thenggai thanni
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Introduction

The Team

Our team is from Vellore Institute Technology in Tamil Nadu, India.

Utsav Agarwal from Delhi, a first year student of Bachelor of Technology, majoring in IT.

Siddharth Iyer from Mumbai, a first year B.Tech student, majoring in Biotechnology.

Joshua Nazareth from Goa, a first year B.Tech student, majoring in Biotechnology.

Sukrit Sharma from Surat, Gujarat, a first year B.Tech student, majoring in Biotechnology.

Saurabh Rathi from Balotra, Rajastan, a third year B.Tech student, majoring in Biotechnology.

Special thanks to all our mentors and coordinators:

**Karthikeyan Sivashanmugam**
Assistant Professor (Sr), HTS Labs, School of Bio Sciences & Technology
Faculty Coordinator -Centre for Social Entrepreneurship & Development
VIT University

**Abh Jain**
Program Coordinator for Acara Challenge 2011
VIT University

**Mohd. Faisal Ghaus**
Vice President
Infiniti Research,
Acara Team Mentor

**Dr. N.R. Md. Thajudeen**
Founder and President
Coconut Growers cum Agriculture Welfare Society
Gudiyattam Tk, Vellore District

**Mr. Samir Agarwal**
CEO
Imexco

**K. M. Gothandam**
Associate Professor
School of Bio Sciences and Technology
VIT University
Our business plan deals with benefitting coconut farmers in Vellore district, by buying coconuts from them at a competitive rate, processing and selling them in various forms, and using the profits to provide them with technical know-how to boost their efficiency and economic situation.

Coconuts

- India is the third largest producer of coconuts in the world, producing 9.4 million tons annually.
- Tamil Nadu is the second largest producing state, producing 3.16 billion nuts a year.
  - Coconuts have a wide range of industrial and domestic uses, especially in Tamil Nadu.

Domestic Uses of Coconut

- Coconuts are used throughout India for the tender coconut water, known as a good health drink.
- Coconut derived products are used in cooking, such as coconut milk and dried coconut powder.
- Oil from coconut is the most widely used cooking oil in the country.
- Coconut cakes/oil residue is used as cattle feed.

Industrial Uses

- The coir obtained from coconut husk is used to manufacture mattresses, bags.
- The shell of the coconut is used to produce charcoal, which can be used as a filter material, to produce energy, and also for medical purposes.
- Products from the copra are highly important, such as hair oil- used in the cosmetics industry, and coconut milk- used to produce consumer goods.
Business Model

Sale of Coconut water

Why coconut water?

- Widely acknowledged as a health drink.
- An effective thirst quencher and rehydrator especially useful in the hot climate of Tamil Nadu.
- Has a year round demand.
- Extraction of water allows shells to be used for other processes, as extraction of coconut water causes least damage to skin, less wastage, and more usage giving possibility for profit by selling other parts of the coconut.

Problem statement

- Presently in Vellore as well as most of India, tender coconut sellers purchase coconuts at a low price of Rs. 3 per unit from farmers and sell it in stalls for Rs. 15-20.
Even accounting for transport, they make a large profit. The tender coconut sellers have a monopoly on the market, and farmers do not receive adequate compensation.

The farmers continue to indulge in inefficient farming practices, such as mostly manual labour, and even harmful techniques such as toxic pesticides.

**Solutions**

Our business plan is to purchase coconuts from the farmers at a competitive price of Rs. 6 per coconut as opposed to the low price they normally receive. They have a guaranteed buyer. We pass on some of the profit to them through technical fairs and investment in efficient farming techniques.

Our marketing business will start out small, but using part of the profits to return to farmers in cooperation with the Coconut Agriculture welfare society of Vellore, and using the rest to further reinvest in the business, we will over time grow in scale, able to provide bigger returns to farmers.

**Product**

Initially, our marketable product will be pure 100% coconut water, marketed for consumption in tetra packs of 200ml, priced at Rs. 20 each.

Coconut water has several health benefits:

- It is more nutritious than whole milk.
- It is very low on calories.
- It’s a naturally isotonic to human blood. Therefore it can be used as replacements for isotonic electrolytic drinks like Gatorade (and it is cheaper).

**Initial Investments**

<table>
<thead>
<tr>
<th>S.No</th>
<th>Name</th>
<th>Number</th>
<th>Cost per (Rs.)</th>
<th>Total cost (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Land (½ acre in Vellore and Salem each)*</td>
<td>1 acre</td>
<td>1,000,000</td>
<td>1,000,000</td>
</tr>
<tr>
<td>2</td>
<td>Warehouse and shed</td>
<td>2</td>
<td>200,000</td>
<td>400,000</td>
</tr>
</tbody>
</table>
We will also require funds to cover initial buying of coconuts, processing etc. before we begin turning a profit. The operating cost for the first 2 months is Rs. 1,050,000. The total initial cost comes out to 3,330,000 INR.

* The cost of land is estimated by Coconut Agri Welfare society.

The cost of machines is given by Perfect Machine traders, Coimbatore.
Transportation

- We will rent trucks which will be used for transporting the coconuts from Vellore to Salem and the tetrapacked water from Salem to Vellore.
- The capacity of 1 truck is 5000 coconuts.
- Rented trucks will be used once a week to transport the stored shells from Salem to Coimbatore to sell to the charcoal industry company Nova Carbons Pvt. Ltd, Coimbatore.

- Salem, the location of our industry, is 225 km from Vellore.
- Coimbatore, where we sell the shells, is 90 km from Salem.
<table>
<thead>
<tr>
<th>Distance</th>
<th>Kgs to transport</th>
<th>Cost</th>
<th>Monthly cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vellore to Salem</td>
<td>10000 daily</td>
<td>10000 daily</td>
<td>260000</td>
</tr>
<tr>
<td>Salem to Vellore</td>
<td>2000 daily</td>
<td>2000 daily</td>
<td>52000</td>
</tr>
<tr>
<td>Salem to Bangalore</td>
<td>10000 (kg of shells) weekly</td>
<td>7000 weekly</td>
<td>30000</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>352000</td>
</tr>
</tbody>
</table>

*Cost quotations by Vetrivel Transport Company, Vellore

The shells are transported weekly to the Nova Carbons Pvt. Ltd. collection point in Coimbatore. They are used to produce activated charcoal.

### Employment and productivity

Employed – 30 (across 3 shifts)

<table>
<thead>
<tr>
<th>Number of workers</th>
<th>De-husking</th>
<th>Juicing</th>
<th>Helpers / extra</th>
<th>Daily wage per worker (Rs.)</th>
<th>Cost per shift in a day (Rs.)</th>
<th>Monthly wages (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6AM to 2PM</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>120*</td>
<td>1200</td>
<td>31200</td>
</tr>
<tr>
<td>2PM to 10PM</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>120*</td>
<td>1200</td>
<td>31200</td>
</tr>
<tr>
<td>10PM to 6AM</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>140*</td>
<td>1400</td>
<td>36400</td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>12</td>
<td>6</td>
<td></td>
<td>3500</td>
<td>98800</td>
</tr>
</tbody>
</table>

1 couple of machines (1 dehusker, 1 juicer, 4 workers) process 360 an hour. 22 hours a day and 2 couples process 15840 coconuts.

* The minimum wage is Rs. 120 per shift for labourers as provided for in the Mahatma Gandhi National Rural Employment act resolution of 2009. Night shift workers are provided with a higher incentive wage of Rs. 140 per shift.
Storage

- The unopened coconut water may lose the natural freshness within 36 hours unless stored appropriately (dehusking, soaking in solution of 0.5% citric acid and 0.5% potassium metabisulphate, refrigeration) but can be stored with no spoilage for 3 months.

- We plan to pack the coconuts in tetra-pack on the same day of harvesting. The tetra pak has a specialized design which allows the product to survive without preservatives without affecting the taste. These can be stored at room temperature for 6 months in our warehouse or shops.

- Tetra pak has a unit in Salem where Aavin Milk products are packed. The unit will be able to service us at the cost of Rs. 5 per pack of 200ml of coconut water if we deliver the water ourselves.

- The shell and husk, after removal of the water and kernel, can be stored indefinitely in our Salem or Vellore warehouse.
Marketing

- Vellore is a platform for marketing coconut water.
- Vellore Institute of Technology is a large market with high demand for cooling drinks, marketing coconut water through advertising campaigns will be easy and inexpensive.
- Stalls will also be opened at Vellore fort and Golden temple, these are important tourist locations and so there will be high exposure to consumers.
- The stalls will employ 1 worker each, and have portable coolers so as to serve the water chilled.
- As the image gains favour we will sell to retailers across the state.

Initial Business-

1st Month finances

- At the beginning before we are established, in the first month we will purchase only a few thousand coconuts, i.e. about 45000.
- The coconut water will be packaged in tetra packs at Salem and sold daily around Salem and also in Vellore Institute of Technology, Golden Temple and Vellore fort. The tetra packs allow the water to be sold over 6 months; however we expect the initial 15,000 packs of 200ml priced at Rs. 20 each to be sold within a month. The minimal profit will be used in maintaining the business and dealing with overheads and unexpected expenses.
- Advertising campaigns will be done within VIT. We will sell packages to shops in bulk to probe the selling capacity outside of VIT.
- By six months the sale of all 7500 packs daily is projected. From here on we will make a profit of 364,200 INR monthly.

<table>
<thead>
<tr>
<th>Number of Coconuts</th>
<th>1st month</th>
<th>2nd Month</th>
<th>3rd Month</th>
<th>4th Month</th>
<th>5th Month</th>
<th>6th month</th>
</tr>
</thead>
<tbody>
<tr>
<td>Coconuts</td>
<td>45,000</td>
<td>60,000</td>
<td>105,000</td>
<td>210,000</td>
<td>315,000</td>
<td>390,000</td>
</tr>
<tr>
<td>Cost for coconuts (Rs.)</td>
<td>270,000</td>
<td>360,000</td>
<td>630,000</td>
<td>1,260,000</td>
<td>1,890,000</td>
<td>2,340,000</td>
</tr>
<tr>
<td>Transport Cost (back and forth, Rs.)</td>
<td>36,000</td>
<td>48,000</td>
<td>84,000</td>
<td>168,000</td>
<td>252,000</td>
<td>352,000</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
<td>--------</td>
</tr>
<tr>
<td>Number of packs produced</td>
<td>22,500</td>
<td>30,000</td>
<td>52,500</td>
<td>1,05,000</td>
<td>157,500</td>
<td>195,000</td>
</tr>
<tr>
<td>Cost of packing (Rs.)</td>
<td>112500</td>
<td>150,000</td>
<td>262500</td>
<td>525,000</td>
<td>787,500</td>
<td>975,000</td>
</tr>
<tr>
<td>Security cost (Rs.)</td>
<td>7000*</td>
<td>7000*</td>
<td>7000*</td>
<td>14000*</td>
<td>14000*</td>
<td>14000*</td>
</tr>
<tr>
<td>Sale Income (Rs.)</td>
<td>450,000</td>
<td>600,000</td>
<td>1,050,000</td>
<td>2,100,000</td>
<td>3,150,000</td>
<td>3,900,000</td>
</tr>
<tr>
<td>Profit (Rs.)</td>
<td>13,100</td>
<td>19,800</td>
<td>39,900</td>
<td>72,800</td>
<td>126,700</td>
<td>119,000</td>
</tr>
</tbody>
</table>

*Security cost by Premier Security and detective Bureau, Sathuvacheri, Vellore

After 6 months the business plan will proceed as below.

### Cost
(26 working days monthly, 24 hours per day)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name</th>
<th>Cost per unit</th>
<th>Number daily</th>
<th>Cost daily (Rs.)</th>
<th>Cost monthly (Rs.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Coconuts</td>
<td>Rs 6</td>
<td>15,000</td>
<td>90,000</td>
<td>2,340,000</td>
</tr>
<tr>
<td>2</td>
<td>Tetrapack</td>
<td>Rs 5</td>
<td>7,500</td>
<td>37,500</td>
<td>975000</td>
</tr>
<tr>
<td>3</td>
<td>Worker’s daily wage</td>
<td>Rs 130 (average)</td>
<td>30</td>
<td>3,900</td>
<td>101,400</td>
</tr>
<tr>
<td>4</td>
<td>Energy cost</td>
<td>Rs 1.5</td>
<td>600</td>
<td>900</td>
<td>23,400</td>
</tr>
<tr>
<td>5</td>
<td>Transport</td>
<td>12000+1667</td>
<td>13500</td>
<td></td>
<td>352,000</td>
</tr>
<tr>
<td>6</td>
<td>Stall+ cost of Marketing</td>
<td>2000</td>
<td>50,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Total</td>
<td></td>
<td>132,300</td>
<td></td>
<td>3,891,800</td>
</tr>
</tbody>
</table>
## Income

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Name</th>
<th>Income per unit</th>
<th>Number daily</th>
<th>Income daily</th>
<th>Income monthly</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Tetrapack of water</td>
<td>20</td>
<td>7500</td>
<td>150000</td>
<td>3900000</td>
</tr>
<tr>
<td>2</td>
<td>Shell</td>
<td>17000</td>
<td>1</td>
<td>17000</td>
<td>306000</td>
</tr>
<tr>
<td>3</td>
<td>Total</td>
<td></td>
<td></td>
<td></td>
<td>4206000</td>
</tr>
</tbody>
</table>

## Profit and use

<table>
<thead>
<tr>
<th>Cash outflow monthly (Rs.)</th>
<th>Cash inflow monthly (Rs.)</th>
<th>Difference (profit)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3,841,800</td>
<td>4,206,000</td>
<td>364,200</td>
</tr>
</tbody>
</table>

### Use of profits

- Repay investors- 25%
- Handle unexpected expenditure- 10%
- Educating farmers- 15%
- Balance- 50%
<table>
<thead>
<tr>
<th>Monthly</th>
<th>Repay Investors</th>
<th>Educating /returns to farmers</th>
<th>Handle Unexpected Expense</th>
<th>Balance</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage from profit</td>
<td>25%</td>
<td>15%</td>
<td>10%</td>
<td>50%</td>
<td>100%</td>
</tr>
<tr>
<td>Value (Rs.)</td>
<td>91050</td>
<td>54630</td>
<td>364,20</td>
<td>182,100</td>
<td>364,200</td>
</tr>
</tbody>
</table>

After the first 6 months, Rs. 91050 of the profit will be used monthly to repay the investor. Thus, an investment of Rs. 3,000,000 can be repaid in less than 39 months from the formation of the company.

Monthly we will save 182,100. The first use of this will be after 6 months to set up a copra drying unit by which we can produce daily, from 25,000 coconuts, 4 MT of copra, which can be converted into coconut oil to return to farmers at subsidized rates.

5 years down the line

Our first major expansion will come after 6 months when our profit will reach around Rs. 1,092,600. This is sufficient to invest in a copra drying plant which produces daily 7 tonnes of copra from 25,000 mature coconuts. Copra is usable to make several coconut products such as coconut oil, coconut milk, etc. Besides this, it is very profitable, priced around Rs. 65,000 per metric tonne.

5 years down the line we plan to be a national brand name processing upwards of 200,000 coconuts a day, half tender and half mature. We will produce 10,000 l of water daily, 15 MT of Copra, 10 MT of shells.

Based on the trend in increasing market price for Copra (which has been almost tripled in worldwide market price since August 2008), the average monthly profit is expected to be upwards of 1,000,000.

We will use approximately Rs. 300,000 monthly for national farmer welfare schemes, if any are needed after 5 years of our providing part of our profit towards them.
Farmers

At the heart of our plan is the farmer. Without the farmer we would be unable to acquire coconuts, and hence the farmer will receive the benefits from our business solution.

The Coconut Agriculture Welfare society is our link to the farmers. We are provided with coconuts by them, which are brought directly from the farmers.

One issue which needs attention is the farmer’s use of a pesticide called Monocrotophos. This is toxic to humans, yet is not banned and still widely used to control pests such as Red Palm Weevil, which causes holes in the tree trunk, leaf damage and axial shoot wilting.

A safer alternative is Neem seed/neem oil, which is safe and controls the pest just as well unless there is a major epidemic. We are spreading awareness about the increased use of Neem while researching further ways to increase the efficiency of farming techniques.

Collaboration

- We are collaborating with the Coconut and Agriculture Welfare society, Gudiyattam, Vellore.
- It is run by its founder, Dr. Thajudeen (D. Litt), +919003333785.
- The 15,000+ coconuts we will receive daily are purchased, on a contract basis, from the Society which collects them from farmers and delivers them to our collection point in Gudiyattam for Rs. 6 per unit.
- The Society brings together more than 800 farmers in Vellore district and provides them with technical help and government packages.
- With its help, we ensure that farmers receive adequate returns for the coconuts we purchase. 5% of our payment and 15% of our profit goes to the Coconut Agriculture welfare society to improve the lot of coconut farmers in Vellore district.