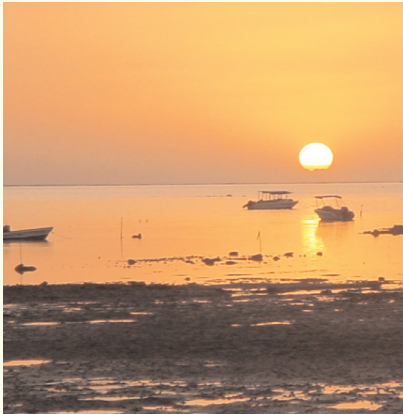


Climate Change & Variability in Tikina Wai, Fiji Islands.

An interesting case study for assessing climate change impacts due to reasons outlined:

- Tikina Wai is located on the dry leeward side of the higher volcanic island of Viti Levu. The combination of topography and prevailing south east trades result in an orographic effect, where the mountain ranges running through the centre of the island creates a distinct wet climatic zone on the windward side and a dry climatic zone on the leeward side. Less rainfall and drought more severely experienced and predicted for the western side of Viti Levu during El Nino events.
- Fiji according to metrological records has the highest incidence of cyclones in the Pacific. A high percentage of these cyclonic events pass through the western division, making the district vulnerable to its occurrence.
- Tikina Wai is a major sugar cane producing area, a commercial crop integral to Fiji's national economy. Changes in the local climate would severely impair the livelihoods of local farmers and productivity conducive to economic growth.
- A significant proportion of the area's population, infrastructure and prime crop land is located in low lying coastal land enhancing susceptibility to rising sea level.
- The socio-economic conditions of its inhabitants make them vulnerable to changes in their environment brought on by climate change. The area's local indigenous population is predominantly semi-subsistence farmers and fishermen, that any adverse impacts upon their land or marine resources would severely impair them in terms of food security and income generation.



Fiji Climate:

During the cooler months of the year (May-October) the SPCZ shifts away from Fiji resulting in drier conditions and a lower temperature. When the SPCZ comes within the vicinity of the Fiji group from November-April the hot wet season begins, resulting in a period of higher temperature and abundant rainfall where variation in the amount of rainfall received between the two zones is low. This is a period of tropical cyclones. Changes in climatic conditions are also linked to the ENSO phenomenon, which resulted in below average rainfall for Fiji.

District Landscape:

Tikina wai lies in an area comprised of late Oligocene-mid Miocene sediments and volcanics and the soil types present are predominantly clays and a mixture with sands and loams in the lower lying areas. The dominant landscape feature of the district are rolling hills covered by "talasiga grassland" likened to savannah. An estimated 85% of land in Tikina Wai are represent sugarcane and tropical pine with the remaining 15% comprise of dense mangrove strands along much of the coast, integrated salt pans, grassland and scattered remnants of dry forest mainly along rivers and streams. The Lomawai River is the major waterway stretching more than 10km inland with its mouth located along the south western fringes of the district boundary. The marine landscape is very extensive stretching in areas from 4-6km from coast to reef and the entire district coastline stretches 45 km long. The area contains a diverse array of marine features including sand and mudflats, submerged fringing reefs, channels, reef flats and patch reefs. A prominent feature is the inland lake (Nalutubogi) located 2km from Bavu village.





Population Trends:

Six villages are contained within the district, four located along the coast: Lomawai, Kubuna, Nakorokula and Tau, and two inland; Bavu and Navutu. There are also a number of farming settlements located within the traditional land boundaries of Lomawai and Tau villages. The population density for Tikina Wai is 23 persons per km². According to a WWF 2002 socio-economic baseline survey, the indigenous population is young with median age being 25 and no record of migration. Majority of households are nuclear and the average family size ascertained from the sample for the entire district is 5.0 ± 2.1 people per household.

CC Characteristics & Vulnerabilities:

LAND

- freshwater shortage
- bushfires, a threat to bushland and forests
- logged pine forest areas associated with periods of heavy rain causes landslide and soil erosion
- absent buffer zones between pine forests and the river exacerbate siltation within the river system, sediment loading out in the inter-tidal areas.
- the increasing shallowness of rivers and loss of wetlands near waterways.
- drought affects agricultural productivity and seasonality of traditional calendar of plants

SEA

- observed coral bleaching events in 2000.
- increased proliferation of Crown-of-thorns during the drought period of 1997 and 2000.
- encroachment of the high tide mark inland as compared to the past.
- deeper areas in the tidal zone becoming shallow.
- fish spawning seasonality uncertain (compared to historical timelines)
- accelerated silt deposition into the mangroves.
- coastal flooding and erosion.
- excessive removal or cutting of mangroves from shoreline.

SOCIAL/CULTURAL EFFECTS

- the loss of the river grass 'ovatu', a totem plant of the village of Navatu will result in cultural identity loss; how the threat to marine and land resources is interlinked with the vitality of the people.
 - Mangroves encroaching to previously exposed salt pans will lead to increasing silt build up in these areas. The loss of salt pans mean loss of a cultural heritage, the art of making traditional salt for which the district is renowned for.
 - Excessive rainfall causes enhanced breeding of mosquitoes and a rise in water-borne diseases (dengue, diarrhea and skin diseases), plant infestations posing a threat to food security and health of the local population.
 - Heavy rain cause flooding of roads affecting schools and workers.
- Shift in the planting of traditional crops and increasing dependence on purchased food (with limited income source).



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