

# PROJECT REPORT

## Of

# Mosquito Liquid Repellent

## PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **Mosquito Liquid Repellent**.

The objective of the pre-feasibility report is primarily to facilitate potential entrepreneurs in project identification for investment and in order to serve his objective; the document covers various aspects of the project concept development, start-up, marketing, finance and management.

[We can modify the project capacity and project cost as per your requirement. We can also prepare project report on any subject as per your requirement.]



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**PROJECT AT A GLANCE**

- 1 Name of the Entrepreneur : xxxxxxxxxx
- 2 Constitution (legal Status) : xxxxxxxxxx
- 3 Father / Spouse Name : xxxxxxxxxxxxxx
- 4 Unit Address : xxxxxxxxxxxxxxxxxxxxxxxxxx
- District : xxxxxxxx  
Pin: xxxxxxxx State: xxxxxxxxxx  
Mobile xxxxxxxx
- 5 Product and By Product : **Mosquito Liquid Repellent**
- 6 Name of the project / business activity proposed : **Mosquito Liquid Repellent Manufacturing Unit**
- 7 Cost of Project : Rs.12.42 Lakhs
- 8 Means of Finance  
Term Loan Rs.6.48 Lakhs  
Own Capital Rs.1.24 Lakhs  
Working Capital Rs.4.7 Lakhs
- 9 Debt Service Coverage Ratio : 2.45
- 10 Pay Back Period : 5 Years
- 11 Project Implementation Period : 5-6 Months
- 12 Break Even Point : 48%
- 13 Employment : 12 Persons
- 14 Power Requirement : 25 HP
- 15 Major Raw materials : Citronella oil, Eucalyptus Oil, Comphor oil, Lavender Oil, Lemongrass oil
- 16 Estimated Annual Sales Turnover (Max Utilized Capacity) : 113.00 Lakhs
- 17 Detailed Cost of Project & Means of Finance

**COST OF PROJECT**

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Building /Shed 1500 Sq ft	Own/Rented
Plant & Machinery	6.20
Furniture & Fixtures	1.00
Working Capital	5.22
<b>Total</b>	<b>12.42</b>

**MEANS OF FINANCE**

Particulars	Amount
Own Contribution	1.24
Term Loan	6.48
Working Capital	4.70
<b>Total</b>	<b>12.42</b>

## MOSQUITO LIQUID REPELLENT



### Introduction

Mosquito repellents are used to repel mosquitoes. Liquid repellents are now widely used to repel mosquitoes. The Liquidator mosquito repellent has a graphite rod in the middle and the bottle is filled with the repellent. There is a heater coil in the liquidator. The repellent chemical when comes in to contact with the heated rod turns into fume which disables the sensors of the mosquitoes. The fumes produced by the repellent blocks the chemo sensors of mosquitoes so that they cannot identify human beings.

A mosquito repellent is a substance designed to keep away mosquitoes, thereby preventing them from biting humans and feeding on human blood. It typically contains an active ingredient that repels mosquitoes and secondary ingredients that, among other things, dilute the active ingredient to a desired concentration and help in releasing the active ingredient when needed. Mosquito repellents are available as creams, lotions, oils, and sticks, which are applied directly on the skin. They also come as aerosol and pump-spray products, which are used on the skin and to treat clothing. Mosquito repellents are different from insecticides in that the latter are used to kill insects.

### Repelling action

A mosquito repellent consists of active and inert, or inactive, ingredients. The active ingredient is mainly responsible for the product's usefulness,

that is, it effectively discourages mosquito attacks on the treated human skin and/or clothing. The inert ingredients are not chemically active. They are added to the product to perform different functions. For example, fragrances make the product cosmetically acceptable.

### **Characteristics of Mosquito Repellent**

- Active against a wide variety of biting mosquitos.
- Prolonged activity (remain effective for at least 8 hours between applications).
- Non-irritating to the skin and mucous membranes.
- No systemic toxicity
- Resistant to abrasion, washing and sweating.

### **Factors Impacting world mosquito repellent market**

- Marketing and positioning strategies
- Rise in the demand of Herbal based products
- Rise in global temperature
- Increasing awareness
- Health vulnerabilities
- Rising Mosquito borne diseases.

### **Manufacturing process of mosquito repellent**

Since most mosquito repellents are marketed in the form of liquid, the following steps describe the production of repellents contained in liquid form. The manufacturing process consists of two steps—the production of a large batch of the repellent formula and its packaging into bottles. However, the filling process is not as complex.

- Cold blending
- Add all the chemicals in proportionate ratio.
- Mixing of the all ingredients

- Settling of the mixed material for minimum 6 Hours
- Testing of the product.
- Filling
- Packaging

### **Mosquito repellent Market Analysis**

With over many species of mosquitoes believed to be responsible for spreading diseases such as malaria, dengue fever and other mosquito related afflictions, India has a large and growing market for mosquito repellents. Many methods are used in households for dealing with the mosquito menace. In spite of the pervasiveness of the mosquito problem, the use of repellents in India is fairly low. The urban share of mosquito repellents is 70%.

The mosquito repellent market is one of the rapidly growing vibrant markets in FMCG sector India. Due to increase awareness regarding vector borne disease, the demand for mosquito repellent products like coils, strips, liquid vaporizers, etc. are rising than before, thereby providing high momentum to the Indian Mosquito repellent market. Mosquito Repellent has become a gripping market for new product developments and innovation where producers are trying to convince consumers through aggressive campaign and advertising that they should adopt mosquito repellent products to improve home hygiene and to be protected from mosquito borne disease.

### **Description of Machinery & Equipment**

Following machineries are required for manufacturing of Liquid repellent:

- Mixer tank
- Blending machine
- Liquid Transfer pump
- Filing machine
- Packaging machine

- Label machine

With the help of this machine the work of formulation (mixing & blending), filling & packaging completes in a very short span.

### **Land & Building required:**

Land required 1000 square feet

Approximate rent for the same is Rs. 20,000 per month.

### **Machinery & Equipment's required:**

<b>Name</b>	<b>Cost (Rs.)</b>
Mixer tank (100 Litre batch production)	1,00,000
Filling machine	1,25,000
Liquid transfer pump with motor	55,000
Blending machine	85,000
Packaging & labelling machine	1,60,000
<b>Sub total</b>	<b>5,25,000</b>
GST @ 18%	94,500
<b>Total Machine cost</b>	<b>6,19,500</b>

- Cost of the machine is other than transportation cost.

### **Raw Material Requirement**

Most common natural repellents used are oils extracted from plants. These natural products will effectively repel mosquitoes, but they require more frequent reapplication (at least every 2 hours). Citronella Oil, Lemon, Eucalyptus Oil, Cinnamon Oil, Castor Oil, Rosemary Oil, Lemongrass Oil,

Cedar Oil, Peppermint Oil, Clove Oil, Garlic Oil etc are found to be effective against mosquitoes.

Following raw material is required as the major raw material for the Liquid repellent manufacturing process.

<b>S.N.</b>	<b>Description</b>	<b>Amount</b>
<b>1</b>	Citronella oil	Rs.1400 Per KG
<b>2</b>	Eucalyptus Oil	Rs.1200 Per KG
<b>3</b>	Comphor oil	Rs.800 Per KG
<b>4</b>	Lavender Oil	Rs.1200 Per KG
<b>5</b>	Lemongrass oil	Rs.1200 Per KG
<b>6</b>	IPA (Isopropyl Alcohol)	Rs.100 Per litre
<b>7</b>	Bakayan oil	Rs.300 Per KG

- ❖ Average raw material cost per batch of 100 litre is approx. Rs.24,000
- ❖ Cost per litre is Rs.240

**PROJECTED BALANCE SHEET**

<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b><u>SOURCES OF FUND</u></b>					
<b><u>Capital Account</u></b>					
Opening Balance	-	1.73	2.29	3.76	5.48
Add: Additions	1.24	-	-	-	-
Add: Net Profit	0.99	1.36	2.72	3.72	6.17
Less: Drawings	0.50	0.80	1.25	2.00	4.00
<b>Closing Balance</b>	<b>1.73</b>	<b>2.29</b>	<b>3.76</b>	<b>5.48</b>	<b>7.65</b>
CC Limit	4.70	4.70	4.70	4.70	4.70
Term Loan	5.76	4.32	2.88	1.44	-
Sundry Creditors	0.63	0.73	0.83	0.95	1.07
<b>TOTAL :</b>	<b>12.82</b>	<b>12.04</b>	<b>12.18</b>	<b>12.57</b>	<b>13.42</b>
<b><u>APPLICATION OF FUND</u></b>					
<b>Fixed Assets ( Gross)</b>	7.20	7.20	7.20	7.20	7.20
Gross Dep.	1.03	1.91	2.66	3.31	3.86
Net Fixed Assets	6.17	5.29	4.54	3.89	3.34
<b><u>Current Assets</u></b>					
Sundry Debtors	1.50	1.80	2.05	2.31	2.64
Stock in Hand	4.36	4.88	5.54	6.27	7.07
Cash and Bank	0.79	0.07	0.05	0.10	0.38
<b>TOTAL :</b>	<b>12.82</b>	<b>12.04</b>	<b>12.18</b>	<b>12.57</b>	<b>13.42</b>
	-	-	-	-	-



**PROJECTED PROFITABILITY STATEMENT**

<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b><u>A) SALES</u></b>					
Gross Sale	64.13	77.20	87.83	99.07	113.00
<b>Total (A)</b>	<b>64.13</b>	<b>77.20</b>	<b>87.83</b>	<b>99.07</b>	<b>113.00</b>
<b><u>B) COST OF SALES</u></b>					
Raw Mateiral Consumed	37.80	43.73	50.04	56.94	64.47
Electricity Expenses	2.13	2.34	2.55	2.77	2.98
Repair & Maintenance	0.32	0.39	0.44	0.50	0.56
Labour & Wages	8.12	8.93	9.82	10.81	11.89
Depreciation	1.03	0.88	0.75	0.64	0.55
<b>Cost of Production</b>	<b>49.40</b>	<b>56.26</b>	<b>63.61</b>	<b>71.65</b>	<b>80.45</b>
<b>Add: Opening Stock /WIP</b>	-	2.47	2.69	3.04	3.42
<b>Less: Closing Stock /WIP</b>	2.47	2.69	3.04	3.42	3.84
Cost of Sales (B)	46.93	56.04	63.26	71.27	80.03
<b>C) GROSS PROFIT (A-B)</b>	17.20	21.16	24.58	27.80	32.97
	<b>26.82%</b>	<b>27.41%</b>	<b>27.98%</b>	<b>28.06%</b>	<b>29.17%</b>
D) Bank Interest (Term Loan )	0.70	0.57	0.42	0.26	0.10
ii) Interest On Working Capital	0.52	0.52	0.52	0.52	0.52
E) Salary to Staff	8.58	9.44	10.38	11.42	12.56
F) Selling & Adm Expenses Exp.	6.41	9.26	10.54	11.89	13.56
<b>TOTAL (D+E)</b>	<b>16.21</b>	<b>19.79</b>	<b>21.85</b>	<b>24.08</b>	<b>26.74</b>
H) NET PROFIT	0.99	1.36	2.72	3.72	6.23
	<b>1.5%</b>	<b>1.8%</b>	<b>3.1%</b>	<b>3.8%</b>	<b>5.5%</b>
I) Taxation	-	-	-	-	0.06
J) PROFIT (After Tax)	0.99	1.36	2.72	3.72	6.17

**PROJECTED CASH FLOW STATEMENT**

<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b><u>SOURCES OF FUND</u></b>					
Own Contribution	1.24	-			
Net Profit	0.99	1.36	2.72	3.72	6.23
Depreciation & Exp. W/off	1.03	0.88	0.75	0.64	0.55
Increase In Cash Credit	4.70				
Increase In Term Loan	6.48	-	-	-	-
Increase in Creditors	0.63	0.10	0.11	0.12	0.13
<b>TOTAL :</b>	<b>15.07</b>	<b>2.34</b>	<b>3.58</b>	<b>4.48</b>	<b>6.90</b>
<b><u>APPLICATION OF FUND</u></b>					
Increase in Fixed Assets	7.20	-	-	-	-
Increase in Stock	4.36	0.52	0.67	0.73	0.80
Increase in Debtors	1.50	0.31	0.25	0.26	0.32
Repayment of Term Loan	0.72	1.44	1.44	1.44	1.44
Taxation	-	-	-	-	0.06
Drawings	0.50	0.80	1.25	2.00	4.00
<b>TOTAL :</b>	<b>14.28</b>	<b>3.06</b>	<b>3.60</b>	<b>4.43</b>	<b>6.62</b>
Opening Cash & Bank Balance	-	0.79	0.07	0.05	0.10
Add : Surplus	0.79	- 0.72	- 0.02	0.05	0.28
Closing Cash & Bank Balance	<b>0.79</b>	<b>0.07</b>	<b>0.05</b>	<b>0.10</b>	<b>0.38</b>

**COMPUTATION OF MOSQUITO LIQUID REPELLENT MANUFACTURING UNIT**

Items to be Manufactured Mosquito Liquid Repellent

Manufacturing Capacity per Day		100.00	ltr
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		30,000	ltr
Total Production per Annum		300,000.00	Bottle of 100ml
Year		Capacity	Liquid Repellent
		Utilisation	
I		50%	150,000
II		55%	165,000
III		60%	180,000
IV		65%	195,000
V		70%	210,000

**COMPUTATION OF RAW MATERIAL**

Item Name	Quantity of Raw Material	Unit	Unit Rate of	Total CostPer Annum (100%)
Gram Chana	31,500.00	ltr	240.00	7,560,000.00
<b>Total</b>	<b>31,500.00</b>			<b>7,560,000.00</b>

Total Raw material in Rs lacs at 100% Capacity 75.60  
 Cost per 100 ml Bottle (In Rs) **25.20**

Raw Material Consumed	Capacity Utilisation	Rate	Amount (Rs.)
I	50%	25.20	37.80
II	55%	26.50	43.73
III	60%	27.80	50.04
IV	65%	29.20	56.94
V	70%	30.70	64.47

**COMPUTATION OF SALE**

Particulars	I	II	III	IV	V
Op Stock	-	7,500.00	8,250.00	9,000.00	9,750.00
Production	150,000.00	165,000.00	180,000.00	195,000.00	210,000.00
	150,000.00	172,500.00	188,250.00	204,000.00	219,750.00
Less : Closing Stock(15 Days)	7,500.00	8,250.00	9,000.00	9,750.00	10,500.00
Net Sale	142,500.00	164,250.00	179,250.00	194,250.00	209,250.00
Sale Price per 100 ml Bottle	45.00	47.00	49.00	51.00	54.00
<b>Sale (in Lacs)</b>	<b>64.13</b>	<b>77.20</b>	<b>87.83</b>	<b>99.07</b>	<b>113.00</b>

**COMPUTATION OF CLOSING STOCK & WORKING CAPITAL**

<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>Finished Goods</b>					
(15 Days requirement)	2.47	2.69	3.04	3.42	3.84
<b>Raw Material</b>					
(15 Days requirement)	1.89	2.19	2.50	2.85	3.22
<b>Closing Stock</b>	<b>4.36</b>	<b>4.88</b>	<b>5.54</b>	<b>6.27</b>	<b>7.07</b>

**COMPUTATION OF WORKING CAPITAL REQUIREMENT**

<b>Particulars</b>	<b>Amount</b>	<b>Margin(10%)</b>	<b>Net Amount</b>
Stock in Hand	4.36		
Less:			
Sundry Creditors	0.63		
<b>Paid Stock</b>	<b>3.73</b>	<b>0.37</b>	<b>3.36</b>
Sundry Debtors	1.50	0.15	1.35
<b>Working Capital Requirement</b>			<b>4.70</b>
<b>Margin</b>			0.52
<b>MPBF</b>			<b>4.70</b>
<b>Working Capital Demand</b>			<b>4.70</b>

**BREAK UP OF LABOUR**

Particulars	Wages	No of	Total
	Per Month	Employees	Salary
Plant Operator	15,000.00	1	15,000.00
Unskilled Worker	8,500.00	4	34,000.00
Helper	5,000.00	1	5,000.00
Security Guard	7,500.00	1	7,500.00
			61,500.00
Add: 10% Fringe Benefit			6,150.00
Total Labour Cost Per Month			67,650.00
Total Labour Cost for the year ( In Rs. Lakhs)		7	8.12

**BREAK UP OF SALARY**

Particulars	Salary	No of	Total
	Per Month	Employees	Salary
Accountant cum store keeper	15,000.00	1	15,000.00
Administrative Staffs	12,500.00	4	50,000.00
Total Salary Per Month			65,000.00
Add: 10% Fringe Benefit			6,500.00
Total Salary for the month			71,500.00

Total Salary for the year ( In Rs. Lakhs)		5	8.58
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**COMPUTATION OF DEPRECIATION**

Description	Land	Building/shed	Plant & Machinery	Furniture	TOTAL
Rate of Depreciation			<b>15.00%</b>	<b>10.00%</b>	
<b>Opening Balance</b>	Own/Rented		-	-	-
Addition	-		6.20	1.00	7.20
	-		6.20	1.00	7.20
TOTAL		-	6.20	1.00	7.20
Less : Depreciation	-	-	0.93	0.10	1.03
WDV at end of 1st year	-	-	5.27	0.90	6.17
Additions During The Year	-	-	-	-	-
	-	-	5.27	0.90	6.17
Less : Depreciation	-	-	0.79	0.09	0.88
WDV at end of 2nd Year	-	-	4.48	0.81	5.29
Additions During The Year	-	-	-	-	-
	-	-	4.48	0.81	5.29
Less : Depreciation	-	-	0.67	0.08	0.75
WDV at end of 3rd year	-	-	3.81	0.73	4.54
Additions During The Year	-	-	-	-	-
	-	-	3.81	0.73	4.54
Less : Depreciation	-	-	0.57	0.07	0.64
WDV at end of 4th year	-	-	3.24	0.66	3.89
Additions During The Year	-	-	-	-	-
	-	-	3.24	0.66	3.89
Less : Depreciation	-	-	0.49	0.07	0.55
WDV at end of 5th year	-	-	2.75	0.59	3.34

**REPAYMENT SCHEDULE OF TERM LOAN**

11.0%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	CI Balance
<b>I</b>	Opening Balance						
	Ist Quarter	-	6.48	6.48	0.18	-	6.48
	IInd Quarter	6.48	-	6.48	0.18	-	6.48
	IIIrd Quarter	6.48	-	6.48	0.18	0.36	6.12
	Ivth Quarter	6.12	-	6.12	0.17	0.36	5.76
					0.70	0.72	
<b>II</b>	Opening Balance						
	Ist Quarter	5.76	-	5.76	0.16	0.36	5.40
	IInd Quarter	5.40	-	5.40	0.15	0.36	5.04
	IIIrd Quarter	5.04	-	5.04	0.14	0.36	4.68
	Ivth Quarter	4.68	-	4.68	0.13	0.36	4.32
					0.57	1.44	
<b>III</b>	Opening Balance						
	Ist Quarter	4.32	-	4.32	0.12	0.36	3.96
	IInd Quarter	3.96	-	3.96	0.11	0.36	3.60
	IIIrd Quarter	3.60	-	3.60	0.10	0.36	3.24
	Ivth Quarter	3.24	-	3.24	0.09	0.36	2.88
					0.42	1.44	
<b>IV</b>	Opening Balance						
	Ist Quarter	2.88	-	2.88	0.08	0.36	2.52
	IInd Quarter	2.52	-	2.52	0.07	0.36	2.16
	IIIrd Quarter	2.16	-	2.16	0.06	0.36	1.80
	Ivth Quarter	1.80	-	1.80	0.05	0.36	1.44
					0.26	1.44	
<b>V</b>	Opening Balance						
	Ist Quarter	1.44	-	1.44	0.04	0.36	1.08
	IInd Quarter	1.08	-	1.08	0.03	0.36	0.72
	IIIrd Quarter	0.72	-	0.72	0.02	0.36	0.36
	Ivth Quarter	0.36	-	0.36	0.01	0.36	0.00
					0.10	1.44	

Door to Door Period      60 Months  
Moratorium Period        6 Months  
Repayment Period        54 Months



**CALCULATION OF D.S.C.R**

<b>PARTICULARS</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>
<b>CASH ACCRUALS</b>	2.02	2.25	3.47	4.36	6.72
Interest on Term Loan	0.70	0.57	0.42	0.26	0.10
Total	2.72	2.82	3.89	4.62	6.82
<b>REPAYMENT</b>					
Repayment of Term Loan	0.72	1.44	1.44	1.44	1.44
Interest on Term Loan	0.70	0.57	0.42	0.26	0.10
Total	1.42	2.01	1.86	1.70	1.54
<b>DEBT SERVICE COVERAGE RATIO</b>	<b>1.91</b>	<b>1.40</b>	<b>2.10</b>	<b>2.72</b>	<b>4.43</b>
<b>AVERAGE D.S.C.R.</b>			<b>2.45</b>		

**COMPUTATION OF ELECTRICITY****(A) POWER CONNECTION**

Total Working Hour per day	Hours	8	
Electric Load Required	HP	25	
Load Factor		0.7460	
Electricity Charges	per unit	7.50	
Total Working Days		300	
<b>Electricity Charges</b>			3.36

Add : Minimim Charges (@ 10%)

**(B) DG set**

No. of Working Days		300	days
No of Working Hours		0.5	Hour per day
Total no of Hour		150	
Diesel Consumption per Hour		8	
Total Consumption of Diesel		1,200	
Cost of Diesel		65.00	Rs. /Ltr
Total cost of Diesel		0.78	
Add : Lube Cost @15%		0.12	
Total		<b>0.90</b>	

Total cost of Power &amp; Fuel at 100% 4.25

Year	Capacity	Amount (in Lacs)
I	50%	2.13
II	55%	2.34
III	60%	2.55
IV	65%	2.77
V	70%	2.98

## **DISCLAIMER**

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