.

Island tourism vulnerability

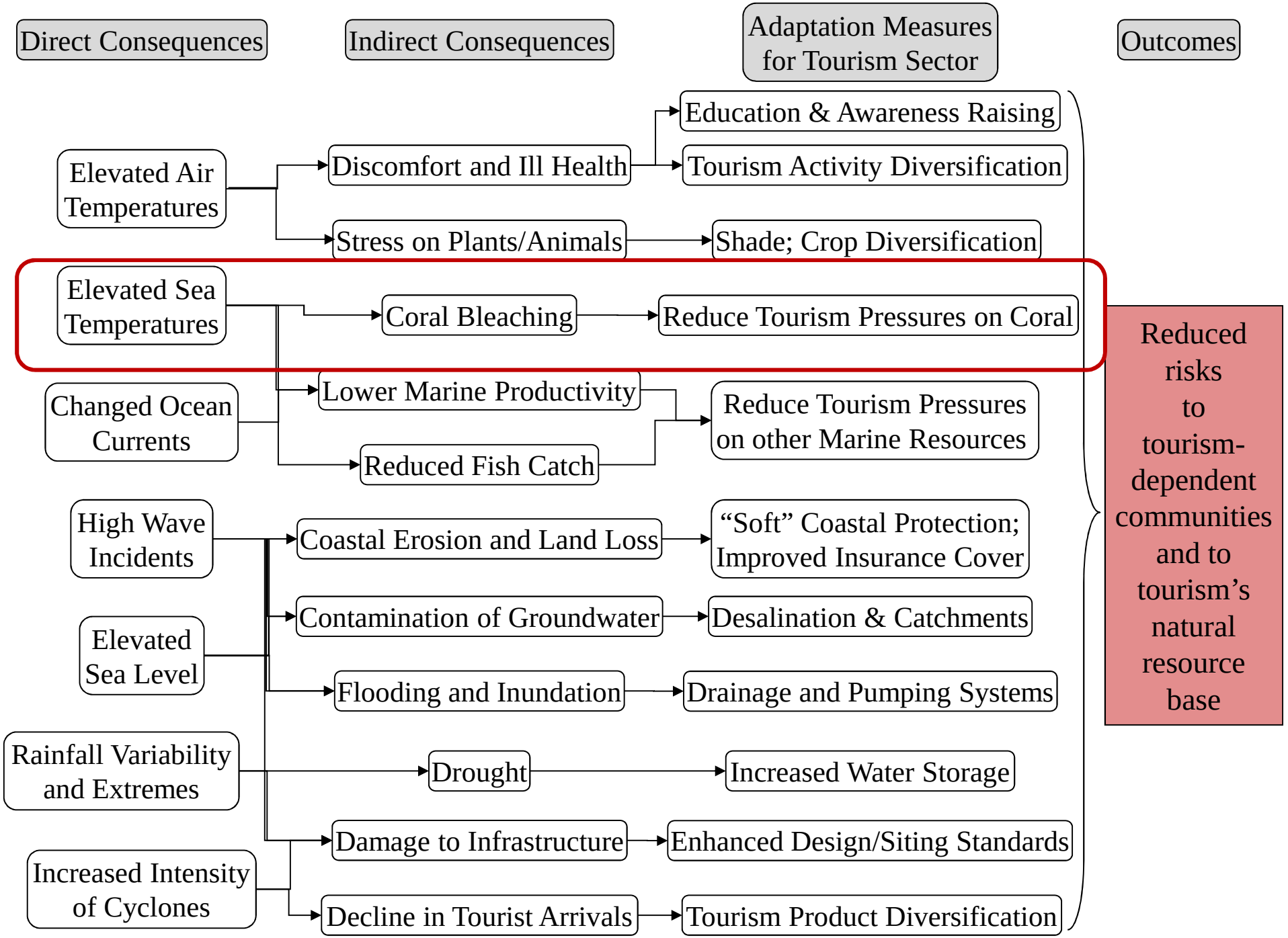
Based on UNISDR study in 2013 :

1. Islands' high dependence on coastal tourism;
2. High international tourist demand for a coastal product;
3. Deficient planning and coastal development processes along with a lack of implementation of legislation;
4. Loss and degradation of coastal ecosystems; and
5. Lack of private sector resources to effectively implement disaster management

Source: Mahon, R., Becken, S. & Rennie, H.: *Evaluating the Business Case for Investment in the Resilience of the Tourism Sector of Small Island Developing States (SIDS).*

Adaptation options

- Measures that improve ability to deal with climate impacts and that are sustainable.
- Knowledge on tourism adaptation increasing


Direct Consequences
Indirect Consequences
Adaptation Measures for Tourism Sector
Outcomes
Education & Awareness Raising
Elevated Air Temperatures
Discomfort and Ill Health
Tourism Activity Diversification
Stress on Plants/Animals
Shade; Crop Diversification
Elevated Sea Temperatures
Coral Bleaching
Reduce Tourism Pressures on Coral
Changed Ocean Currents
Lower Marine Productivity
Reduce Tourism Pressures on other Marine Resources
Reduced Fish Catch
High Wave Incidents
Coastal Erosion and Land Loss
"Soft" Coastal Protection; Improved Insurance Cover
Elevated Sea Level
Contamination of Groundwater
Desalination & Catchments
Flooding and Inundation
Drainage and Pumping Systems
Rainfall Variability and Extremes
Drought
Increased Water Storage
Damage to Infrastructure
Enhanced Design/Siting Standards
Increased Intensity of Cyclones
Decline in Tourist Arrivals
Tourism Product Diversification
Reduced risks to tourism-dependent communities and to tourism's natural resource base

Important to avoid maladaptation

Example beach erosion (Ravenna, Italy)

Beach nourishment
(Example from Tunisia – Djerba)

What about a Business Case for adaptation and disaster risk reduction?

- Tourism continues to growth at a rate of about 5% globally. In the South Pacific region visitor arrivals in 2012 were approximately 1.6 million (+14% percent over 2011);
- Tourism exposed to disasters and climate change;
- Case to be made on the basis of the value of staff and tourist life;
- Potential investors being dissuaded from investing in tourism;
- Higher customer satisfaction as a result of better preparedness;
- Lower rebuild costs after the disaster;
- Burden on the public sector is lower after a disaster as they have to put together fewer relief programmes;
- Industry-led measures may be more effective than government imposed ones.

Barriers and Facilitators for CCA and DRR

Barriers	Facilitators
• Costs associated with CCA and DRR	• Recent experience with disaster impact
• Short business time frames	• Influence of banks, insurance agencies, international tour operators, development and aid agencies
• Limited technical knowledge and staff resources	• Development funding that targets disaster risk reduction
• Market, legislative and policy contexts do not create adequate incentives	• Certification schemes and accommodation standards
• Communication gaps	

Examples from Fiji

Context

- Ranked 13th most tourism dependent country
- Location in the Pacific 'ring of fire' as well as the tropical cyclone belt
- Tourism operator (2013): "…*when you talk Fiji, you talk hazards and engineering…normally 90% of the time, we're talking…cyclones*…".

Vulnerability

- Lack of resources to address climate risk – especially small operators can not afford risk advisor and adequate insurance cover
- Use of offshore insurers and financiers that may require lower standards
- Construction standards: e.g. trade-off between style that is culturally Fijian in appearance (e.g. timber shingles) versus cyclone strengthened
- Insufficient training of staff (esp. in 'graveyard shifts')

Fiji - innovations

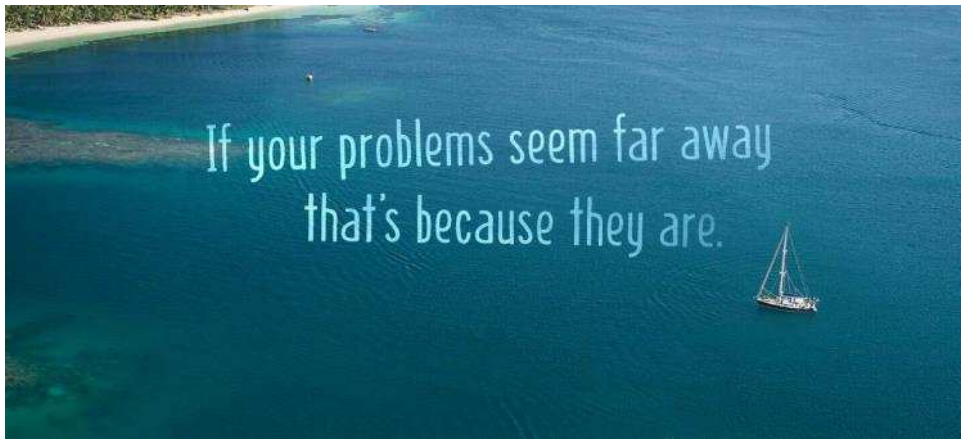
1. Preparedness

Introductory disaster management course for resorts facilitated by SOPAC through the national disaster management agency. Stakeholders participated in exercises to assess their risks and conduct disaster drills.

2. Response and communication

Tourism Fiji has developed a crisis section to the organisation's website that is dormant during times of normalcy but is activated and loaded onto the website's front page during a crisis. The website gives real time information and status updates on the tourism industry's response to a crisis or disaster event.

Fiji Official
Tourism Website



Travellers at Nadi airport 2 April 2012

3. Utility supply

Western Fiji: Hotels receive special consideration and priority in terms of electricity and water restoration.

4. Building standards

An alliance has been established between the Fiji Institute of Engineers and the Insurance Council of Fiji for a third party certification programme (for cyclones) that has in turn been further institutionalised with links to financial institutions.

5. Learning and adaption

Transformation of premises: Hotel sacrificed ground floor; hotel chain built 95% of structures on higher ground. Moveable equipment.

Conclusion

- Tourism is a major contributor to climate change. A wide range of mitigation options are available and usually there is a good business case for them.
- Tourism in islands is vulnerable to a wide range of climate-related natural hazards;
- There are a wide range of vulnerability factors (e.g. lack of knowledge, lack of resources, insufficient legislation);
- However, there is also increasing evidence that tourism addresses risks and adapts to climate change;
- There appears to be a business case for DRR and CCA, but more financially information is desirable.