

E 25/4.P86.1

Kedra Village [21 February 2012]

Kedra Village belongs to the district of Dogotuki in the province of Macuata and is located on the northeastern part of Natewa Bay. The village consists of 15 settlements with 37 houses which are scattered along the main road from Wainigadru – Vitina Village and each settlement consists of 2 to 3 houses. There are about 170 people which reside in the village. In addition, the students from these settlements attended the nearby primary school together with the students from Vitina and Rauriko Village. The old village site is located close to the coastal and for the past few years it has been relocated close to the main road because of easy accessibility. It took us 2 hours to travel from Savusavu to Kedra Village by car.

The survey was undertaken after requests were received from the village for hydro to provide them with reliable and affordable power supply. Most these settlements still rely on kerosene and benzene lights for their lighting systems. In addition, the provision of electrical power to these settlements and nearby villages will provide a good environment conducive for studying and create more income generating activities which would perhaps improve the living standards of the communities.

The potential site is Savusavuneituraga Creek which is upstream of Vunivia Creek. It took us about 30 minutes to walk from the main road to the potential site. Upon arrival at the site it can be noted that there was high flow due to the heavy downpour the previous night. The attached pics will clearly demonstrate this.

The water flow rate measured at the potential site was approximately 0.915m³/sec [cubic meter per second], the gross head was about 50m [meters] from the top of the waterfall to the bottom. The capacity of the electricity that can be generated was 321kW. A copy of the analysis is also attached for reference. The power demand from the community is 18.5kW [37 houses * 500W/house].

River / creek name	Vunivia Creek
Water flow rate (m ³ /s)	0.915
Gross head (m)	50
Peak load (kW)	321
Number of houses	37
Watts / house	<u>8676W/house</u>

The site has great potential to provide power to Kedra Village and the nearby communities. However, another spot check during dry weather needs to be carried out before the site will undergo long term monitoring.

Construction Costs at Vunivia Creek , Kedra Village. The figures given below is only an estimated costs of the actual construction costs.

a]	<u>Weir</u>		Units
	Concrete volume	3	m ³
	Height	1	M
	Width	6	M
	Depth	0.5	M
	Unit cost	350	F\$/m ³
	Cost	1050	F\$
b]	<u>Penstock</u>		
	Length	1500	M
	Unit cost	60	F\$/m
	Cost	90000	F\$
c]	<u>Power plant</u>		
	Installed capacity	321	kW
	Unit cost	1000	F\$/kW
	Cost	321000	F\$
d]	<u>Power station building</u>		
	Cost	6000	F\$
e]	<u>Transmission line</u>		
	Length	1	km
	Unit cost	25, 000	F\$/km
	Cost	25000	F\$
f]	<u>Reticulation in village</u>		
	Number of house	37	houses
	Unit cost	700	F\$/house
	Cost	25900	F\$
g]	<u>Contingency (20%)</u>	93790	F\$
h]	<u>TOTAL</u>	468,950	F\$
i]	<u>Responsibility of Government (95%)</u>	422,055	F\$

j]	<u>Responsibility of Village (5%)</u>	46,895	F\$
k]	<u>Capital cost / house</u>	1267.43	F\$



Figure 1: High flow at the potential site



Figure 2: The spot where the measurement was taken



Figure 3: Proposed intake site