FIJI FUEL ASSESSMENT

JULY 2017

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Executive Summary

Business Summary

The business aims to address the UN sustainable development goals, specifically:

- Goal 12: Ensure sustainable consumption and production patterns
- Goal 13: Take urgent action to combat climate change and its impacts.

A major identified contributor to climate change is the use of inefficient cookstoves in developing countries, particularly with the use of firewood for cooking. Inefficient cooking methods mean that greater quantities of carbon emissions are released into the atmosphere in conjunction with excessive quantities of smoke. Smoke and carbon monoxide is a byproduct of incomplete combustion and is a known contributor to various respiratory and other health issues.

From the perspective of those reliant on firewood, more efficient cooking methods and fuels would reduce time required to collect firewood which represents a major opportunity cost. Supply of firewood during the wet season is also an identified issue which can be alleviated through alternate fuels.

The business aims to addresses these issues specific to Fiji by producing and selling directly to customers high efficiency wood stoves (Rocket Stove model) which enable Fijian villagers to cook their food using less firewood and, most importantly, less smoke. In conjunction, the business is looking into developing agricultural waste briquettes which would ideally complement the cookstove product and serve as an alternate fuel during the wet season, and similarly produce less smoke when combusted. In doing so, the business has a 2 pronged approach in alleviating the health issues correlated with excessive smoke inhalation whilst reducing carbon emissions related to cooking using the traditional 2 stone stove.

Business Aims

The business therefore aims to identify and provide both an affordable alternative to firewood and a high efficiency wood stove and alternate fuel in order to address the aforementioned issues from an environmental, economic and health perspective. These products will be addressed in more detail in the following sections.

Financial Summary

The business sells cookstoves (Buka Stove) for $200. The average cost of producing a cookstove is currently estimated at $60 based on our initial prototype. Within our first year, will are forecasted to have a negative net profit but we expect sales to increase in coming years, with our breakeven value being forecasted to be achieved in the second financial year.

During the financial year, there will be extensive development in key revenue streams i.e. sales of cookstove and the recycling program.

Once revenue streams have stabilised, focus will then be shifted to developing the agricultural waste briquette as a further revenue stream, with experimentation and further financial analysis required.

Ownership Structure

Who owns the business

Project Everest, XYZ For Good PTY LTD has been identified as the owner of this business.

Main shareholder profiles

Not Available @ July 2017

Education, experience, what they bring to the table, their role as major shareholders

Not Available @ July 2017

Products and Services

What does the business sell?

The business will sell 2 products:

1. High Efficiency Wood stove (Rocket Stove)
2. Agricultural Waste Briquettes

Rocket Stove

The Rocket Stove is a small cookstove designed to operate at a higher efficiency than the traditional three stones or two stones cookstoves currently used in Fijian villages. By allowing more efficient combustion in the inner combustion chamber, not only is less firewood required to fulfil the same cooking requirements e.g. boiling water and cooking cassava, less smoke is emitted. More information about the specific details of the Rocket Stove can be found in the following section.

Agricultural Waste Briquettes

As an alternate fuel to firewood, the agricultural waste briquette is a sustainable fuel that can be sold to villagers during the wet season when dry firewood is difficult to come by and difficult to light. Not only would it lessen the burden of fuel collection during the summer months, but it would also present a long-term business opportunity for PE.

Details about the product/services.

Rocket stove

A rocket stove consists of two concentric metal cylinders of different diameters. The fire burns inside the smaller cylinder and the space between the inner and outer walls acts as a layer of insulation. This reduces heat loss and improves the efficiency of the burning process, thereby requiring less fuel during cooking. The higher temperatures and more-complete burning of the firewood reduces the overall smoke production as

well and therefore significantly reduces the health risks associated with smoke inhalation.

The rocket stove comprises of the following components:

- Large cylinder (refrigerant cylinder) - hole cut for firewood
- Small cylinder (quality sheet metal) - interlocks on the grate by twisting. Identical size hole for firewood.**
- Concave dish (Top of the refrigerant cylinder inverted) - used to be compatible with various pots and pans
- legs (steel) - legs in a tripod design
- Grate - Steel grate used to burn wood on. Waste will fall through grate and onto the ground. Grate will be made with a small deck extending from opening in the body for ease of loading.
- Handles - Heavy duty metal handles to support the weight of the stove. The grips will be lined with heat resistant rubber or wood.

The images below depict the first prototype of the Rocket Stove:

Figure 1. Photo of prototype Rocket Stove, view from top and sides

Agricultural Waste Briquette

These briquettes will be comprised of agricultural waste e.g. coconut husks, sugar cane by-products and other plant material. Coffee husks sourced from Bula Coffee are also being considered. After carbonisation i.e. burning above 280 degrees, the resulting mixture is soaked in water, compressed and dried into the desired, uniform shape, allowing for easy storage and transportation. Cassava powder is currently being experimented with as a binding agent to allow the resulting briquettes to maintain their

shape although further experimentation is required regarding exact quantities or alternate substitutes that perform the same role.

If there are different goods and services being sold at different stages of growth, explain this.

Following the distribution of our rocket stove, the business intends to commence the distribution of the agricultural waste briquettes through the same channels.

In addition to providing a more fuel efficient cookstove, the agricultural waste briquettes are intended to complement the cookstove product to address the shortage of firewood experienced by many villagers during the wet season. Therefore, by introducing the fuel efficient Rocket cookstove first, followed then by the introduction of the agricultural waste briquettes, this allows greater choice for villagers when addressing fuel efficiency and fuel alternatives.

Carbon Credits as a potential source of future funding

In recent years, there has been an increasing adoption of carbon credits in international markets. A carbon credit represents a saving of 1 metric tonne of carbon dioxide and is a market mechanism which enables financial flows to the cheapest methods to reduce carbon emissions (low hanging fruit). These various methods and their cost effectiveness is depicted graphically on the carbon abatement curve, also known as the marginal abatement cost curve (see below).

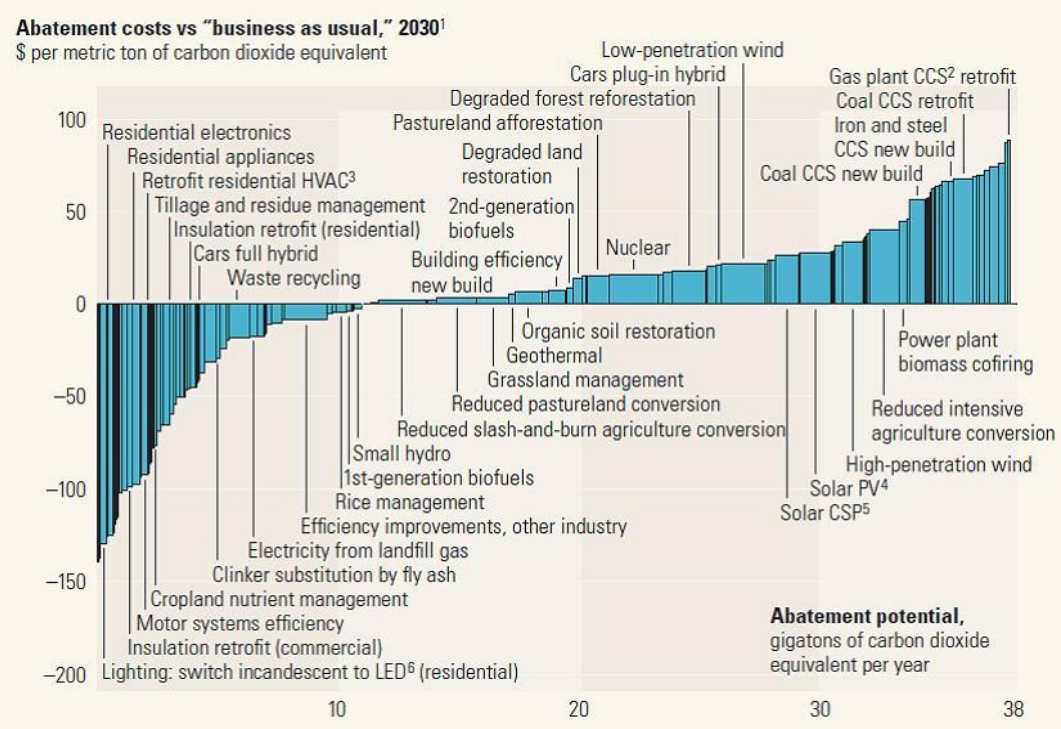


Figure 2 Carbon Abatement Curve

The diagram below demonstrates how to read the above diagram.

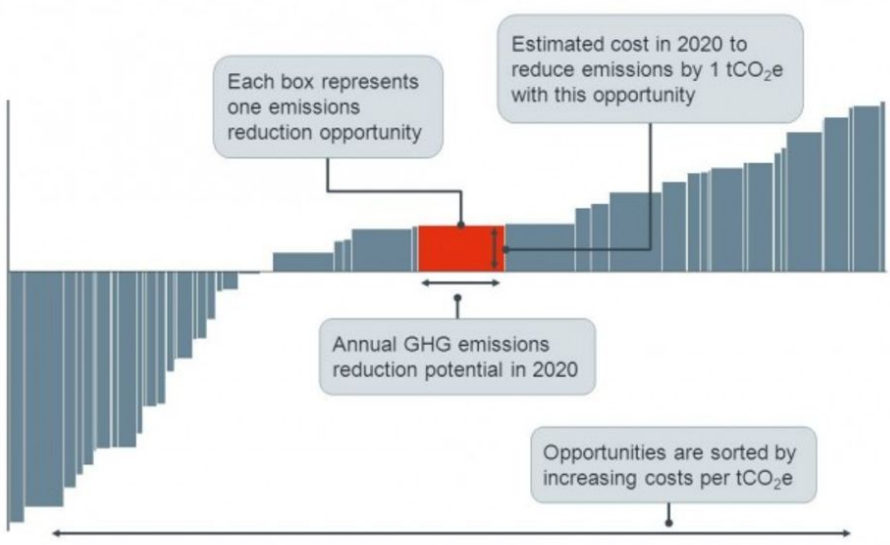


Figure 3 Explanation for reading carbon abatement curve (figure 2)

Concerns regarding carbon credits:

- Issue of wealthier countries buying carbon offsets from poorer countries and instead continuing to emit the save level of emissions
- Potential that developing countries e.g. China and India sell off carbon credits to wealthier countries in the early stages such that when emissions reduction becomes a target, they would have sold the best ‘low hanging fruit’ to wealthy countries. This would then cause poorer countries to pursue more expensive forms of carbon reductions to meet credits remaining, as cheaper options have been exhausted (see carbon abatement curve).

The significance of carbon credits to the business is that they provide a new way to fund cookstove technology, thereby making production, distribution and research more affordable. This is due to the fact that clean cookstove technology such as the Rocket Stove represent some of the cheapest pathways in reducing carbon emissions, given the sheer number of the global population depending on inefficient cooking methods and fuels.

The Market

Who are your customers

Our primary customers are rural, inland Fijian villagers who have limited exposure to the outside of villages beyond Sigatoka. The majority of these villagers are subsistence farmers with relatively young generation and operate in a close knit family environment. Based on our research, there are at least 35 inland villages and we have visited 7 of them. Below is a sample of the villages we have visited for the duration of the project.

Village Name	Family (approx.)	Population (approx.)
Nawairabe	25	100
Korolevu	150	700
Nubuyanitu	70	250-300
Korovou	25	100
Nukuilau	80	320
Nawairabe	31	100
Wema	16	50

Overall, there are approximately 397 families (1645 people) in those 7 villages. We use trimmed mean for more reliable statistics and on average there are approximately 46 families (179 people) per village. Therefore, we estimate that in all 35 villages there are 1610 families (6265 people) per village. Based on our research in field, there should be at least one stove per family.

Different market segments being targeted at different stages of growth

Development

In the development phase, the business will target inland villages that we have already build rapport in. This personal connection to the village will allow the product to be more easily accepted into the everyday life as trust has been established with the customers and consumers.

Startup

During the startup phase, the business could potentially target side off the road sellers. For example the stove could be used by corn cookers. The corn can be roasted on the stove much more efiicnectly. This is a large market in Fiji and could be an easy way to boost the selling of the product**.** Simultaneously the business will be working with the inland villages the same as in development.

Growth

When in the growth stage, the business should be expanding throughout the inland villages. The stove will be introduced to one village at a time, collecting sales. As sales increase, word of mouth of recommendations from the locals will be the stove more appealing in other villages. The business can grow throughout Fiji.

Expansion

It is possible in the expansion phase the business can expanded into the south pacific. The stove can be implemented in Samoa, Tonga and the other islands in the surrounding area. By this stage the business will have to retreat back to the startup phase for the new environment. However the business will be established and thriving, therefore the transition may be less difficult.

Maturity

If the business falls into the maturity stage, the product will be reviewed and adjusted accordingly to become successful once more for the market in the south pacific.

Currently, the business is at the initial development stage, characterised by limited budget and a zero net cash inflows.

Activities we are engaging in during this stage of the business life cycle include:

- Extensive researching and the establishment during the empathise stage

Major developments include researching and establishing our target market during the empathise stage. From this, we have identified the target market as inland villagers as they could be our largest potential consumers (see BMC Customer segments).

Reasons for our initial focus on this particular target market are as follows:

1. Inland villagers are relatively poor compared to coastal villages and use firewood as their primary cooking fuel. They want cheap cooking stoves that cooks faster and cleaner than the traditional cooking method.
2. They don't have access to the main electricity grid and one prototype has been tested in some villages. Ideally, our primary source of income is selling assembled stoves.
3. Inland villagers suffer from floods in wet season and transportation is disrupted. They will be the people who need our products most.

- Gathering feedback during the testing phase

An initial prototype of the Rocket Stove and Charcoal Briquette has been carried out, with regular consultations with Cris Birzer, a Senior Lecturer in Sustainable Energy Engineering from the University of Adelaide, as an industry specialist.

Village visits for testing of prototype has also occurred, feedback documented and a redesign of prototype in accordance to specifications of villagers is underway.

Ideation is also occurring in reevaluating the feasibility of the agricultural waste briquettes as well as consideration of broadening the market to coastal areas such as Suva.

How will your consumers interact with your goods/services and how would they choose your goods/services?

In the initial startup, the business will operate as a door to door salesman, visiting village by village, trying to sale as many rocket stoves as possible. The customers will have the opportunity to test product and provide feedback on the stove. In the future stages retail outlets are intended to represent our primary interaction with customers for the sales process. These include establishments at Sigatoka market, local grocery stores and potentially the fruit sellers on the side of the road.

In regards to raising awareness and advertising our products, we intend to reach out to churches, mothers' groups and other community groups.

Are people waiting to buy your goods/services?

As of July 2017, none of the aforementioned products have been sold as the project was still in the prototype and test phase and not at a capacity to make sales. Despite this, we have had expressions of interest from the villages visited during testing, particularly Korolevu where interest for the cookstove was highest of the villages visited.

Market Research

Relevant secondary research

Some secondary research had been conducted and found the following:

- Rural population in Fiji was 46% of its total population in 2015, according to the World Bank collection of development indicators.
- According to Household Income and Expenditure Survey for the Fiji Bureau of Statistics, in 2008-09, it was found that 77% of all rural households still cook with firewood, and over 85% amongst the poorest 40%. In urban areas, some 42% of the poorest 20% cooked with firewood, mostly over open fires. This practice of using open wood fire could potentially increase the risk of many health problems. More information on this studies is in Google Drive.
- In an article written by Prasad, Bansal & Raturi in 2017, “A review of Fiji's energy situation: Challenges and strategies as a small island developing state”, the number of electric and gas stoves remains relatively unchanged from 2002 to 2008, due to increased availability of mahogany cut-offs in the market, the use of firewood as a cooking fuel also increase.
- According to Numbeo.com published in July 2017, the average monthly net salary (after tax) is FJ$1,080.

Empathise breakdown (pains, gains, jobs to be done)

Jobs to be done

- Find firewood
- Stoves that cook food faster
- Safe and clean cooking fuel
- Fuel that is easy to store

- Alternatives to store firewood in wet season

Pains

- Need to pay for stoves
- Unwilling to give up free cooking method
- Kerosene stoves are unable to provide smoky flavor

Gains

- Cost savings
- Customized rocket stoves are cheaper than Envirofit stoves
- Customized rocket stoves suit customer's needs
- Easy to operate

Define breakdown (what are the needs/wants of your customers and consumers)

The primary needs/wants of the customers and consumers are as follows:

- Fuel efficiency, enabling faster cooking
- Durability of product
- Affordable, cost effective products
- Clean sustainable fuel with less health risks, particularly in relation to smoke
- Can be used in all weather conditions
- Maintains desirable smoky flavour in food

Nature of the needs your business is/will satisfy

Of the aforementioned needs/wants of our identified customers and consumers, the needs which will be addressed are as follows:

Rocket Stove:

- Fuel efficient i.e. requiring less firewood to perform the same cooking activities
- Affordable (compared to the alternative of kerosene stoves)
- Reduced health risks associated with smoke exposure and inhalation
- Retains desirable smoky flavour of food
- Can be used in all weather conditions due to portability i.e. used for indoor/outdoor cooking

Agricultural Waste Briquette:

- Clean sustainable fuel with less health risks, particularly in relation to smoke
- Can be used in all weather conditions, particularly in relation to storage for use in wet season
- Maintains desirable smoky flavour in food - to be confirmed
- Briquettes burn hotter than firewood - to be confirmed

Relevant field research

See notes from July village visits *[H. Fuel Assessment → F. Village Visits & Minutes → C. Week 1 Findings & D. Week 3 Findings]*

SWOT analysis

The SWOT analysis is an integral part of a company's strategic planning process and involves the consideration of internal factors i.e. strengths and weaknesses as well as external factors i.e. opportunities and threats.

Strengths

- Access to firsthand & primary data from village visits.
- List of contacts and established relationships with local partners
- Support from experts in the field e.g. Dr. Cris Birzer (University of Adelaide).

Weaknesses

- Limited budget so there are constraints around us in terms of prototyping, manufacturing and advertising.
- Lack professional knowledge and experience as our team consists of university students.
- Limited access to resources geographically since we can't get everything we need in Sigatoka town. Location also makes it difficult to source materials or samples from overseas due to shipping costs and time.

Opportunities

- Large potential consumer groups
- Local community and government support
- Willingness of more university students to take part in PE and continue project development .

Threats

- Competitors e.g. Potential Energy (PE) who have established projects in Uganda and Sudan Project. While Potential Energy operates in a different region, there is a likelihood that Potential Energy may decide to target the Fijian market in the future.
- Fiji government planning to expand their electricity grid in the long term. While there is potential that electricity access could result in the adoption of electric cookstoves, we do not consider this a major threat given many villages which have access to electricity still use firewood for cooking.

Marketing Strategy

Brand

Fiji Fuel Assessment is centered around improving health standards and environmental sustainability. The company addresses these major health concerns through employing international minds to address these local issues. The company believes in providing a professional product that is tailored to Fijian life in terms of culture and traditions. The objective is not to alter the Fijian way of life but only to improve the environment in which they live in.

In terms of our product, the company will produce rocket stoves known as The Buka Stove (Firewood) and solid charcoal briquettes to complement the stove. The Buka Stove is heavily entangled into the Fijian tradition as it utilises firewood as a fuel whilst limiting the amount of smoke produced, the amount of firewood burnt and accelerating the cooking time for families. In addition the charcoal acts as an alternative fuel source in the wet season which can be easily store when all firewood is too damp to light.

The above will be at first delivered by a team of enthusiastic university students, face to face with the customers and consumers. Continually emphasizing and tailoring the products to them will build a profound relationship between the company of the Fijians, effectively building a strong brand image for Fuel. This is imperative as it will established loyalty and trust with customer relations. Maintaining these relationships will provided an excellent foundation for future progress of the company whilst possibly attracting potential stakeholders. Fuel believe that these brand-related activities will result in the benefit of the local community and the sustainability of the company.

Channels of communication

We will initially market our product through village visits and pitching, creating consistent customer relationship and rapport with the community. Word of mouth will be of great importance due to the inaccessibility of some rural villages.

For sales, our primary channel will be through traditional brick and mortar establishments i.e. local grocery stores and Sigatoka market.

Future channels for education and awareness include:

- The church (most of villagers are christian)
- Schools
- Health centres e.g. Keiyasi medical centre
- Local government
- District officers
- Village headmen/chief

In this way we create a need for our products and greater awareness of the health implications of cooking using the traditional 3 stone fireplace.

Ultimately, these actions will enable ourselves to build reputation among villages. Following the success of our cookstove, we (Project Everest) are able to strengthen our reputation and credibility within Fiji.

Costs

Fixed costs:

1. Rent for workshop/assembly area
2. Research and development
3. Electricity, transport and accommodations
4. Business licence

Variable cost:

1. Raw materials for production
2. Sheet metal used to manufacture stoves
3. Soil for clay
4. Labour for assembly
5. SGA (selling, general, admin) costs

Past, current and planned campaigns

Future Campaigns for Cookstove:

- Personal/Door to Door Selling
- Word of Mouth
- Radio
- Pamphlets & flyers
- Through the churches & Women groups (raise awareness)

Competitor Analysis

How are your customers currently being served

Based on data collected from inland villages, conclusions drawn pertaining to current fuels and cooking methods are as follows:

Fuel

Firewood is found to be the primary cooking fuel, consistent among all villages visited. Reasons for the widespread use of firewood are:

- Unlimited availability
- Consistent supply all year round
- Freely available
- Satisfies cooking needs e.g. boiling water for cassava and rice

In addition to firewood, it was also found in many villages such as in Nubuyanitu (see document *170707 3-Day Village Stay 01 EP*) supplemented their firewood use with kerosene. While kerosene is not preferred, the primary reason for using kerosene is that it can be used as an alternative during the wet season in the case that firewood is too damp for immediate use.

Despite these advantages of kerosene, widespread adoption of kerosene is unlikely due its unaffordability for many and the fact that food cooked using kerosene does not have the same ‘smoky’ flavour as preferred by the villages.

Cookstoves

The most common form of traditional cooking entails the 3 stone stove which, as the name suggests, comprises of 3 bricks arranged in a manner to support a grate upon which a pot is placed. While simple and of very low cost, this method is very inefficient and releases large quantities of smoke which is associated with many health issues.

In few villages, kerosene stoves were also present, but in low quantities. It was found that these stoves are rarely used and quite expensive relative to the average income of the villagers ($35-$42). Since food cooked using the kerosene stove does not have the desired smoky flavour, kerosene stoves are rarely used and are owned by very few in these villages.

If near identical competitors exist, detail them

Organisational Competitors

Potential Energy

Potential Energy is a global distributor of cookstoves, focused on the market in Darfur, Sudan and have since launched a social enterprise aimed at improving access to stoves and renewable fuels in Kampala, Uganda.

Their involvement in their Sudan Project involved partnering with local communities to assemble and distribute the Berkeley-Darfur Stove which is a variant of the Rocket Stove and modified to fit the requirements of Sudanese cooking.

Their Uganda project was of similar intention i.e. distribution of a cleaner cookstove through partnerships with schools, hospitals, churches, farmer's groups and other corporations to market their stoves to community groups and families.

While Potential Energy could be considered a competitor with their Berkeley-Darfur stove, the company also perceives them with potential for future partnership as a manufacturer of our Rocket Stove design.

EnviroFit

EnviroFit is an another company that sells and distributes cookstoves supporting various fuels. They are based in Fort Collins, Colorado and operates across west Africa, East Africa, Latin America and Asia, serving over 5 million people. Their business design is based around SMAAART Thinking (Adaptation, Affordability, Access). This means they have the capacity to adapt their cookstove designs to be suitable to Fiji.

They produce highly polished and quality cookstoves, for this reason the cookstoves are beyond the price point for many of the inland villages of Fiji. This is evident by EnviroFit operating across 3 continents but are only providing a service to 5 million. They are a lot of people they do not have access to.

Figure 4. EnviroFit Super Saver Wood GL

The above cookstove can be bought online for $109 USD. Nonetheless, they could be a strong competitor in the future for Project Everest.

Anonymous Rocket Stove in Fiji

There was a company in Fiji that was producing cookstoves for the villages. However it was valued at $80 FIJ, because of this higher price point the villagers could not afford it. As a result the company has been scrapped and is abandon.

Unique value proposition

Rocket Stove

Our unique value proposition for the Rocket Stove is that it is cleaner and enables more efficient combustion. This not only reduces the amount of firewood required for cooking, but results in less smoke being emitted during the cooking process.

Other value propositions include:

- Portability
- Affordability (compared to kerosene cookstove)
- Requires less firewood
- Durable

Agricultural Waste Briquette

Our agricultural waste briquettes are an alternative to firewood. Therefore, our unique value proposition is the storage capability of a high energy fuel which can be used as an alternative to firewood during the wet season when firewood is unable to be used effectively.

During the empathise stage, it has been identified that the majority of villages visited were not experiencing scarcity of firewood in their immediate vicinity. However, it was identified that during the wet season, many villagers use kerosene stoves or apply kerosene to damp firewood in order to create a flame. Since kerosene is considered expensive to most villagers, in conjunction with not providing that desirable smoky flavour, the agricultural waste briquettes were identified as a suitable alternative. Prototyping and testing is still underway for this product.

Operations and Logistics

Production and Supply Chain

Cookstove:

Current production plans include:

Short

- Local production and assembly using locally sourced raw materials e.g. Discarded refrigerant tanks and sheet metal through a recycling program.
- Materials will be transported to a local manufacturer possibly Suresh Verma for assembly
- Stoves will be delivered to villages by car, tested and sold on site

Agricultural waste briquettes:

- Potential key partnership with Bula Coffee for coffee pulp
- Further research will have to be done regarding mass production

Method of delivery of products and services

We intend to deliver the products at first by hand to develop a relationship with the customer. We aso intend to sell at brick and mortar establishments e.g. Sigatoka market, delivery of products will be to those key retail outlets.

Organisational structure

We have matrix structure since we have interrelated divisional structure and functional structure.

Divisional:

Project based structure: trekkers are divided into different teams working on different projects in different developing countries. Each project works it's own finance, research & development and marketing etc.

Functional:

From the organisational scale, PE has its general Financial, Research and Marketing departments which makes the bigger picture for each project.

Costs and Pricing Strategy

Cost breakdown of each service

Cookstove:

In the construction of the first prototype, raw materials were free ($0) and labour cost (Suresh) was $60.

With the establishment of a production assembly during the scaling up phase, these costs may reduce through economies of scale and raw material costs should be able to be kept low on a per unit basis through the potential recycling program and bulk buying of other key components.

Price points and justifications

While a final price has not been decided on for the cookstove, villagers have suggested between $50 and $60. However, production costs and overheads needs to be calculated before prices can be set.

Competitor price points

Kerosene stoves sell for between $35 and $42, which does not cover the ongoing cost of kerosene.

It was discovered during a village visit that a company had previously sold Rocket stoves in Fiji at $80 per stove but has since ceased production. The consensus was that $80 was considered expensive.

No market exists for agricultural waste briquettes in Fiji.

Net and gross profit margin for each product

Current costs based on initial Rocket Stove prototype:

Raw materials cost: $0
Labour costs: $60
Total variable costs: $60

Assuming profit margin of 70%, price of Rocket Stove would be $200. Since recommended price is between $50-$60, this sales price will have to be reduced significantly to maintain target profit margin.

Financial Analysis and Reporting

Breakeven analysis

Breakeven analysis is used to determine when the business is able to recover its expenses and begin to make a profit.

Breakeven point can be calculated using the formula:

Breakeven point = fixed costs/(unit selling price – variable costs)
= 43,600/140
= 311.42

Profit and Loss statement

Trading income: $20,025
Cost of goods sold: $6,187
Gross Profit: $13,838
Operating Expenses: $43,600
Net Profit: -$29,762

For more information, see P&L Statement.

Contingency Planning

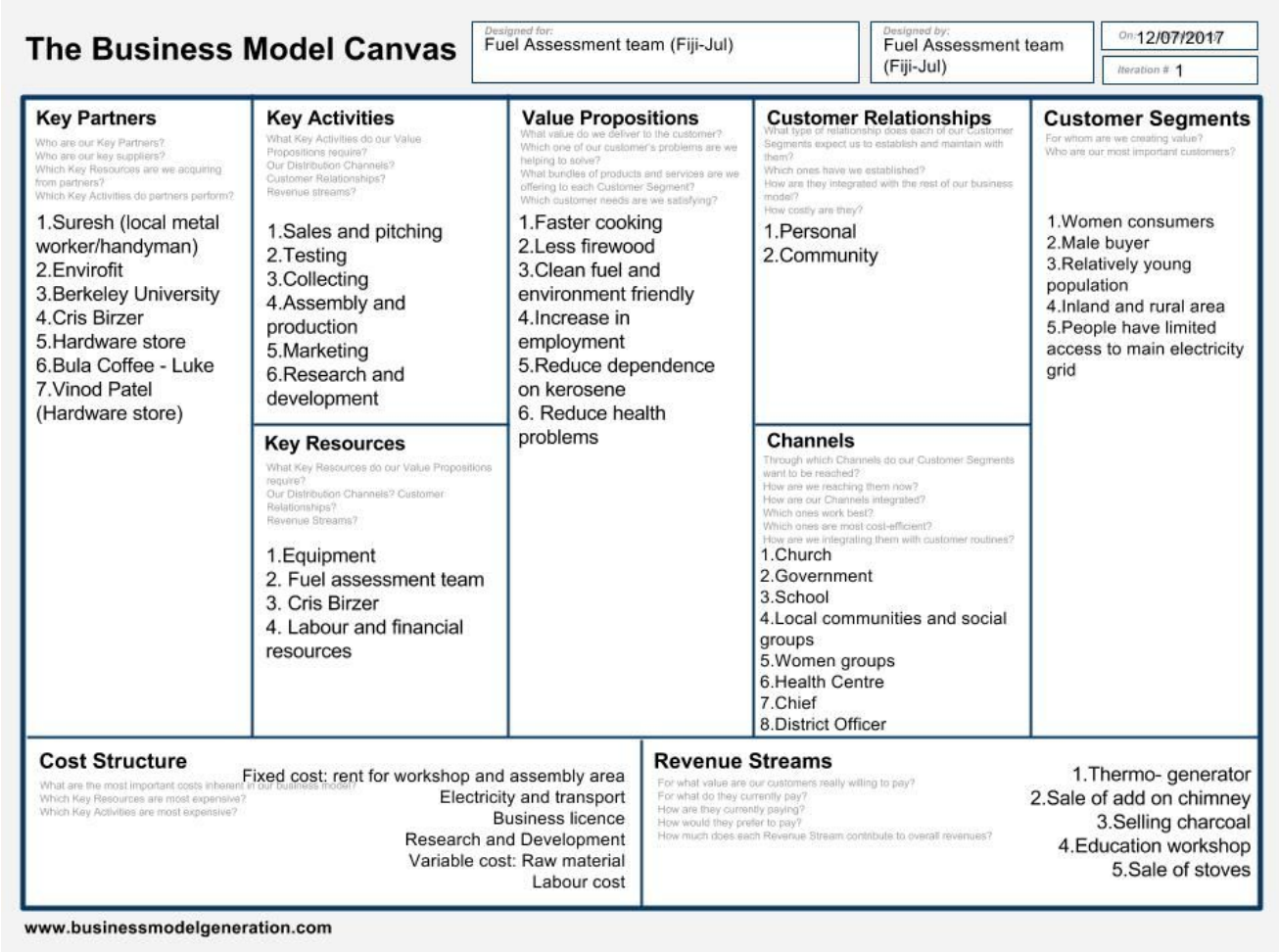
Major risks to the current model & Actions on these risks eventuating

Risk	Mitigation Strategy
Underdeveloped operational infrastructure May result in inability to sustain growth when company is scaling up, causing excessive strain on liquidity, damaged customer relationship and reputation and missed market opportunities	Establish systems for work procedures, communication channels, rules & policies, training & development, research & development, etc.
Inability to maintain consistent product quality when scaling up	Regular quality assurance tests, internals audits, testing of raw materials before assembly, employee training, seek constant customer feedback.
Strategic risks - Customers and competitors Changing customer preferences or competitors entering the market may impact sales and demand	Seek constant feedback from customers and continually refine the product. Utilise CRM software.
Compliance risks - Legal issues Potential issues relating to compliance to regulations, workplace health and safety and Fiji specific industry laws and standards	Ensuring that all relevant regulations and procedures are followed and taken into account.
Reputational Risks Negative publicity, lawsuits or product	Ensure all products are tested and safe for use before sales. Acting in respect to the company's brand and image.

failures may tarnish company reputation and Project Everest	
Financial Risks Issues with having access to sufficient funds for upfront costs such as various fixed and manufacturing related costs. Liquidity issues may place the company in unsustainable debt which needs to be monitored and managed	Ensuring budget and business expenses are monitored and sustainable in the long term.
Sourcing and supply chain disruptions Raw materials and labour will be sourced both internationally and locally, meaning that potential disruptions will have a bullwhip effect, leading to severe bottlenecks in the production process	Source materials from a variety of sources and manage supply chain effectively through various communication channels and potentially various SCM software

Appendix

BMC



The Business Model Canvas

Designed for: Fuel Assessment team (Fiji-Jul)

Designed by: Fuel Assessment team (Fiji-Jul)

On: 12/07/2017

Iteration #: 1

Key Partners

Who are our Key Partners?
Who are our key suppliers?
Which Key Resources are we acquiring from partners?
Which Key Activities do partners perform?

1.Suresh (local metal worker/handyman)
2.Envirofit
3.Berkeley University
4.Cris Birzer
5.Hardware store
6.Bula Coffee - Luke
7.Vinod Patel (Hardware store)

Key Activities

What Key Activities do our Value Propositions require?
Our Distribution Channels?
Customer Relationships?
Revenue streams?

1.Sales and pitching
2.Testing
3.Collecting
4.Assembly and production
5.Marketing
6.Research and development

Key Resources

What Key Resources do our Value Propositions require?
Our Distribution Channels? Customer Relationships?
Revenue Streams?

1.Equipment
2. Fuel assessment team
3. Cris Birzer
4. Labour and financial resources

Value Propositions

What value do we deliver to the customer?
Which one of our customer's problems are we helping to solve?
What bundles of products and services are we offering to each Customer Segment?
Which customer needs are we satisfying?

1.Faster cooking
2.Less firewood
3.Clean fuel and environment friendly
4.Increase in employment
5.Reduce dependence on kerosene
6. Reduce health problems

Customer Relationships

What type of relationship does each of our Customer Segments expect us to establish and maintain with them?
Which ones have we established?
How are they integrated with the rest of our business model?
How costly are they?

1.Personal
2.Community

Channels

Through which Channels do our Customer Segments want to be reached?
How are we reaching them now?
How are our Channels integrated?
Which ones work best?
Which ones are most cost-efficient?
How are we integrating them with customer routines?

1.Church
2.Government
3.School
4.Local communities and social groups
5.Women groups
6.Health Centre
7.Chief
8.District Officer

Customer Segments

For whom are we creating value?
Who are our most important customers?

1.Women consumers
2.Male buyer
3.Relatively young population
4.Inland and rural area
5.People have limited access to main electricity grid

Cost Structure

What are the most important costs inherent in our business model?
Which Key Resources are most expensive?
Which Key Activities are most expensive?

Fixed cost: rent for workshop and assembly area
Electricity and transport
Business licence
Research and Development
Variable cost: Raw material
Labour cost

Revenue Streams

For what value are our customers really willing to pay?
For what do they currently pay?
How are they currently paying?
How would they prefer to pay?
How much does each Revenue Stream contribute to overall revenues?

1.Thermo- generator
2.Sale of add on chimney
3.Selling charcoal
4.Education workshop
5.Sale of stoves

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