

VANUABALAVU

1.1 FEASIBILITY STUDY

1.1.1 Introduction

The following information are extracted through interviews of the various Turaga ni Koro's (TNK), copra farmers and local copra Businessman of villages that were surveyed in Vanuabalavu and nearby Islands. Thus, please be aware that this information can be subject to inaccuracy due to limitation of information gathered. However, other relevant information was gathered from observations carried out during the survey on the 6th November to the 9th of November of this year 2011.

1.1.2 Biofuel Survey

The **Coco-Biofuel Project Assessment Questions** template was use as guidelines for the interviews carried out at the survey thus please use the questionnaire as guideline for relevant answers as per question number below accordingly. Other details will be included accordingly.

1.1.2.1 *Mualevu Village*

1. - Due to Cyclone Thomas 2010 coconut supply has declined a lot however it is currently recovering now.
 - Catering of transportation costs to buyers.
2. - Current production supply chain strategy would change (rather than selling to middle man, people would sell direct to Biofuel Mill provided **the price is better**).
 - Reduction in costs for farmers and local Businessman and better price competition.
3. Government arm to conduit for bio diesel technology, since it has the appropriate expertise for the technology.
4. No
5. Green copra about 30 bags (approx. 1.5 tons) per week than production gradually fluctuates with respect to farm supply.
6. Approx. assuming 200 acres.

7. Selling to local Businessman Temo Sukanaivula Company's name TESSA. Farmers collect the coconut, cut the green copra, pack the green copra in sacks then stack the sacks alongside the road for TESSA to collect the green copra for drying at their dryer before shipment. The farmers collect their green copra pay immediately after TESSA calculates the produce weigh-in.
8. Price fluctuates from 12 cents per Kg to sometimes 30 cents per Kg.
9. Have no idea.
10. Have no idea.
11. Approx. 35 households. Depending on the buying price all suppliers can sell to the Mill.
12. No records
13. TNK, Village Committee. Yes, labor available approx. 70 people.
14. Yes electrical meter to be installed.
15. Size: 35 KVA, Model: HATZ
16. 2001
17. 2 hours per night
18. 2 hours /night x 7 night /week
19. 105 liters/week
20. \$3.00/liter x 105 liters/week
21. 31 Houses connected to village generator
22. 4 Houses not connected to village generator
23. Main source of income: Sea produces eg. Fishing and beach-de-mar.
25. No none
26. Selling farm and sea produce, shop keeping etc.
27. Yes will need some about of power.

Interview:

Name: Temo Sukanaivula

Village: Mualevu Village

Status: Local Copra Businessman

Business: Owner of TESSA Copra Enterprise.

No of Dryers: 2 copra dryer (6m x 3 mx 3 m)

Buyer: Copra Mills of Fiji (CMF) in Savusavu, Copra Businesses in Suva.

Contact: 9364436

Copra production is the way of life in Vanuabalavu it has and will be always there main source of income. Temo states that copra supply has declined recently due to the Cyclone however it is gradually picking up now. Temo believes that he has the best formulae for copra business. Thus he collects the green copra from suppliers at farm point around the Island and outer Islands via nearest location in the main Island by his trucks, weighs in the green copra

to pay the suppliers immediately thereafter according to their green copra weights before drying the copra to F1 product before packing the produce and ships it to Savusavu Mill via Shipment Vanuabalavu to Taveuni to Savusavu route. However, sometimes ships it from Vanuabalavu to Suva to Savusavu route which is more costly. Temo believes that the Koro Biofuel Mill will go down if compatible price is not considered. This is because he has been in the industry for a long time and he has monitored the operations of the Mills in Fiji according to him. He also stated that people are unaware that Biofuel shortens the life of engines. However, believes that price of biofuel is not cheap enough for production generation. On the other hand, Temo stated that the Eastern Division supplies the most copra in Fiji and he also believes that despite the high copra supplier competition he (TESSA) still produces the most copra in the Eastern Division more than any other competitor ie. Lau group and Vanualevu and Taveuni. Temo also stated that the Savusavu Mill is the determining factor for copra competition, if Biofuel Mills are to be viable at copra producing areas or Islands than it has to match –up to the standards of CMF copra prices. Thus, if this is taken lightly than Biofuel Mills will go down and stakeholders will lose out. Muamua village is the most consistent supplier of copra to TESSA Copra Enterprise. There are around 17 households in the village in which they all supply green copra every single week no questions asked. They supply around 30 to 60 and sometimes 70 bags per week to TESSA Enterprise. TESSA Enterprise is accommodated by copra suppliers of Mualevu Tikina villages except for Mavana village which is supplying copra to Qalitu Enterprise Limited which is a Mavana village based business chaired by Mr. Qarase. Temo also stated that price at the Savusavu Mill (CMF) this year alone fluctuated from \$700.00 per tonne to \$1200 per tonne. Temo also stated that the Government needs to map out a feedstock program for Biofuel which is to supplement the decline in copra supply in Vanuabalavu. This was initially instigated by Ministry of Agriculture but nothing has been done yet. Temo stated that Vanuabalavu needs action and less discussion. Temo finally stated that TESSA can be involved into the Biofuel program only if the price is right.

TESSA copra supply to CMF: Collected from TESSA Enterprise (CMF receipts)

December 2009: 250 bags, Copra price - \$555 per tonne, Copra quality - F1

October 2011 : 120 bags, Gross weight – 7610 Kg, Copra price - \$1239.66, Copra quality – F1

Temo stated that the readings above prove the drop in supply of copra production in Vanuabalavu from 2009 to 2011.

1.1.2.2 Mavana Village

1. Currently copra supply now is not much as before due to the Cyclone Thomas 2010. Before the village could produce up 6 – 7 tonnes per month.
2. Depending on the Sale price, if the Biofuel copra price is lower than their current Buyer (PUNJAS) than it will consider it as an opportunity for the village.
3. Qalitu Enterprise Limited
4. Qalitu Enterprise Limited - Village Supermarket, Freight Agency for Bligh Water Shipping, Meat (Cows and Pigs) for selling to the Island to cater for occasional (functions) purposes. Funding for Mavana Primary School, Village operations such as soli's and functions eg. Funerals and weddings.
5. Qalitu Enterprise has 2 dryers, 1 for copra dryer (6m x 3m x3m), 1 for beach-de-mar (3m³). Dried copra production can be 2 – 3 tonnes per month.
6. About 10 hectares
7. Villagers and farmers from other villages sell to Qalitu Enterprise Limited, The company sells to (PUNJAS Fiji Limited) at Suva.
8. - Villagers to Qalitu: \$10 per 50 Kg
- Qalitu to PUNJAS: \$ 700 per tonne (as of November 2011)
10. From Mavana village to Lomaloma Wharf \$50 per 2 – 3 tonne. Shipment to Suva by Bligh Water Shipping is about half the total freight cost.
11. Due to copra recovery there are only about 16 people supplying to Qalitu Enterprise Limited. Approx. 200 Kg per person per week, If a Biofuel Mill is operational than people can supply 350 Kg per person per week if buying price is good.
12. No records available
13. TNK, village committee
14. Yes, we want electrical meters because our village consumption is high and it is unfair that luxurious living homes are paying less when they are consuming more than the average energy consumer.
15. Size: 35 KVA, Model: Deutz
16. 2003

17. 2.5 Hours per night x 7 nights per week
19. \$240 per week x \$3 per liters
20. \$240 per week
21. 42 houses connected to village gen.
22. 5 new houses (cyclone houses) not yet connect.
23. Main source of income: currently beach-de mar and copra production

Qalitu Enterprise Limited did not give any information regarding their copra supplier strategy or copra production costing what so ever. I spoke to the Qalitu Enterprise Operation Manager and he was reluctant to share any information regarding their company.

1.1.2.3 Daliconi Village

1. Currently there is no copra production undertaken in the village due to the cyclone.
Villagers are waiting for coconuts to recover to normal supply.
2. Opportunity only if good price is implemented.
3. Government arm, since it has the resources available.
4. Currently no business, only tourist cruise boat visitors.
5. When coconut supply is ok, villagers is able to produce 30 to 50 bags of copra in 2 days.
6. About 500 acres.
7. Supplying to TESSA Copra Enterprise @ \$15 to \$17 per 50 Kg.
8. TESSA Copra Enterprise @ \$15 to \$17 per 50 Kg
11. Whole village sell copra approx. 30 Households.
12. NO records
13. TNK, Village committee.
14. Yes, electrical meter to create fairness in consumption.
15. Size: 25 KVA, Model: Duetz
16. 2002
17. 2 hours per night x 7 night per week
18. Answer from 17.
19. 50 liters per week x \$3per liter
20. \$120 per week collection of money for village generator
21. 36 houses connected to village gen.
22. 2 houses (new cyclone built) not yet connected.
23. Main source of income: Fishing and Beach-de-mar.

1.1.2.4 Boitaci Village

1. Currently small supply of coconuts available, most of the coconuts were damaged by the cyclone. Currently beach-de-mar is the main source of income generation.

2. Opportunity if only the price is good. Villagers only support programs that give financially more back in return.
3. Government arm, available resources.
4. No business, Cooperative Shop was functioning but now bankrupt.
5. 100 Kg per week
6. 200 acres of coconut trees
7. Whole village: 22 households selling copra when coconut supply is available
8. Supply to TESSA Copra Enterprise @ \$18 per 50 Kg
11. Whole village
12. No records
13. TNK, Village committee
14. yes
15. Size: 20 KVA, Model: Deutz
16. 2009
17. 2 hours per night x 7 nights per week
19. 40 liters per week x \$3 per liter
20. \$3 per liter
21. 20 houses connected to village gen.
22. 6 houses not connected to village gen.
23. Sea produce and copra

1.1.2.5 Malaka Village

1. Decline in coconut supply due to cyclone
 2. Opportunity for individual investment in Vanuabalavu.
 3. Government arm, available resources and provide more assistance.
 4. No village business
 5. 600 Kg per week
 6. 150 acres
 7. Selling to TESSA Copra Enterprise
 8. \$15 - \$20 per 50 Kg
 11. 8 people cut coconut for copra production
 12. No record
 13. TNK, Village committee
 14. Yes
 15. No generator in the village.
23. Most of the villagers are employed by government arms and at the Vanuabalavu Airstrip.

1.1.2.6 Muamua Village

1. Decline in coconut supply due to cyclone
2. Opportunity for individual investment in Vanuabalavu.
3. Government arm, available resources and provide more assistance.
4. No village business
5. 2 – 3 tonnes per week
6. 500 acres
7. Whole village: 22 households cutting copra
8. Supply copra to TESSA at 20 cents per Kg.
10. Cut the green copra, pack it and stack it alongside to main road for TESSA trucks to pick up.
11. Whole village: 22 households
12. No record
13. TNK, Village committee
14. Yes
15. Currently there is no village generator
24. Green copra production is the main source of income besides beach-de-mar and fishing.

1.1.2.7 Namalata Village

1. Not much coconut available in the village due to cyclone, villagers are mostly doing fishing and gathering beach-de-mar for income.
2. Opportunity for individual investment.
3. Government arm, to provide services in other relevant form to the community
4. No business in the village
5. 2 tonnes per week and thereafter there is not enough coconut available, therefore, not much supply of coconuts.
6. 100 acres of coconut tree, small supply of coconuts.
7. Supplying green copra to TESSA at landing point since the village is located on an outer Island.
8. 20 cent per Kg and sometimes 15 cent per Kg.
10. No costs involved only labor (Villagers load the sacks of green copra to a boat and row the boat across to the main Island for TESSA to collect the goods).
11. 13 Households produce copra in the village and supply to TESSA Enterprise or Super Blue Enterprise Limited.
12. No records.
13. TNK, available man power in the village.
14. Yes
15. Size: 20KVA, Model: Hertz
16. September, 2003

17. 1.5 hours per night x 7 nights per week
19. 2.5 liters per night
20. \$3 per liter
21. All houses in the village connected to generator (22 houses in total)
22. No none
23. Beach-de-mar

1.1.2.8 Narocivo Village

1. Current constraint is the market for coconut. TESSA is currently selling at 20 cent per Kg. Coconut is currently rehabilitating from the cyclone thus next year coconut will be fully available for adequate supply.
2. Opportunity for market opportunity
3. Government arm, unreliable for local to run operations most cannot even run their own village cooperative schemes.
4. Village cooperative shop running (run by village committee).
5. 1 -1.5 tonne per week of green copra
6. 300 acres of coconut trees.
7. 24 households are selling copra to TESSA Enterprise
8. TESSA buying at 20 cents per Kg
10. No carting costs, people just cut coconut, pack the coconut and place it along the road for TESSA to collect.
11. 24 households
12. No records
13. TNK, Yes available man power
14. Yes, electrical meter is most wanted in the village due to fairness of bill consumption
15. Size: 15 KVA, Model: Deutz
16. 2008
17. 3 hours per night x 7 nights per week
19. 4 liter per night @ 28 liters per week
20. \$3.10 per liter
21. 17 households connected to generator
22. 12 households not connected to generator
23. Copra and beach-de-mar

1.1.2.9 Lomaloma Village

1. Currently coconut supply has been badly affected by the cyclone. Therefore, currently there has been no copra production in the village lately.
2. Good opportunity for villagers to make good investment for themselves.
3. Mere Samisoni (Owner of Hot Bread Kitchen Fiji), Qalitu Enterprise Limited or TESSA.
4. Currently no village business
5. Currently no copra production and the village is into beach-de-mar business in this point in time.
6. 600 -700 acres of coconut trees
7. No one is currently producing copra at the moment in the village
13. TNK, Village committee
14. Yes
15. Size: 35 KVA, Model: Hatz
16. 2009
17. 3 hours per night x 7 night per week
19. 10 per night x 7 night per week
20. \$ 3 per liter
21. 45 houses connected to village generator
22. 5 houses not connected to village gen.
23. Fishing, Farming, most are in Government arms in the village

1.1.2.10 Dakuilomaloma Village

1. Currently no coconut cutting or copra production due to cyclone
2. Good for the villagers
3. Government arm to run the Mill
4. Currently no village business at the moment, however, villagers are working together in initiatives such as group farming, fishing, beach-de-mar production
5. 1 tonne per week of green copra
6. 550 – 600 acres of coconuts
7. Currently no one is selling copra at the moment in the village
13. TNK, Village committee
14. Yes
15. Size: 22.5 KVA, Model: Hatz
16. 2007
17. 2 hours per night x 7 nights per week
19. 35 liters per week
20. \$ 3 per liter
21. 21 houses connected to village generator
22. 4 houses not connected to village generator
23. Beach-de-mar and Fishing

1.1.2.11 Sawana Village

1. Currently no copra production in the village. Most villagers rely on fishing and farming and family members from oversea for welfare assistance.
2. Opportunity for cheater fuel.
3. Government arm, because of financial stability and community service delivery
4. Currently no village business, villagers run their own business
5. 1.5 tonne per week
6. 1 – 1.5 hectares of coconut trees
7. Currently no one is producing copra
8. 20 cents per Kg
13. TNK, Village committee
14. Yes
15. Size: 50 KVA, Model: Deutz
16. 2008
17. 4 hours per night x 7 nights per week
18. 140 liters per week
20. Village buys own diesel from Suva and is shipped to the village (Freight is \$30 per 200 liter). However, the 200 liter drums are \$470 per drum @ 3 trums per shipment to the village when needed. After usage, empty drums are shipped back to Suva @ \$10 per drum.
21. Whole village is connected to the village
22. No house is not connected to village generator
23. Fishing, farming.

Sawana village had a Biofuel Mill which was operating in the 1980s later was shut down in the early 1990s. The village also had a Biofuel generator which was imported from France that had operated for the village until the early 2000s. Thus, the village still has a Biofuel site but with some of the corroded Biofuel components. Therefore, recommend, that the site could still be used as a Biofuel Mill site due to its location next to the Lomaloma wharf.

1.1.2.12 Levukana Village

1. Currently a few are producing green copra due to coconut recovery from the cyclone

- 2.
3. Government arm, due to the bankruptcy scenarios in the village
4. Currently no village business at the moment
5. 400 Kg per week of green copra production when coconut supply is ok
6. 700 acres of coconut tree
7. Currently 6 households are supplying green copra to TESSA.
8. Copra (green) supplied to TESSA
10. No carting costs. They just cutting the copra are stack alongside the road for TESSA transport to collect the produce. Thereafter, payment is done at Temo Sukunaivalu's residence in Mualevu Village
11. 6 households
12. No records
13. TNK, Village committee
14. Yes
15. Size: 17 KVA, Model: Leister. Generator is currently down and not operating.
16. 1980s
17. When operational it operates 2 hours per night @ 7 night per week
19. 40 liter per week
20. \$3 per liter
21. 26 houses connected to village generator
22. 7 houses not connected
23. Main source of income: copra and fishing

1.1.2.13 Uruone Village

1. Currently no cutting of coconut or green copra production in the village. Main source of income is fishing and farming
2. Opportunity for good copra market
3. Government arm or business arm, as long as good and stable service is provided
4. Currently no village business (village Cooperative shop has gone bankrupt)
5. Approx. 500 Kg per week of green copra on a good week
6. 500 acres of coconut tree coverage
7. Villagers supply green copra to TESSA Enterprise. Green copra is packed alongside the road for TESSA vehicle to pick produce
8. 20 cents per KG of green copra
10. No carting costs involved
11. 6 households consistently produce green copra for TESSA in the village
12. No records
13. TNK, Village committee
14. Yes
15. Size: 22. 5 KVA, Model: Hatz

16. 2008 (Assumed needs clarification)
17. 2 hour per night x 7 nights per week
19. 4 liters per night x 7 nights per week
20. \$3 per liter
21. 16 houses connected to village generator
22. 7 houses not connected to village generator
23. Copra farming is the main source of income

1.1.2.14 Avea Village

1. Currently villagers are cutting copra on an occasional basis (only when villagers want to). Currently beach-de-mar is the main source of income
2. Biofuel would boost the copra market in the Island
3. Government arm, because professionals of relevant fields would be involved, also government bring in investors for our biofuel products available here in the Islands
4. Currently there is no village business running (Cooperative Shop scheme has gone bankrupt). However, Village businessman Peni Lesi owner of Super Blue Enterprise is operating his own supermarket at the expense of the village cooperative shop
5. 500 Kg per week when coconut supply is ok
6. 400 – 500 acres of coconut trees
7. Villagers cut green copra within the Island, pack the produce at the beach for Super Blue Enterprise to collect the green copra before drying at its copra dryer for shipment to Suva. Muniya Island which is also owned by Avea villagers is also utilized by villagers for green copra production. Muniya Island has about 600 acres of coconuts trees available
8. Super Blue is currently buying the green copra from villagers at farm point at \$15 per 50 Kg of green copra
10. No carting costs involved
11. About 10 households cut green copra for Super Blue Enterprise
12. No records of coconut collection
13. TNK, Village committee
14. Yes
15. Size: 27 KVA, Model: Hatz (Currently the generator is not operating – motor has been repaired and is yet to be brought back to the village so that generator can operate again)
16. 2004
17. 3 hours per night x 7 nights per week
19. 2.5 liter per night x 7 night per week
20. \$3 per liter plus boat charge to get fuel from the main island \$ 40 - \$ 60 return

21. 32 houses connected to village generator
22. 1 House not connected to village generator
23. Beach-de-mar is the main source of income

Interview:

Name: Peni Lesi

Village: Avea Village

Status: Local Copra and Beach-de-mar Businessman

Business: Owner of Super Blue Enterprise.

No of Dryers: 2 dryers: 1 dryer for copra, 1 dryer for beach-de-mar

Copra Buyer: Punjas Fiji Limited Suva and Lautoka and other middle businessman in Suva.

Mr Lesi has restricted information regarding his company's costing of copra production and shipment from point of green copra pick-up at farm point to port of delivery to his buyers. However, Super Blue Enterprise provides the same copra formulae as TESSA as Mr. Peni Lesi arranges the pick-up of the green copra at farm point along the beaches of Outer Island villages such as Avea, Cikobia, Susui, and Namalata, and Muniya in which he dries the copra to F1 standard before shipping out the products to Suva. Mr Lesi is currently selling his copra at Suva at a price of \$ 700 per tonne to middle businessman at port of entry point in Suva. Mr Lesi previously supplies most of his copra to Punjas Fiji Limited however has currently refrained due to freight and transportation costs to Lautoka. Mr Lesi stated that his company is willing to be associated with the Biofuel project only if the price is better than the prices in Suva or Lautoka including production and shipment costs. TNK of Avea village stated that Mr. Peni Lesi has made himself as one of the prominent businessman around Vanuabalavu when it comes to copra and beach-de-mar and has contributed a lot to the well-being of Avea village and the development of its youths. This is because Mr Lesi provides employment and other development opportunities for youths in the village.

1.1.2.15 Susui Village

1. Currently there is no cutting of copra or no copra production in the village at the moment due to cyclone last year.
2. Opportunity for more copra market and community development
3. Government arm, because provides community development.
4. Currently there is no village business at the moment
5. 1.5 tonne per week
6. 300 acres of coconut trees
7. Villagers cut green copra and make arrangements with Super Blue Enterprise to pick up the sacked green copra at the beach of their farm point. However, sometimes depending on buying price villagers make arrangements with TESSA Enterprise whereby they ship their green copra to Lomaloma village where TESSA collects the green copra accordingly
8. 20 cents per Kg
10. TESSA Enterprise pays for the boat charge of shipment of green copra from Susui to Lomaloma (\$50 - \$60)
11. 10 households cut green copra
12. No records
13. TNK, Village committee
14. Yes
15. Size: 17 KVA, Model: Leister (currently village generator is not operating)
16. 1992
17. 2 hours per night x 7 nights per week
19. 20 liters per week
20. \$3.10 cent per liter
21. 26 houses connected to village generator
22. 7 houses not connected to village generator (new houses built due to cyclone damage)
23. Currently the main source of income is beach-de-mar and fishing. Copra cutting is done on an occasional basis.

1.1.3 Recommended Site for Biofuel Mill

1. Old Biofuel Mill at Sawana village – Location is just about 50 meters to the Lomaloma wharf thus easy access to shipment. Location is centralized since people around the Island and nearby Islands come to Lomaloma on a daily basis. However, the only thing is that majority of copra suppliers and farmers are in Tikina Mualevu which is on the other side of the Island.
2. Wai ni Qata (near Malaka village) – Location is about a mile away from the Vanuabalavu airstrip. The location is in the center of the main Island next to Malaka village. Majority of copra farmers are in village near this location such Muamua, Mualevu, Mavana,

Levukana, Boitaci. Therefore, this location can be of easy access to copra suppliers and farmers. In addition, Mata ni Tikina for Mualevu stated that a wharf is about to be constructed in the very near future at Malaka village. The village operates the Department of Fisheries Vanuabalavu Ice plant.

3. Next to Vanuabalavu Depot – The location of the site is next to the Vanuabalavu depot about 200 meters from Lomaloma village. It is convenient since the area is within the depot which means land issue can be of ease, etc.

To locate the best site, it would be convenient to locate a suitable site where majority of the copra suppliers' are located and the port of entry to the Island can be harmonized and both accessible at the same time.

Report compile by Ulaiasi Butukoro (Tour Date: 6th – 9th Nov, 2011)

1.2 CONSULTATION TOUR

1.2.1 Introduction

The rationale of setting up a modular scale coconut oil biofuel production in the island of Vanuabalavu, Lau is to assist in achieving in reducing the fossil fuel import. By changing from ordinary production of dried copra, as they have been doing in the past, into value adding activities such as the production of biofuel, cooking oil, body lotion, and soap, the communities will increase the income base and economic resilience of these communities.

A biofuel feasibility study was carried out by Mr. Ulaiasi Butukoro (DoE) on the 6th to 9th of November, 2011, through interviews of the various *Turaga ni Koro*'s, copra farmers and the local copra businessman of the villages. The Coco-Biofuel Project Assessment Questions template was used as the guidelines for the interviews carried out during the survey.

1.2.2 Consultation Tour

As part of a collaborative effort between the Department of Energy (DoE), Itaukei Lands & Fisheries Commission and the Department of Buildings & Government Architects, the island of Vanuabalavu was visited during the 20th – 22nd December 2011, with the objective to make an inventory of the opportunities and benefits derived by producing biofuel, and other coconut derivative items which can then be marketed to the main land.

In addition, it is predicted that the site visits and discussions would surface the way forward for DoE to identify opportunities to increase the economic base of these communities in Vanuabalavu Island. The results will not only lead to more agriculturally oriented generation of economy, but it also contributes immensely towards reducing Fiji's trade deficit which is heavily affected by the importation of fossil fuels.

Upon arrival in Vanuabalavu island a traditional protocol (Sevusevu) was presented to the chief of Malaka village and to Boitaci village inform him of our arrival and his permission to carry out our work on the island for the duration of our stay.

1.2.2.1 Meeting with Landowners (Boitaci Village)

The meeting that was scheduled with landowners (*Lewe ni Mataqali*) of the proposed site in Boitaci was attended by the team of government officials led by the *Mata ni Tikina* to finalize details on the lease arrangements for the land.

Prior to the meeting the site had been proposed on the basis that it would be near the road, airport, school and health center and in the copra producing belt of the island. The site was also situated about 2km off Boitaci and Malaka village and close to the main road.

Other sites in Malaka Village had been proposed as possible location for the biofuel shed however, this site needed to be visited and evaluated against the current selection criteria and the site at Boitaci.



Figure 1: Meeting with Tui Biotaci. a). Mr. Curuki from TLFC confirming the land names. b). Mr. Pual Raju briefing the Tui about the project.

The meeting commenced with the presentation of Sevusevu to the elders of Boitaci village (Turaga Na Boi) after which *Mata ni Tikina* made the opening address.

In his opening address *the Mata ni Tikina* highlighted the importance of the villagers working and co-operating with government

re-structure and development plans for the islands. He had also commended the Tui for the new proposed site for their

willingness to offer a piece of land for the development of the whole island of Vanuabalavu through the construction of the Biofuel Mill. He informed Tui in the present of Mata in Tikina, the importance of working in line with government plans and long term development programs at uplifting the standard of living for the whole nation particularly those in the rural and maritime regions.

Following the *Mata ni Tikina's* opening address Mr. Paul Raju (Graduate Engineer-Biofuel development Unit) briefed the villages on the upcoming biofuel project for the island of Vanuabalavu. During his address Mr. Raju discussed on the key benefits the project brings to the Island particularly to the copra farmers. Other issues such as the structure and operation of the project was discussed and villages were assured that with their co-operation the Department of Energy was working towards implementing a successful biofuel project in Vanuabalavu.

Questions were raised regarding the ownership and the one third repayment of the total investment in the project. With regard to the ownership of the project the villagers were informed that the project was for the whole island of Vanuabalavu and that a board would be selected under the consultation of the Commissioner Eastern office through recommendations made by Mata ni Tikina. The board would be similar to our current projects in Cicia and Rotuma where there is a representative from each village to lead the company that will be formed. The villagers were also informed about the MoU and the repayment clause that currently sits at one third of the total project investment by government.

The final part of discussion during the meeting at Boitaci was the verification of the land owning record with the office of I Taukei Lands and Fisheries Commission. Mr. Curuki from TLFC confirmed the name of the site selected as “*Matavuralevu*” and through records from TLTB the rightful owners of this land are the *Lewe Ni mataqali Matavuralevu*.

1.2.3 Site Inspection and Surveying

1.2.3.1 Locality of Site

The site is located approximately 5km off main wharf heading towards Matavuralevu village. The current access road to the site goes beside the PWD depot and is the junction to the road connecting to Malaka village, Boitaci and the main road.

1.2.3.2 Survey

Upon arrival to the site it was noticed that there were few small trees and huge grass that needs to be cleared. The surveyor (Mr. Fatiaki –Buildings & Government architects) took dimensions

according to the size of the building and allowance was given on each side of the building for access to trucks and also construction of storage shed.

1.2.3.3 Selected Site at Boitaci

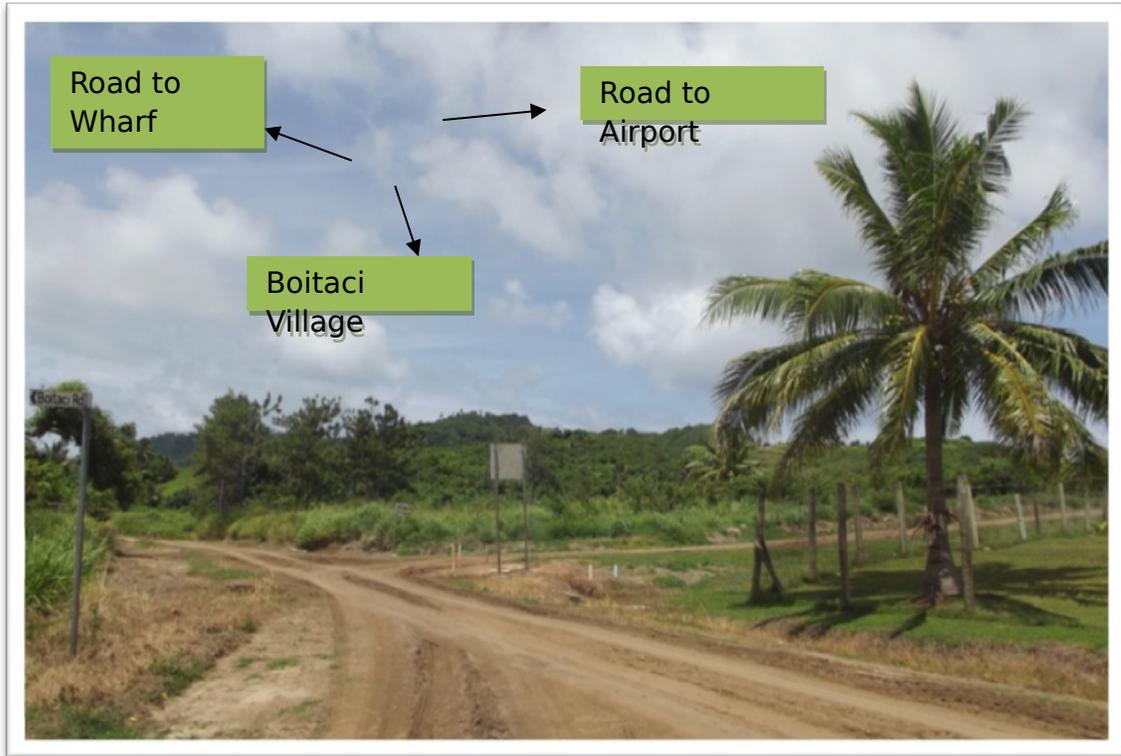


Figure 2: Proposed site at the junction of Boitaci and Malaka Village.



Figure 3: View from the airport side

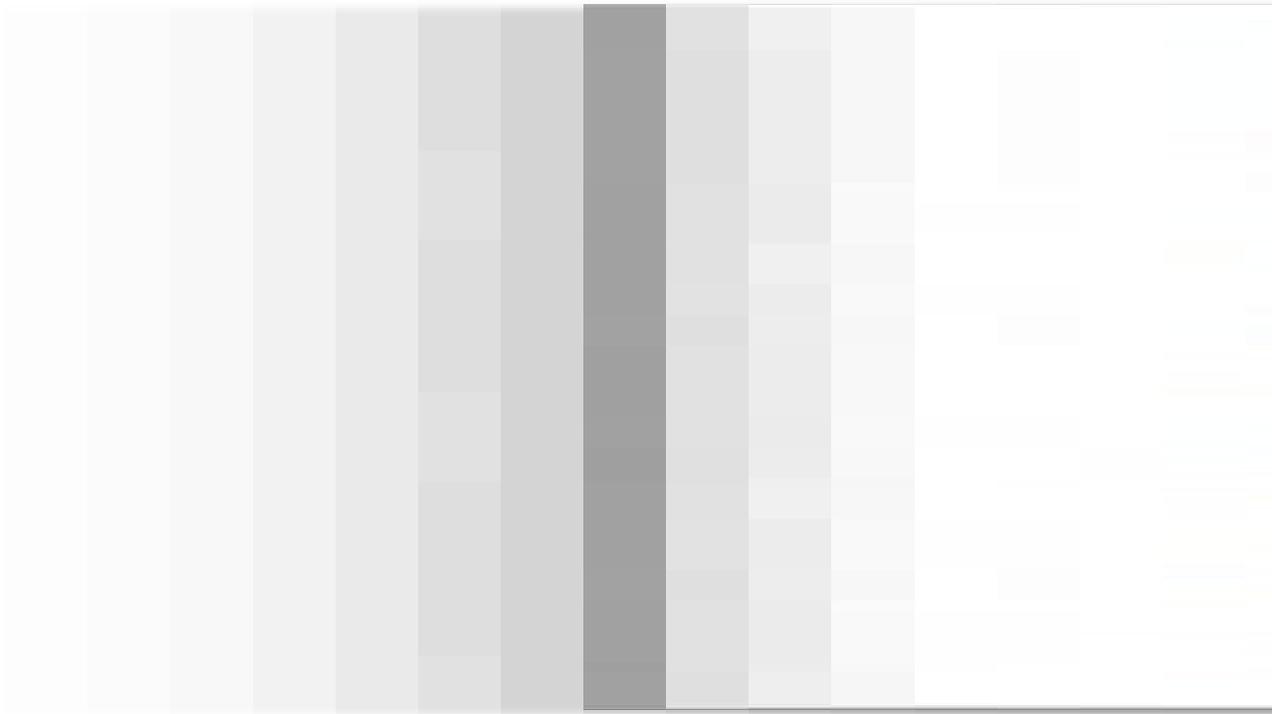


Figure 4: View from the road to the wharf

1.2.3.4 Other sites visited

4.2.3.4.1 Malaka Village

This site currently has lots of coconuts trees (around 30 trees) that needed to be cleared. The meeting



are

commenced with the presentation of Sevusevu to the elders of Malaka village (Turaga Na Malaka) after which Mata ni Tikina made the opening address.

The possibility of locating the biofuel shed at this current site is been hindered against several factors including the clearing of the coconuts trees, availability of space, and also the site is isolated from the other villages.



4.2.3.4.1
Site
Location

1.2.4
Copra

Figure 5: Meeting with member from Malaka village. a). Mr. Curuki from TLFC confirming the land names. b). Mr. Paul Raju briefing **Figure 6:** Site at Malaka village. a). View from road side. b). View from village end.

Feasibility Survey

According to the feasibility report, the crop production, area of coconut trees per village, selling price and the companies buying their copra are listed in the table below. There are three local businessmen dealing with buying of copra, namely, TESSA Copra Enterprise (TCE), Qalitu Enterprise Limited (QEL) and Super Blue Enterprise (SBE). The Chairman of TCE, Mr. Qarase Temo stated that the copra supply has declined due to the last cyclone, however it is gradually picking up now.

Village	Crop Production	Coconut Plantation Area (Acres)	Selling Price (\$/kg)	Buyers
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	(Green-ton/wk)			
Mualevu	1.5	200	0.12 – 0.30	TCE
Mavana	0.5 – 0.75	24.71	0.20	QEL
Daliconi	4.5 – 7.5	500	0.30 – 0.34	TCE
Boitaci	0.1	200	0.36	TCE
Malaka	0.6	150	0.30 – 0.40	TCE
Muamua	2 – 3	500	0.20	TCE
Namalata	2	100	0.30 – 0.40	TCE
Narocivo	1 – 1.5	300	0.20	TCE
Lomaloma	No production	600 – 700		
Dakuilomaloma	1	550 – 600		
Sawana	1.5 (Current 0)	2.47 – 3.7	0.20	TCE
Levukana	0.4	700	0.20	TCE
Uruone	0.5	500	0.20	TCE
Avea	0.5 (Current 0)	400 – 500	0.30	SBE
Susui	1.5	300	0.20	TCE
Total	17.1 Ton/wk		Ave = \$0.25/kg	

It was noted that the island currently producers on an average of 17 tons of copra weekly however, these figure are expected to increase once the project is in operational. The selling price for the copra in most of the villages is FJ\$0.20/kg. Farmer collects the coconut, cuts the green copra, packs it and then stacks the sacks alongside the road for the companies to collect it for drying at their dryer before shipment. These companies supply the dried copra to Copra Millers Fiji (CMF) in Savusavu and Punjas Fiji Limited in Suva.

1.2.5 Fuel Demand-Rural Electrification

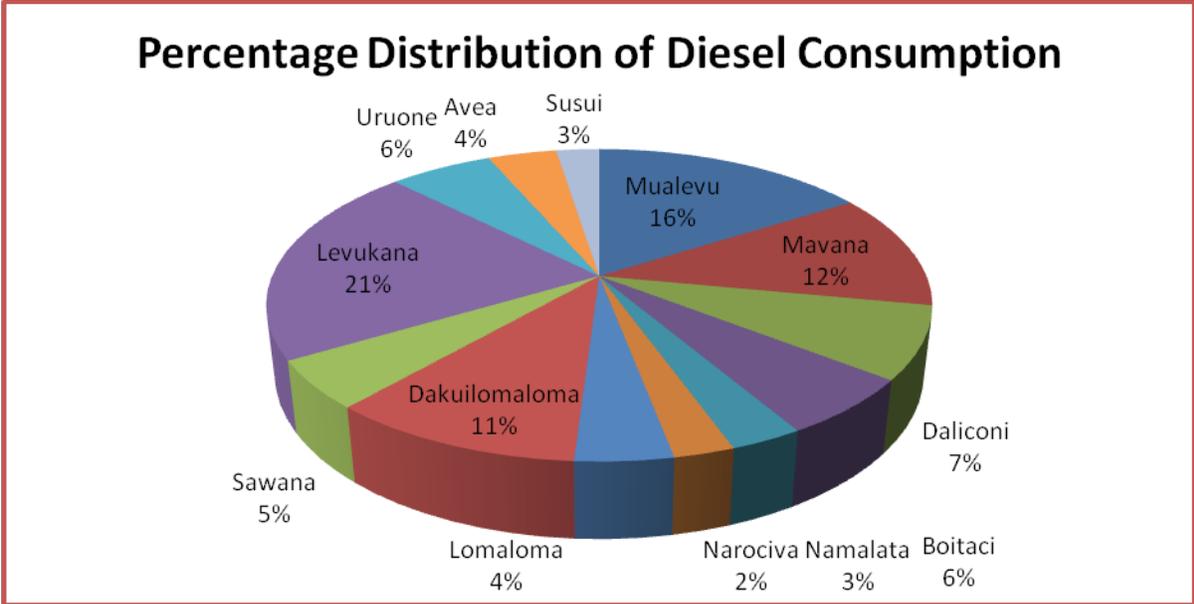
All the electricity generated on the Island of Vanuabalavu is through diesel generators however, there is potential to introduce other forms of energy particularly with Solar and biomass. Currently the villages are powered through generators installed by government through the department of energy rural electrification scheme.

The table below gives the list of generators on each village highlighting also the operating details of these generators.

Village	Model	Year of Installations	Gen Set	Fuel Consumption	Operation Hours	Fuel Demand
			Size (KVA)	(L/Hr)	Daily (Hrs)	Monthly
Mualevu	Hatz	2001	35	7.5	2	420
Mavana	Deutz	2003	35	4.57	2.5	320
Daliconi	Deutz	2002	25	3.57	2	200
Boitaci	Deutz	2009	20	2.86	2	160
Malaka	No Genset					
Muamua	No Genset					
Namalata	Hertz	2003	20	1.67	1.5	70
Narociva	Deutz	2008	15	1.33	3	112
Lomaloma	Hatz	2009	35	3.33	3	280
Dakuilomaloma	Hatz	2007	22.5	2.5	2	140
Sawana	Deutz	2008	50	5.0	4	560
Levukana	Leister	1980	17	2.86	2	160
Uruone	Hatz	2008	22.5	2.0	2	112
Avea	Hatz	2004	27	0.83	3	70
Susui	Leister	1992	17	1.43	2	80
Tuvuca						
Total Diesel Consumption (Monthly)						2,684

1.2.5.1 Cost of Electricity

All the villages have adapted the non-metered system where each household contributes towards the cost of diesel to run the community generator.



1.2.5.2 Calculation Analysis

Real Cost of Diesel Calculation

Monthly Diesel Cost for 2,800L \approx (14 x 200L drums)	-	\$ 7,280.00
Drum Deposit @ \$50/Drum	-	\$ 700.00
Transport Hire (Wharf-Village)	-	\$ 420.00
Total Cost (800L)	-	\$ 8,400.00
Total Cost Per/L	-	\$ 3.00

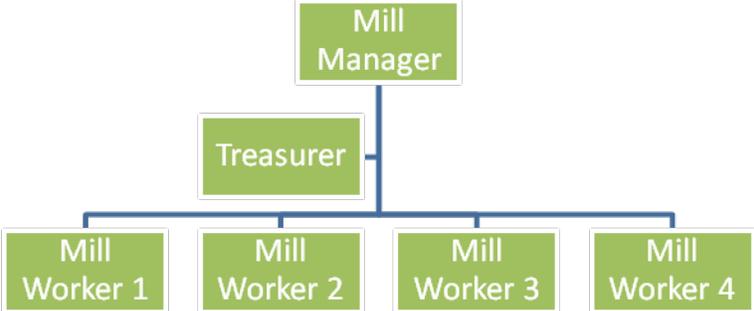
1.2.5.3 Current Demand for Diesel

As stated in the survey the current demand for diesel is averagely 2,800 liter monthly. This volume when switched to supply from biofuel (Blend of Diesel and Coconut oil) would require a total volume of 2,240 liters of diesel and 560 liters of coconut oil. Once operational the mill will

be targeting to produce the volume required to produce biofuel for the whole island and the excess coconut oil and copra meal will be sold to the available markets in the mainland.

1.2.6 Conclusion

The team successfully completed consultations with the Turaga ni Koro’s for each village and visited the two proposed site identified by the Mata ni Tikina. The concern letter was given by the Mata in Tikina for the construction of the biofuel mill on the proposed site at Matavuralevu. The project is expected to begin construction this year after receiving the 60 % signature from the Mataqali and commission is expected to be in the fourth quarter. The department now will be looking at forming the company that will control operations of the mill on the island. The company board member will be selected; representatives from each village and the mill management will be chosen from the villages nearby the site or it will be advertised throughout the entire island. The mill management is to be structure as follows:



A Memorandum of Understanding (MoU) will be signed between the Department of Energy and the company underlining the key responsibilities of each party in the project.

Markets are also been secured for the project in Vanuabalavu for the sale of the excess coconut oil and copra meal similar to the ones secured for the current projects in Rotuma, Cicia and Koro. This will ensure a steady cash flow for the company once operational.

Finally much appreciation and thanks to the whole delegation that went to Vanuabalavu for all their assistance during the tour. We were able to complete all the work that was set out for this trip due to the joined approach and hard work of the team.

Report compiled by Naveendra Reddy (Tour Date: 20th – 22nd Dec, 2011)

Team Members:

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