Crafting Climate

Adaptation Responses

Strong links exist between healthy mangroves and healthy coral reefs in Fiji that build resilience to climate change. Actions needed to protect these important habitats include awareness and education efforts for mangrove conservation and emphasizing their traditional values through making reconnections with the local community. Additionally, it is critical to rally public support for regulations, improvements in enforcement of existing legislation and political will to support management of these coastal mangrove systems. Herein lies the practical solution for addressing Fiji’s adaptation needs to the adverse impacts of climate change.

Story of the Salt-Maker

Climate Witness

Tai Butani is an 80 year old woman who lives in Wai district along the Nadroga coastline who continues to pound water in salt flats for cooking salt. Salt pans are areas of bare mud, often found behind mangrove forests in regions of low rainfall. Due to the little rainfall and salt left behind by the tide, this causes the salt pans to be very salty. Tai Butani is dedicated to her salt cooking tradition. She has learnt to observe and understand the philosophy changes in her mangroves that enables her to prepare during the dry season. From her many tales about the mangroves, a clear pattern of wet and dry season, right to the signal of crabs migrating to the shade of the mangrove forest informs her group of women to start the fire pot and cook the saltwater. Tailevu Wai is located on the dry foreland side of the high island. The Fiji Meteorological station recorded for the past 100 years an increase in the wet season rainfall.

Fiji Mangrove Management Plan

WWF is partnering with the Global Environment Facility to develop and test a generalised approach for assessing vulnerability and adaptation of mangroves and associated coastal systems to the effects of climate change. WWF is working with local natural resource managers and other stakeholders to incorporate climate adaptation strategies into their management philosophies and plans.

For further information, please contact us:

Address: 4 Meleka Street, Suva, Fiji
Postal Address: Private Mail Bag, GOP, Suva, Fiji
Tel: 879131533 Fax: 879139410
Email: info@wwfpacific.org
Website: www.wwfpacific.org

For a Living Planet
Mangroves dominate three quarters of tropical coastlines and Fiji has the third largest mangrove area of an estimated 517 km² in the Pacific region comprising seven true mangrove species and a hybrid. Largest areas of mangroves are usually found on the southeast, northwest shores of Vitilevu and the northern shore of Vanua Levu. Different locations in Fiji are expected to experience distinct effects of climate change due to the climatic variation and tectonic setting of the islands. There will also be differences in the rate of sea level rise within Fiji as certain areas are experiencing tectonic uplift or subsidence, while others are tectonically stable. Climatic variation across the larger islands in Fiji influences mangrove distribution and ecology.

**How do mangroves help us adapt to climate change?**

Mangroves are trees and shrubs that grow in saline coastal habitats where zonation patterns of various mangrove species will retreat with sea level rise inland. Mangroves living at the interface of marine, land and freshwater ecosystems act as health indicators for each system. Mangroves are crucial in adapting to climate change with its ability to withstand a broad range of environmental conditions made possible by its water regulating and storage functions.

Mangroves build its own environment with its intricate root system that traps sediment especially in depositional coastal environments like deltas and inter-tidal areas where fine sediment collect in areas protected from high-energy wave action. The rate of sediment growth in the area determines mangroves’ ability to keep up with sea level rise. Mangroves protect coastal areas from erosion, storm surge especially during cyclones and extreme weather events. Interestingly, increase in atmospheric CO₂ can be expected to improve mangrove tree growth and litter production unless limited by salinity or humidity.

Mangroves are barrierline species worthy of protection as they provide risk reduction measures in combating our vulnerability to climate change.

**Mangroves & People**

**Kubuleu**

- Precipitation Standards: WET
- Holocene Intertidal: UPLIFTING
- Sea Level: Negligible relative sea level rise
- Status of data on coastal systems: Reliably Good
- Status of Mangrove area: INTEGRITY
- Project Status/Reference: ACTIVE/WCS

**Tikine Wai**

- Precipitation Standards: DRY
- Holocene Intertidal: STABLE
- Sea Level: Can be Predicted Globally
- Status of data on coastal systems: GOOD
- Status of Mangrove area: INTEGRITY
- Project Status/Reference: ACTIVE/WCS Fiji

**THREATS to mangroves**

- Prevents erosion
- Absorbs nutrients
- Interrupts freshwater discharge
- Nursery grounds for fish and other marine life
- Controls aspects of water chemistry

These future mangrove habitats are lowland forests on the windward areas or salt flats in the leeward areas of large islands. Unfortunately, the areas where mangroves will seek habitat with sea level rise are those areas most favored for coastal tourism development. Other threats to mangrove ecosystems include reclamation, firewood collection, utilizing the area as a dumping ground for solid waste-both household type and industrial, medium level threats also include overfishing, wastewater alteration, coastal sedimentation, aquaculture ponds, sewerage, pesticide and animal waste runoff, logging, etc. According to Fiji Mangrove Management Plan, the mangroves of Rewa delta were listed (Singh, 1994) as needing urgent consideration for biodiversity conservation while the mangroves of the Ba and Labasa deltas were listed as requiring consideration in terms of their hydrological functions. Mangroves play an important role in Fiji’s sewerage treatment programs, where most facilities are associated with mangroves.