

Rapid
Vulnerability
and
Adaptation
Assessment of Communities in Seaqaqa,
Vanua Levu



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Executive Summary

A rapid vulnerability and adaptation (V&A) assessment was carried by a team of two staff and two Postgraduate in Climate Change students from Pacific Centre for Environment and Sustainable Development (PACE-SD), the University of the South Pacific, from 25th Nov to 8th of December 2012. The Six most vulnerable sites that were identified by the Provincial Development and District Office (DO), Seaqaqa included: Navudi, Navai, Naseva, Nadogo, Savulutu, Sevacagi and Korolevu. Detailed vulnerability and adaptation assessment was carried out for Navai, Navudi, Rokosalase and Korolevu after the National Project Advisory Committee selected these communities as demonstration sites. The methods of assessment are attached as appendix 2 and 3.

The main objectives were to (i) assess the level of vulnerability of the sites identified, (ii) assess the level of community perception on climate change, (iii) assess the coast, water supply, health and sanitation, and (iv) gain traditional knowledge on techniques for food preservation and security.

These communities are dominated by Indo-Fijians with few iTaukei households. The main source of income for these communities is sugarcane farming and high reliance on subsistence farming for livelihoods. District of Seaqaqa is the largest sugarcane producing sector in Fiji. Each household is separated by a distance of sugarcane fields. Transportation is by public bus or carrier services shared by community members.

The total population for two demonstration sites is 365 with 96 houses. Sanitation facilities are dominated by water seal system discharged into septic tanks. Wastewater is discharged into soak pits.

Water sector was identified as the most highly vulnerable sector followed by energy, and health and sanitation. The main sources of water are wells and rainwater harvesting.

1. Introduction

1.1 Background to the EU-GCCA Project

The Pacific Centre for Environment and Sustainable Development (PACE-SD), the University of the South Pacific (USP) has been awarded funding from the European Union (EU) Global Climate Change Alliance (GCCA) for addressing climate change adaptation (CCA) in the Pacific. This initiative was established in 2007 by the European Commission with the intention to deepen dialogue and cooperation on climate change between the European Union and poorer developing countries which are most vulnerable to climate change, in particular Least Developed Countries (LDCs) and Small Island Developing States (SIDS). These countries are most vulnerable to the adverse effects of climate change with little capacity to resilience and adaptation to these impacts. The Pacific component of the Intra-African Caribbean Pacific (PACP) project supports 15 Pacific Island Countries which are Fiji, the Solomon Islands, Vanuatu, Papua New Guinea, Tonga, the Cook Islands, Samoa, Niue, Nauru, Kiribati, Tuvalu, the Marshall Islands, Palau, the Federated States of Micronesia and East Timor. The main focal points of this project are: (i) Capacity building, (ii) Community engagement and adaptive actions, and (iii) Applied research (USP EUGCCA Project Document, 2010).

1.2 Description of the action

The initial rapid vulnerability and adaptation (V&A) assessment was carried out by a team of two staffs and two Postgraduate Students from PACE-SD from 25th Nov to 8th December 2012.

Six communities were visited in the Macuata Province, District of Seaqaqa. Navudi, Navai, Naseva, Nadogo, Savulutu, Sevacagi and Korolevu were identified by the DO's Office as priority vulnerable sites that may be affected by the impacts of climate change

The main objectives of this assessment were to (i) assess the level of vulnerability of the sites identified, (ii) assess the level of community perception on climate change, (iii) assess water supply, health and sanitation, and (iv) gain traditional knowledge on techniques for food preservation and security.

This assessment also investigated current and possible water sources for this area in collaboration with Water Authority of Fiji (WAF).

2. Site Descriptions

Seaqaqa District is located approximately 35km from Labasa town in the Province of Macuata, Vanua Levu with approximately 19,000 people (www.fbc.com.fj). The main source of income is agriculture with sugarcane as the main commodity. Seaqaqa is the largest sugarcane producing sector in Fiji with 105,000 tons produced in 2012 (*pers. comm*.FSC 2012). The sugarcane communities are divided in two sectors, Natua and Solove. There are total of six villages and 14 settlements in this district. Seaqaqa town has a Hospital, Police Station, Post Office, Fiji Sugarcane Corporation Limited office, District Officer, Water Authority of Fiji, Agriculture Research Station and Ministry of Works, Transport and Public Utilities depot. Subsistence farming of vegetables, crops and livestock alongside sugarcane farms is strongly practiced in Seaqaqa.

Water Authority of Fiji has a pumping station in Seaqaqa that supplies water to town vicinity only. Another station is in Vunimanuca that was established in 1994. This station supplies water to 120 households in Tikilo, Vunivere, Kawakawavesi and Lorima, with source from the mountains using a gravity flow mechanism. However due to vast distances between settlements it is difficult to supply water to project sites and meet the required demands. The pump is operated for eight hours per day by a diesel generator of 2.75kVA output costing \$30,000 of fuel a year. The treatment is by sedimentation technique and chlorination, in two cement tanks of 23,000 and 25,000 gallons capacity. The supply to tanks is 22 cubic meter per hour.



Figure 1. Map of Vanua Levu with sites assesses in Seaqaqa. Map created in Google Earth, 2013.

Six inland communities, Navudi, Naseva, Nadogo, Savulutu, Sevacagi and Korolevu were identified by the District Office as six priority vulnerable sites that may be affected by the impacts of climate change (Figure 1). The main sources of water are streams, wells, boreholes and rainwater harvesting. There are no records of major flooding in these communities. Sanitation is mostly water seal in rural settlements and this attributed to improper or unreliable source of water supply. Electricity is mostly by personal generators, self-funded solar lights, and kerosene lanterns. There are a number of secondary and primary schools is Seaqaqa District.

The main modes of transport are buses, hired carriers, horses and taxis in Seaqaqa with foot as the main mode of mobility. The frequency of buses is twice a day with early morning and late afternoon trips. In many cases residents walk long distances from homes to use this service, which during rainy weather is not operational. The roads are unsealed and require repairs often especially after heavy rainfall.

Location	Description	Latitude	Longitude	Elevation(m)
Vunimanuca	WAF Pumping station	-16.557657	179.094302	166
Vunimanuca	WAF Borehole	-16.557651	179.094222	168
Navai	Spring at Navai 2	-16.553645	179.013359	122
Rokosalase	Existing Catchment for Navai, Navudi and Rokosalase	-16.549444	179.021637	149
Sevacagi	Borehole	-16.548285	179.046529	109
Navai	Navai Primary School	-16.563842	179.032456	64
Naseva	Spring at Naseva	-16.500026	179.192544	170
Naseva	Bansi's House	-16.49215	179.186047	159
Nadogo	Nadogo settlement well	-16.502259	179.129318	65
Savalutu	Catchment	-16.527417	179.107667	117
Savalutu	Jack's House	-16.524754	179.10719	119
Korolevu	Naururu catchment	-16.468457	179.1097	173
Savulutu	Catchment	-16.530281	179.10678	310
Korolevu	Dhiren's House	-16.464637	179.127576	146

The following table shows the GPS position of these communities in Seaqaqa.

Table 1. GPS position of sites assessed in Seaqaqa. *GPS variation is subject to local variation.

3. Methodology

The Rapid Assessment was conducted using the PACE-SD rapid assessment technique (Limalevu, 2011). The targeted sectors assessed were inland waters (where applicable), water availability and supply, household and population structure, and health and sanitation aspects in the Six communities.

This assessment was followed by vulnerability and adaptation assessment after the final demonstration sites were selected by the National Project Advisory Committee (NPAC) of the EUGCCA project; as described in PACE-SD Guidebook: Participatory Assessment of Vulnerability and Adaptation It is a comprehensive and participatory assessment that guides communities through a process in which to identify appropriate and sustainable activities to enhance their adaptive capacity to the impacts of climate change (Limalevu and McNamara 2012). This method is attached as appendix 1.

3.1 Community Awareness and Consultation during Rapid Assessment

The six communities of Seaqaqa have not had any environmental awareness sessions prior to initiation of this project. Navai, Navudi and Rokosalase communities were invited to a climate change awareness session at Navai Primary School. A total of 41 community members were present comprising of 16 females, 20 males and 5 children. The topics discussed were brief on climate science, change and its impacts based on PACSSP projections. The key factors of global warming, sea level rise, difference between weather and climate, human induced effects, impact of climate change on water, health, agriculture and natural resources were also discussed. However all Six communities could not attend this awareness session due to unavailability of a central hall and large distance between settlements of more than 10 kilometers and unavailability of transport.

The community shared their perception of climate change mostly relating to seasonal changes between dry and wet seasons that cannot be distinguished now. It was also noted that pests are becoming more resistant to pesticides, decrease in soil fertility which leads to increase use of fertilizer resulting in soil being acidic reducing yield and as such farmers have been told to add lime or cement to soil, by an expert from Mauritius Sugar Industry Research Institute that increases the financial burden. There was a request by community members to establish a model farm whereby different techniques could be utilized to reduce the effects of soil acidity. The team was also informed that borehole or wells with water pumps used one liter of diesel to pump 600 liters of water. Communities have also noticed increase in incidence of diarrhea, mostly during dry period; increase in skin diseases, conjunctivitis and yellow fever. This community also faces social problems with marriages due to water issues, whereby females rejected marriage offers from these areas.

During the V&A assessment communities of Navai, Navudi, Rokosalase and Korolevu were invited to awareness and consultation session during the V&A assessment. A similar awareness session as during the rapid assessment was conducted that was attended by 71 members with 17 females and 54 males. These awareness sessions were also attended by personnel from the Provincial Development, Seaqaqa District Office, Sugarcane Growers Council, and Labasa Cane Producer's Association.

These awareness sessions were attended by iTaukei and Indo-Fijian community members.

3.2 Water Quality Assessment Methods

Water samples were taken from each of the six sites from water storage tanks, rivers/streams/creeks, wells and boreholes. Standard Hydrogen Sulfide (H₂S) strips (obtained from the Institute of Applied Sciences, The University of the South Pacific) were used to assess qualitative water quality, using mineral water (*Fiji® Natural Artesian Water*) as a control. The samples were left for a maximum period of 72 hours, and observed color change. The color change of water indicated the level of contamination (no color change: water is safe to consume; light milky to grayish in color: water shows signs of contamination and is unsafe to consume; black in color: water is contaminated and unfit for consumption).

3.3 Health and Sanitation Survey Methods

The assessment of health and sanitation was conducted by transect walks and consulting the advisory councilors. Detailed household and population structures were noted at during the focus group consultation. Particular attention was made to solid, liquid and human waste disposal, hygiene habits, prevalent diseases, presence of mosquitoes and flies and cooking and washing methods. There was an imitative to meet the Public Health Officer at Seaqaqa Hospital to collate data on health and sanitation, but due to duty travel this was not possible.

4. Results

4.1 Rapid Assessment

The rapid V&A assessment was conducted to assess domestic water availability and supply, and health and sanitation. In addition socio-economic factors such as population structure, number of households and income sources were also assessed. Table 2, below, summarizes the vulnerability status of Six sites assessed. Criteria 7a and 7b as per the rapid assessment method (Limalevu, 2011) did not apply to these six communities as these are all inland communities with no major rivers and far from the coast.

Factors				Sites			
	Nadogo	Savulutu	Navai 2	Sevacagi	Korolevu	Naseva	Navudi/ Navai/ Rokosalase
Criteria 1							
Water Resources	4	2	4	4	4	4	4
Health and Sanitation	2	2	2	1	2	1	2
Food Resources and Food Security	2	2	3	3	3	3	3
Energy Resources and Energy Security	5	5	4	4	4	4	5
Criteria 2							
Predominant type of economic system either in the agriculture or fisheries sectors	2	2	2	2	2	2	2
Criteria 3							
Level of community need related to community commitment to addressing climate-induced related stresses in past community projects	5	4	5	4	4	2	5
Criteria 4							
Level of interest shown for the proposed project	2	5	5	5	5	2	5
Criteria 5							
Approximate cost of funding a livelihood adaptation project related to project funding allocation per site or community	2	4	3	4	5	3	5
Criteria 6							
Categorization of the types of housing structures in the	5	5	4	5	5	5	5

community						
Criteria 7a						
Vulnerability to inundation,	Not appli	cable for in	land comm	unities		
storm surges and projected						
sea-level						
Criteria 7b						
Vulnerability of inland	Not appli	cable to coa	astal comm	unities		
communities to riverbank						
erosion, inundation and						
flooding						

4.2 Water Supply and Availability

The Six communities assessment for vulnerability to climate change do not have proper water supply. There is high dependence on wells, streams/creeks and rainwater harvesting as water sources for survival. Water are catered to households either using bullocks or tractors in drums and gallons that is practiced by both male and female.

4.3 Water Quality Test Results (H₂S and Lab Analysis)

Water samples were tested qualitatively using H₂S pre-lab prepared test tubes. The incubation time for this test is 72 hours, however observation are conducted hourly. The change in color of water is the indicator of total fecal contamination. The chemical and biological analysis of water was conducted by National Water Quality Laboratory in June 2013 which showed that water at the sources is free from fecal contamination. The results are attached as appendix 1.

Date	Time	Sample #	Source	Location	Treatment	24 hrs	48 hrs	72 hrs
26.11.2012	1120hrs	VWS 1	Reservoir Tank	Vunimanuca WAF Station	Treated	А	А	А
26.11.2012	1204hrs	VWS 2	Borehole	Vunimanuca WAF Borehole	Untreated	В	В	В
26.11.2012	1325hrs	NWS 3	Тар	Navai 2	Untreated	С	С	С
26.11.2012		NPSWS 4	Storage Tank	Navai Primary School	Untreated	С	С	С
27.11.2012	1320hrs	KWS 5	Well	Korolevu	Untreated	С	С	С
28.11.2012	1119hrs	NWS6	Well	Nadogo	Untreated	С	С	С
29.11.2012	1000hrs	SWS 8	Water Fall	Savulutu	Untreated	В	С	С
26.04.2013	1140hrs	KWS	Naururu Catchment	Korolevu	Untreated	А	А	В
26.06.2013	1302hrs	RKWS 1	Rokosalase Catchment	Rokosalase	Untreated	А	Α	В
26.03.2013	1430hrs	RKWS 2	Rokosalase School Catchment	Rokosalase	Untreated	A	A	В
Control	Control	Control	Bottled Water	Control	Control	А	Α	Α

Table 2. Results of Hydrogen Sulphide (H₂S) water tests

*Results: A-Water is safe to consume [No color change]. B - Water shows signs of contamination, unsafe to consume [light milky to grayish in color]. C - Water is contaminated do not consume [Black in Color]

The Vunimanuca WAF station water sample (VWS 1) showed that water is safe to drink as this is attributed to treatment with chlorine. The Vunimanuca WAF borehole water sample (VWS2) showed some signs of contamination. All other water samples indicated unsafe to consume due to change in color with 24 hours of sampling. Fiji water was used as a control that indicated safe to consume after 72 hours.

4.4 Multi-parameter Water Quality

Aquaprobe AP-2000 meter (<u>www.aquaread.com</u>) was used to measure water quality parameters for Korolevu and Navai/Navudi/Rokosalase water sources. The table below summarizes the readings of the water quality parameter.

	Aqua	Link Report						
Operator Name: Naushad Yakı	ub							
Institution Name: PACE-SD, US	SP							
Source Name	Naururu Catchment	Naururu Catchment Rokosalase Catchment Rokosalase School Catchme						
Site Name	Korolevu	Navai/Navudi/Rokosalase	Navai/Navudi/Rokosalase					
Date	26-Apr-2013	26-Jun-2013	26-Jun-2013					
Position	Lat: S 16.46886° Lon: E 179.11009°	Lat: S16.533477° Lon: E179.016781°	Lat: S16.533504° Lon: E179.016912°					
	Ра	rameters						
Temperature (°C)	25.2	23.2	24.2					
Barometer (mb)	991	994	997					
Depth (M)	0.00	0.00	-0.02					
pH (acidity/alkalinity)	8.11	7.78	7.63					
pHmV	-72.2	-55.7	-47.7					
Oxidation Reduction Potential (REDOX)	192.	217.6	185.2					
Dissolved Oxygen (% Sat)	103.8	101.3	100.5					
Electrical Conductivity (uS/cm @25C)	61	79	74					
Total Dissolved Solids (mg/L)	39	51	48					
Salinity(ppt)	0.02	0.03	0.02					
Turbidity (NTU)	4.3	4.3	4.3					
Nitrate (mg/L)	17.89	136.2	68.2					
Alt (m)	227	170	148					

5. Health and Sanitation

The six communities assessed in Seaqaqa District had water seal toilets as main sanitation facility with some houses with proper flush systems (data not available). Human waste storage is in drums buried under ground with liquid waste soaked in the ground as well.

Household refuge is either burnt or buried. Health services are utilized at Seaqaqa Hospital for Navai, Navudi, Rokosalase, Savulutu, Naseva and Sevacagi communities. Korolevu community visit Naduri Health Center for health services. The distance to either service ranges from 10-15km. There are not many cases of water and vector borne diseases except one case of typhoid in January 2013.

5.1 Household and Population Structure

The graph below shows number of households and population of communities' assessed in Seaqaqa. Navai settlement includes Navudi and Rokosalase communities as well.





5.2 Vulnerability and Adaptation

Vulnerability and adaptation assessment was conducted after NPAC selected the final demonstration sites with Korolevu and Navai/Navudi/Rokosalase as sites for Seaqaqa. The results of the steps described in PACE-SD Guidebook: Participatory Assessment of Vulnerability and Adaptation (Limalevu and McNamara 2012) are tabulated below.

5.3.1 Climate Change Knowledge and Attitudes Survey

5.3.1 Field Observations

Initial field observation was completed during the rapid assessment. The geology of these two settlements is similar with sugarcane fields as dominate feature with isolated stands of pine trees and abundance of grassland. However in Korolevu where water source is located, had a dense forest cover of mostly native trees. These trees are used on a minimal scale for timber to build and repair infrastructure. It was also seen that many sugarcane fields are now overgrown with grass, as these lands have expired lease and have been deposited in the land bank with iTaukei Land Trust Board.

There are no proper drainage systems and could be a factor contributing to poor road conditions during heavy rainfall. The soil is red in color which has iron properties. There are no major rivers, although few streams and creeks are visible that have red muddy water during heavy rainfall. This could be attributed to lack of watersheds and most land used for sugarcane farming.

The population in these two settlements is vastly distributed, separated by acres of sugarcane farms.

4.2.3 Focus Group Discussion

The table below summarizes the focus group discussions for Navudi/Navai/Rokosalase and Korolevu communities.

		A. Navu	ıdi/Navai/Rokosalase Cor	nmunities	В.	Korolevu
1.	Governance and So	io-economic	Resources			
1.1	Demography	63 hc	ouses		2	23 houses
		255 p	people		1	108 people
1.2	Governance and	Both commu	nities have an Advisory C	Councilors who are sel	ected	by the Provincial Development Office for a term of 2
	Social Systems	years. The p	osition is advertised in	the local newspapers	wher	eby candidates apply for the position. The selected
		candidates ar	re consulted by the comn	nunities if this person	is seer	n suitable for the position. After 2 years the position is
		re-advertised	or renewed by the Prov	vincial Development O	ffice k	based on the recommendations from the community.
		This position	is on a voluntarily bas	is. Conflict resolution	is via	a the councilor to District Office then to Provincial
		Development	t			
		The Indo-Fijia	an communities/settleme	nts are more independ	ent ar	nd decisions are based at household level
		There no co	mmittees but water com	mittees have been e	stablis	shed in both communities through this exercise that
		comprises of	male and females irrespe	ctive of race.		
		There are 4 A	<i>Aandali's</i> (religious organi	zing body)	1 <i>M</i> a	andali
		Religion: Hin	duism, Islam and Christia	anity (Methodist and	Relig	gion: Hinduism and Christianity (Methodist, Seventh
		Assemblies o	f God denominations)		Day /	Adventist and CMF)
1.3	Human Resources	3 Doctors, 6	Teachers, 1 Police Officer	, 3 Bank Officers and	1 Do	octor, 4 Teachers, I Technician, 1 Police Officer, 1 Land
		3 Mechanical	Engineers. None reside in	n this community	Surve	eyor, 1 Accountant and 1 Mechanic. None reside in the
					comr	munity
		Most membe	ers are sugarcane farmers	including women		
1.4	Resources and	Average of 69	93 acres of land used for s	ugarcane farming	Tota	l of 624 acres of sugarcane farm
	Economy	60% comme	ercial sugarcane farmin	g, 40% subsistence	30%	commercial sugarcane farming, 10% subsistence
		farming of v	regetables, livestock and	rice paddies. Most	farm	ing of vegetables, livestock and rice paddies and 60%
		land are nativ	ve with some freehold lan	ds	of la	nd has been reserved to native land due to expired
					lease	es. All land is native land with leases.
		Sugarcane fai	rming is the main source of	of income with sell of l	ivesto	ck at a minimal scale
1.5	Development Plans	No developn	nent plans as support is	needed from local a	uthori	ities, however Labasa Cane Producers Association is
		assisting com	nmunities through partia	I payments for solar	energ	gy systems. EUGCCA project will be the first project

supporting these communities.

Community contribution towards the project implementation will \$4000 with support for labor costs

Labor support, accommodation and food will be provided

2. Disaster Risk Management (Climate Induced Disasters)

Cyclone Evan in January 2013 with no major impacts including flooding. Drought was experienced in 1999. Cyclone Raja affected some families with flooding in 1986. Houses were secured for strong winds and livestock were moved to high ground. There are no evacuation centers and disaster management plan. Radio is the main source of information on extreme events. There are no first-aid providers in these communities. There no traditional knowledge-based practices for climate-induced disasters and food preservation, however dry foods are kept safely and families stay in their houses. Common sense prevails during extreme events.

Navai Primary School is the evacuation center for Navai/Navudi/Rokosalase communities; Korolevu do not have any evacuation center.

3. Water Resources and Security

Wells are the most prominent source of water. Secondary is rainwater harvesting in self purchased plastic and metal water tanks. There is no communal water tank as the houses are vastly distributed. Streams are used for washing and bathing in extreme instances. Rainfall is normally 6 months a year with 3 months of no rainfall. Water quality is described above under water quality results. Water is stored in drums, buckets with lids and PET bottles. Drummed water is used for washing only, well water is drunk without boiling and tanked water is drunk after boiling. Females manage water even with catered water from wells and streams.

4. Health and Sanitation

Described above under health and sanitations section. There are no health committees and no traditional knowledge-based practices for health and sanitation issues.

5. Energy Resources and Information Communication Technology

Firewood is the main of fuel for cooking followed by kerosene and gas. Kerosene lanterns are the main source of electricity, followed by candles and generators depending on fuel supply. Mobile phones are the main source of communication, radios are operated by batteries for news and weather updates. Only 2 people use social media, Facebook, but not to learning more about climate change.

6. Food Resources and Security

Rice is the main staple food followed by cassava and breadfruit. Other vegetables utilized by the communities are: egg-plants, pumpkins, cabbage, lentils/beans, spinach, tomatoes, bitter gourd, taro leaves, *bele*, jackfruit, okra, corn and saijan (drumstick) leaves. However these root crops and vegetables are for subsistence only and weather dependant. Excess supply, seldom, is sold for \$20-\$25 a week. It was seen that dominant land use pattern was farming for sugarcane, rice, bullocks, goats and poultry. Pickles are the main way of preserving foods. Females manage vegetable gardens while males take lead in sugarcane farming, although assisted by females.

7. Natural Resources (Terrestrial/Freshwater)

These communities donot utilize marine sector due to being inland. Vegetation burning is practiced to influence fresh grass germination for grazing livestock. Pine is mostly logged that impacts the road and causes soil erosion. No overgrazing was noticed. Natural vegetation was not evident as most

land is used for sugarcane farming. Invasive species included Mynah and Red breasted Bulbul birds, mongoose, pests affected rice, vegetables and sugarcane. Fuel wood is derived from natural vegetation mostly, although fallen logs are also used for firewood. Timber for housing is also used from natural vegetation but seldom. Fishing is not practiced; however marine resources are purchased from the market.

4.3.4 Group Workshop

Identifying and Prioritizing Adaptation Options

The following table summarizes the priority adaptation options that were identified by the communities of Korolevu and Navai/Navudi and Rokosalase settlements.

Korolevu, Navai, Navudi and Rokosalase Water Project IMPLEMENTATION STRATEGY

SECTOR	ISSUE	STRATEGIC GOAL	OBJECTIVE	ACTIVITY	INDICATORS	BUDGET FOR ACTIVITY	Stakeholders/ Key Actors	TIME FRAME
1. Water	The sugarcane farming communities of Korolevu do not have sufficient water for daily use. As a result these farmers are leaving their farms to reside in urban centers which will affect the economy of the country.	Water Authority of Fiji (WAF) and Rotary Pacific Water Foundation (RPW) were consulted and a implementation budget has been completed In the future, it is intended that WAF would install metered scheme to assist in maintenance of the water system through billing system	To provide Korolevu settlement with a simple sustainable water supply system to improve their livelihoods	Construction of a catchment at Korolevu equipped with appropriate infrastructure for supply of water to 30 houses Training of the water committee and members of the settlement on simple plumbing techniques to fix leakages and replace worn	A sustainable water system installed with appropriate structure including storage Community of Korolevu trained appropriately in simple plumbing and bio-sand filter techniques	\$100,000.00	Water Authority of Fiji Provincial Development District Office Rotary Pacific Water Foundation Labasa Cane Producers Association Communities of Korolevu Nabukadogo Mataqali	May – July 2013

				out materials				
				Train the community on bio-sand filter technique in collaboration with RPW				
2. Electricity	Solar energy	Labasa Cane Producers Association has deposited community contribution of \$84 for installation of solar systems to Department of Energy. The balance of cost will be catered by Department of Energy.	To provide Korolevu settlement with clean green energy for electricity supply	Installation of solar systems with appropriate battery and inverter	Solar energy system installed in 30 household in Korolevu	\$2520 (5%) as contributions for 30 households Total cost is \$50,400	LCPA, Dept of Energy, communities of Korolevu	To be confirm ed by LCPA
3. Transportatio Road	on/ Repair of road infrastructure (sugarcane access roads) for timely supply of sugarcane to Labasa Sugar Mill	DO advised to lodge a request for road repairs at the Seaqaqa Depot						

6. General Conclusions and Recommendations

The communities of the Seaqaqa District; Nadogo, Navudi, Navai, Savulutu, Korolevu, Sevacagi and Naseva have varying levels of vulnerability to water resources, and health and sanitation sectors.

In general, due to lack of proper water supply the sanitation and personal hygiene is disadvantaged. The team recommends following adaptation to be implemented:

- Education and awareness on proper waste disposal including sanitation and hygiene
- Prevent deforestation, animal husbandry and farming at water sources
- Crop diversification with cash cropping should be encouraged
- Design proper water storage and using settlement technique to reticulate clean water
- Work in collaboration with the DO's Office, Ministry of Health and the Water Authority of Fiji and Rotary Pacific Water Foundation to enhance sustainable community based adaptation
- Explore options on using renewable energy for electricity and borehole operation

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Appendix 1 - Interview

Interview #1 - Chaurasiya (Gender: Feale Age: 84 years)

Chaurasiya is one of the oldest citizens in the Daku community. She is well known in Seaqaqa as she is the longest serving market vendor.

Since she has a farming background, she managed to tell us about the changes in yield/production. "Before I could get a higher yield of produce and hardly used to use fertilizers/manure to enhance production. But nowadays I have to use a lot of fertilizer because the soil quality is poor. I also use a lot of pesticides to combat insects, diseases and pests from my produce. The price of everything has gone up compared to the past. We also face a lot of water problems. We have a well for our water supply but that too dries up during droughts. Water is essential for our living and we hope some assistance can be given to us. I have also seen a lot of destruction due to natural disasters like cyclones and flooding and I can say that it has worsened over the last 10 to 20 years "

Interview # 2 – Solomone Nagoli (Gender: Male Age: 53years)

Solomone is the School Manager at the Navai Primary School. He relayed the plight of the communities due to lack of water supply and pleaded for assistance to ease the lives of so many who are affected.

Here is a story we got from him:

"We have been living in Navai for our entire lives and never in those years have had access to proper water supply. There are so many farmers here who have left their freehold farms and moved to urban centers due to water problems. We have been prone to so many diseases like scabies and diarrhea because we lack proper hygiene due to water shortage. The community has also seen so many suicidal cases due to matrimonial issues because hardly any girl wants to get married to these communities who have poor water supply and thus it leads to these fatal accidents. I on behalf of the community members plead that please help us resolve this water problem"

Interview # 3 – Bansi Lal (Gender: Male Age: 73 years)

Bansi Lal has been a sugarcane farmer for many years and is the 'sardar' of one of the gangs. A gang in the sugarcane farming context is referred to a group of men who are responsible for harvesting a particular area of cane and a sardar is more or less a manager of the gang who is responsible for distributing fertilizers, wages and recording day to day events.

"I have a very large sugarcane farm but I may have to sell it because it is not viable anymore. Before this sector was very profitable, but now the cost of living has increased a great deal; the price of fertilizer and transportation costs have gone up. There are hardly any people around who can be employed in the farm because of the continuous water problem we have been facing. I have a truck and can cart water from the wells, but others have to carry it on foot or use bullocks. The kids are so much affected, we are getting so many diseases now, the days have become hotter, lot of seasonal changes have also affected our crop growth. Farmers are leaving behind their land and homes due to water problems. Eventually, the sugarcane sector may collapse because there will be no one to work on the farms. I urge relevant authorities to intervene and sort this water issue".

Appendix 2: Water Quality Lab Results

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Appendix 3: PACE-SD Rapid Assessment Methodology



SITE SELECTION PROCESS AND CRITERIA

Developed by Leone Limalevu (PACE-SD Fellow)

1.0 Introduction

The selection and prioritization of project sites for climate change adaptation initiatives foremost depends on the objective of the project. The objective can determine how communities are selected to participate in the project. For projects focused on assisting rural communities to adapt to current and projected future climate change, there are basically three main components, as follows:

- a. Research;
- b. Adaptation of highly vulnerable communities; and
- c. Adaptation of representative vulnerable communities.

For the PACE-SD methodology, the primary focus is on the latest component. The main rationale for this is to be inclusive and therefore ensure future uptake by entire communities, as climate change impacts will be felt by all communities, though at different levels of severity and within different timeframes.

1.1 The PACE-SD Site Selection Approach

This site selection process and criteria, as a core component of the PACE-SD methodology, provides suggestions for the European Union Global Climate Change Alliance (EU-GCCA) incountry coordinators to consider in selecting their project sites. The assessment approach could be based on the following key factors, to be determined and agreed to by GCCA Project Management Team and the National Project Advisory Committee in each of the countries, categorised in relative terms:

- Level of vulnerability of the community;
- Level of adaptive capacity of the community;
- Level of need of the community;
- Level of interest of the community; and
- Feasibility of the project to adequately address the identified level of vulnerability within the funding capacity of the project.

Additional criteria can include:

> Level of vulnerability of the community to cyclones; and

Level of vulnerability of the community to flooding, storm surges and/or projected sea level rise for coastal communities.

2.0 Methodology

2.1 Gathering Information and Short-listing Sites

The relevant stakeholders, namely the Provincial Offices, the Department of Environment, the Water Authority, and the Health Department are to be contacted to provide list of potential sites. It is important that the letter sent to these agencies be carefully drafted so that the response would be relevant to the information that is required for screening and selection of sites. From the number of sites submitted (for example 20 or more sites), the information gathered from correspondences with district and provincial offices plus from established networks can be used by the National Project Advisory Committee to screen the sites down to ten sites. Following on from this, the rapid assessment, based on the following criteria, is to be used to select the most vulnerable final three to six sites.

2.2 Field Visits

The PACE-SD Rapid Assessment is used to gather information from the short-listed communities (see Annex 1). It should take three to five hours at each site to undertake this assessment. Acquisition of data and information is through a number of key informant interviews (such as community leaders), discussions at informal village meetings and via rapid appraisal of the physical and built environment. The scores for each site are then decided on collectively by the people involved in the site assessment.

2.3 Site Assessment Method: Point Score System

A total score of one to five is made for each criterion. It is important to note that when tallying up the points, the vulnerability score ranges from one ('very low vulnerability') to five ('very high vulnerability'). The table below indicates the key to be used. The opposite applies when assessing adaptive capacity. That is, the highest adaptive capacity (five) indicates the lowest vulnerability, while the lowest adaptive capacity (one) is the most vulnerable. Therefore vulnerability scale is judged on the highest score to determine the most vulnerable, while the adaptive capacity scale is judged on the lowest score to determine the most vulnerable.

Description	Very low	Low	Moderate	High	Very high
	vulnerability	vulnerability	vulnerability	vulnerability	vulnerability
Value	1	2	3	4	5

3.0 Site Selection Criteria

Criteria 1: Current Level of Vulnerability Related to Livelihood Sectors

The assessment of this criterion needs to be conducted in a more objective and systematic way based on the factors relating to community vulnerability. This assessment is focused on the impacts of climate change on three climate-sensitive livelihood sectors. The sectors include: (i) water resources; (ii) health and sanitation; and (iii) food resources and food security. The points scale system to be used for each of the livelihood sectors is as follows: 1 = very low vulnerability;2 = low vulnerability; 3 = moderate vulnerability; 4 = high vulnerability; and 5 = very high vulnerability.

(1) Water Resources

Factors	Point System	Points
(i) Estimated rain-months per year that occur in the area	9 - 12 months: 1 6 - <9 months: 2 3 - <6 months: 3 1 - <3 months: 4 Less than 1 month: 5	
(ii) Presence of water sources	Flowing river/s: 1 Stream/s: 2 Medium to large spring/s: 3 Small spring/s: 4 Well/s: 5	
(iii) Discharge rates of springs (To be measured preferably during the dry month or season)	1.5 L/second and above: 1 1.0 - < 1.5 L/second: 2 0.5 - < 1.0 L/second: 3 0.25 - < 0.5 L/second: 4 < 0.25 L/second: 5	

Notes:

(i) If the community has wells as well as small springs, the point score would be 4.

(ii) Community relying solely on a bore-hole as a source of water receives a point score of 5.

(iii) The discharge rates can be calculated using improvised materials, if proper measuring cylinder and stop watches are not available. The use of a wrist watch for clocking the time and any container with known volume is adequate for calculating an estimated discharge rate of a spring.

(2) Health and Sanitation

Factors	Point System Points	
(i) Dengue (number of cases per year)	None: 1 1 - 3: 2 4 - 7: 3 8 - 10: 4 >10: 5	
(ii) Malaria (number of cases per year)	None: 1 1 - 3: 2 4 - 7: 3 8 - 10: 4 >10: 5	

(a) Level of incidence of vector-borne diseases occurring in the community

Notes:

(i) The point system needs to be adjusted to reflect the level of occurrences of vector and water borne diseases occurring in the study areas. For example, if occurrences range between 8 to 30 in the communities, the scale of the point system should be adjusted to cater for the high incidences.

(ii) To decide on the higher level of vulnerability between two sites if their point scores are in the same range, e.g. 8 - 10 scale, then the actual number of incidence should be the decider.

(b) Level of incidence of water-borne diseases occurring in the community.

Factors	Point System	Points
	None: 1	
(i) Diarrhoea	1 - 3: 2	
(number of cases per year)	4 - 7: 3	
(number of cases per year)	8 - 10: 4	
	>10: 5	
	None: 1	
(ii) Skin diseases	1 - 3: 2	
(number of cases per year)	4 - 7: 3	
(number of cases per year)	8 - 10: 4	
	>10: 5	
	None: 1	
	1 - 3: 2	
(iii) Typhoid	4 - 7: 3	
	8 - 10: 4	
	>10: 5	
	None: 1	
	1 - 3: 2	
(iv) Cholera	4 - 7: 3	
	8 - 10: 4	
	>10: 5	

(3) Food Resources and Food Security

Factors	Point System	Points
(i) Basic subsistence sources of food	Derive 100% of food needs from both land and marine-based food resources: 1 Derive less than 75% of food needs from both land and marine resources: 2 Derive less than 50% of food needs from both land and marine resources: 3 Derive less than 25% of food needs from both land and marine resources: 4 Derive less than 25% of food needs from either land or marine resources: 5	
(ii) Total land area per person	 ≥7 hectare/per person: 1 5 - <7 hectare/per person: 2 3 - <5 hectare/per person: 3 1 - <3 hectare/per person: 4 <1 hectare/per person: 5 	
(iii) Relative soil fertility	Highly fertile soils: 1 Fertile soils: 2 Moderate fertility: 3 Low fertility or degraded soils: 4	

	Poor or highly degraded soils: 5
(iv) Relative productivity of marine resources	Highly productive marine resource: 1 Productive marine resource: 2 Moderately productive: 3 Low productive or degraded resource: 4 Poor or highly degraded resource: 5

(4) Energy Resources and Energy Security

Factors	Point System	Points
(i) Basic energy sources for lighting	Multiple sources, including solar: 1 Connected to a main power grid: 2 Electrical generator: 3 Kerosene lamp: 4 Candle, fuel wood or others: 5	
(ii) Basic energy sources for cooking	Multiple sources, including electric: 1 Fuel wood, kerosene and gas: 2 Fuel wood and either kerosene or gas: 3 Solely kerosene: 4 Solely fuel wood: 5	

Criteria 2: Current Level of Adaptive Capacity Related to Livelihood Sectors

This criterion is mainly based on the approximate aggregate income of the community per year. This amount is then divided according to the number of households to calculate the income per household per year, and then further calculated to a daily basis. The points system to be used equivalent in actual weekly earnings is as follows: 1 = income per household is below poverty line; 2 = poverty line; 3 = marginally above poverty line; 4 = income that adequately meets the basic family needs; and 5 = earning disposable income. According to the United Nations definition of poverty, people well below the poverty line are earning less than US\$1 per day. Each of the in-country coordinators needs to check their own country-specific definition of poverty. If the level of income is difficult to derive, then the type of economic system, such as agriculture system or fisheries could be used. The point system to be used is: 1 = purely subsistence; 2 = semi-subsistence; 3 = semi-commercial; 4 = commercial; 5 = highly commercial.

Factors	Point System	Points
(i) Level of income per household (estimated)	≤\$50 per week: 1 \$51 - \$100 per week: 2 \$101 - \$200 per week: 3 \$201 - \$300 per week: 4 >\$300 per week: 5	
(ii) Predominant type of economic system either in the agriculture or fisheries sectors	Predominantly subsistence: 1 Subsistence to semi-commercial: 2 Semi-commercial: 3 Commercial: 4 Highly commercial: 5	

Criteria 3: Level of Community Need

This criterion is related to the level of commitment the community has shown related to past projects addressing key livelihood sectors that are climate sensitive. The point system related to this criterion is as follows: 1 = climate change related impacts not an issue; 2 = entirely externally-driven projects; 3 = externally-driven projects with some contribution from the community; 4 = externally driven projects with equal level of contribution from the community;

and 5 = community had embarked on project/s which tried to address impacts of climate change on their own.

Factors	Point System	Points
(i) Level of community need related to community commitment to addressing climate-induced related stresses in past community projects	Climate change related stresses not an issue: 1 Entirely externally-driven projects: 2 Externally-driven projects but with some contributions from the community: 3 Externally-driven projects with equal contributions from the community: 4 Entirely community-driven projects: 5	

Criteria 4: Level of Community Interest

The points system related to this criterion relating to community interest is: 1 = not interested; 2 = moderately interested but has reservations; 3 = moderately interested; 4 = interested; and 5 = very interested.

Factors	Point System	Points
(i) Level of interest shown for the proposed project	Not interested: 1 Moderately interested but have reservations: 2 Moderately interested: 3 Interested: 4 Very interested: 5	

Criteria 5: Feasibility of the Project

The fifth criterion involves assessing the relative feasibility of the project. The points system for this criterion is as follows: 1 = not feasible; 2 = low feasibility; 3 = moderately feasible; 4 = feasible; 5 = highly feasible. To consider, the funding level of the Fiji climate change adaptation projects was approximately F\$30,000-\$40,000 per site or approximately US\$20,000-\$30,000 per site. To evaluate the project feasibility in implementing adaptation projects related to livelihood sectors, this criterion is simply best determined by the population size. If you intend to work in a

site that requires greater funding than that allocated by the project, then you need to be very skillful in sourcing additional funds from relevant stakeholders or other funding agencies including the national government. In this regard, adaptation measures such as coastal protection works, planned relocation, and major infrastructural developments such as construction of flood gates are best left with national governments to address.

Factors	Point System	Points
	(In Fijian (F) dollars)	
(i) Approximate cost of funding a	≥F\$100,000 (i.e. approx. >US\$50,000): 1	
livelihood adaptation project	F\$80,000 - F\$99,000: 2	
related to project funding	F\$60,000 - F\$79,000: 3	
allocation per site or community	F\$40,000 - F\$59,000: 4	
	<f\$40,000 (i.e.="" 5<="" <us\$20,000):="" approx.="" th=""><th></th></f\$40,000>	

Note: this criterion is only applicable if the amount of funding allocated per site or community is between F\$30,000 and F\$80,000.

4.0 Additional Criteria

The following two criteria (or whichever is applicable) are only applied to decide between two sites that are equal in the points tally:

- > Criteria 6: Vulnerability of the community to cyclones; and
- Criteria 7: Vulnerability of the community to flooding and or storm surges and projected sea level rise for coastal communities.

It is important to note that Pacific Island countries that are located near the equator are not directly affected by cyclones, while inundation from king tides and storm surges may be the main hazards.

Criteria 6: Level of Vulnerability of a Community to the Impacts of Cyclones

Factors	Point System	Points
(1) Categorisation of the types of housing structures in the community	 ≥80% are of modern cement or properly constructed wooden houses: 1 ≥60 - <80% are of modern cement or properly constructed wooden houses: 2 ≥40 - <60% are of modern cement or properly constructed wooden houses: 3 ≥20 - <40% are of modern cement or properly constructed wooden houses: 4 ≤20% are of modern cement or properly constructed wooden houses: 5 	

Criteria 7a: Level of Vulnerability of Coastal Communities to Inundation, Storm surges and Projected Sea Level

Factors	Point System	Points
(1) Foreshore Elevation (Estimation – above normal high tide)	>9m: 1 7 - <9m: 2 5 - <7m: 3 3 - <5m: 4 <3m: 5	
(2) Village Elevation (Estimation – above normal high tide)	>50%(>9m): 1 >50%(7 - <9m): 2 >50%(5 - <7m): 3 >50%(3 - <5m): 4 >50%(<3m): 5	
(3) Reef System	Presence of fringing and barrier reefs: 1 Presence of barrier reef only: 2 Presence of fringing reef only: 3 Reefs are disconnected or isolated: 4 Presence of open passages to shore or no barrier and no fringing reefs: 5	
(4) Mangrove Protection	Heavily Dense: 1 Moderately Dense: 2 Dense: 3 Scattered: 4 None or isolated stands: 5	
(5) Average distance of shoreline to nearest first row of houses along the shore (if substrate upon village is located is made of sedimentary materials or sandy/coral rubble)	> 20m: 1 15 - < 20m: 2 10 - < 15m: 3 5 - < 10m: 4 1 - < 5m: 5	
(6) Ease of relocation to higher ground without socio-economic and cultural constraints	Easily: 1 Limiting factor is only finance: 2 Some geographical constraints: 3 Major constraints: 4 No land to relocate to at all: 5	

Criteria 7b: Level of Vulnerability of Inland Communities to Riverbank Erosion, Inundation and Flooding

Factors	Point System	Points
(1) Foreshore Elevation (Estimation)	>9m: 1 7 - <9m: 2 5 - <7m: 3 3 - <5m: 4 1 - <3m: 5	
(2) Village elevation (Estimation)	>50%(>9m): 1 >50%(7 - <9m): 2 >50%(5 - <7m): 3 >50%(3 - <5m): 4 >50%(1 - <3m): 5	
(3) Location on river system (proxy for bank erosion potential)	Convex: 1 Moderately Convex: 2 Straight: 3 Moderately Concave: 4 Concave: 5	
(4) Average distance of river bank to nearest first row of houses along the river	> 9m: 1 7 - < 9m: 2 5 - < 7m: 3 3 - < 5m: 4 1 - < 3m: 5	
(5) Drainage	Good: 1 Moderate to Good: 2 Moderate: 3 Poor to Moderate: 4 Poor: 5	
(6) Ease of relocation to higher ground without socio-economic and cultural constraints	Easily: 1 Limiting factor is only finance: 2 Some geographical constraints: 3 Major constraints: 4 No land to relocate to at all: 5	

Annex 1

PACE-SD Rapid V&A	Assessment Approach	[Questionnaire]
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For Prioritisation and Selection of Sites

[Updated on 21st May 2012] [Ref. L. Limalevu, Fellow (PACE-SD), USP]

Note: (i) This is a rapid V&A Assessment used to screen and select which communities are vulnerable to the current and projected impacts of climate change and therefore should be prioritised for adaptation projects.

(ii) The assessment should take approximately one day per community to complete, depending on the weather condition and availability of community representatives as key informants for the

interview.

(iii) The PACE-SD Rapid Assessment points scoring system is then used to assess the relative vulnerability and adaptive capacity of the community to the impacts of climate change.

A. Introduction

- Visit the community/village according to the proper cultural protocol, for example, in Fiji, the presentation of the 'sevusevu' is the norm
- > Brief the community elders or representative/s on the purpose of the visit
- Provide a briefing on the rapid assessment approach (i.e. key informant interviews, followed by observations from a brief tour around the village and surrounding environment)
- Briefing on how the survey findings and procedure for determining the selection of the project sites
- Note: the team should ensure not to raise any expectations of the community; therefore their approach should be honest and 'straight to the point'
- B. Physiographic Characteristics Visual Observation (site and surrounding areas)
- Geomorphology
- > Drainage Patterns
- Vegetation cover
- Land use types and pattern
- Note: you need to have background information at hand from your literature search and information networks (if available) to support your visual observations on the site and surrounding environment

C. Interview of Key Informants

- > This should take 1 hour to a maximum of 3 hours
- The key persons that should comprise the key informants for the interview should be the community representative/s, a village nurse or community health worker, a representative from the village development committee (if there is one such committee) and a representative from the women's committee

1.0 Basic Socio-economic Information

1.1 What is the population and population distribution (total number, approximate gender distribution)?

- 1.2 What is the community management (governance) structure?
- 1.3 What is the total land area owned by the community?

1.4 What is the approximate proportion of flat 'arable' land to hilly/mountainous land or degraded (e.g. through salt-water intrusion)?

1.5 What are the main sources of income?

1.6 What is the main farming system practised by the community (i.e. subsistance, subsistance/semi-commercial, semi-commercial/commercial, entirely commercial)?

1.7 What is the main fisheries system practised by the community (i.e. subsistance, subsistance/semicommercial, semi-commercial, semi-commercial/commercial, entirely commercial)?

1.8 What is the aggregated weekly/monthly/annual income of the community derived from sale of natural resources?

1.9 Are there are paid employees/workers residing in the community? If so, what is the aggregate weekly/monthly/annual income of these workers?

1.10 Are there any village development plans?

1.11 What were the types of development projects implemented in the last 30 years

1.12 Are there any natural resources development plans?

1.13 What were the types of natural resources management projects implemented in the last 30 years?

1.14 Are there any community investment/business plans?

1.15 What were the types of investment/business projects implemented in the last 30 years?

1.16 Has a climate change adaptation project been implemented previously by the community?

2.0 Water Resources and Supply

2.1 What is the most prominent source of water (well, spring, borehole, rainwater, stream, etc)?

2.2 What is the water availability throughout the year (i.e. annual rainfall distribution – number of dry months per year)?

2.3 What is the water quality (if sources are from wells, spring, borehole or stream)?

2.4 What is the water distribution system?

2.5 What are the types and capacity of storage for the whole community?

2.6 What are the types and capacity of storage at the household level (e.g. if there are no communal storage tanks)?

3.0 Health and Sanitation

3.1 What is the availability or presence of health services facilities?

3.2 How far is the nearest health centre?

3.3 What range of services does the nearest health centre provide?

3.4 What is the incidence of water borne diseases (diarrhoea, skin diseases, leptospirosis, etc)?

3.5 What is the incidence of vector borne diseases (dengue, malaria, etc)?

3.6 Are there any other diseases prevalent in the community?

3.7 Obtain a health report and health data from village nurse or health worker (note: treat with utmost confidence)

3.8 Is there a health committee? If so, are there any planned activities?

3.9 Record planned health committee or community health-related activities

3.10 If possible, you need to confirm the response to 3.2, 3.3 and 3.4 from the nearest district health centre (note: treat with utmost confidence)

4.0 Food Resources and Food Security

4.1 What is the total land availability (approximate total size/area of farming land for the community)?

4.2 List, according to importance, types of food sources: (i) root crops; (ii) vegetables; and (iii) trees crops

4.4 What are the relative productivity levels of the following: (i) root crops; (ii) vegetables; and (iii)

tree crops?

4.5 What is the estimated area of fishing ground owned by the community?

4.5 List, according to importance, the main fish types as food sources

4.6 List, according to importance, the main non-fin fish types as food sources (e.g. crabs, prawns, octopus, etc)

4.7 What is the relative productivity level of fin-fish resources?

4.8 What is the relative productivity level of non-fin fish resources?

5.0 Energy Sources

5.1 List he key energy sources for cooking and priorities list (e.g. fuel wood, kerosene, gas, electricity)5.2 List the key energy sources for lighting (e.g. kerosene, diesel generators, solar, electricity from mini hydro dam, electricity from main grid)

6.0 Disaster Risk Management (DRM)

Note: Limit DRM to climate-induced disasters, e.g. cyclones, droughts, floods, and cyclone-induced high waves or storm surges

6.1 Categorise the types of infrastructures in the community (i.e. % of traditional, lean-to (i.e. corrugated iron walls and roofing), wooden, wooden with cement base, cement/block house)

6.2 Is there a disaster management plan?

6.3 If there is one, how effective is the plan?

6.4 Is there an evacuation centre (inspect the statues and condition of the evacuation centre)?

7.0 Community Needs Assessment

7.1 List the number of projects currently being implemented by the community by themselves and those through external assistance

7.3 Gauge their willingness to participate in the EU-GCCA project if their community gets selected?

7.3 What level of in-kind contribution would they be willing to provide for the project (e.g. labour, meals for the workers, etc)?

7.4 What level of cash contribution would they be willing to provide for the project?

D. Field Assessment

- This should take 1-3 hours
- The team will take a brief tour around the village and its surroundings making observations and verifying issues that are related to the questions asked during the interview

E. Concluding Remarks

- The team spokesperson would then make some concluding comments and then reiterate how the findings would then be used for the final selection process
- > The team then thank the community representatives for their time and then an official request to leave is performed, e.g. for Fiji an 'itatau' is presented

Appendix 3: PACE-SD Vulnerability and Adaptation Method