

# UP MSME 1-Connect

## PROJECT REPORT

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PROJECT:

PET Bottles Unit

# PROJECT REPORT

Of

# PET BOTTLES

## PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **PET Bottles**.

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.]

**PROJECT AT A GLANCE**

- 1 Name of the Entrepreneur : xxxxxxxxxx
- 2 Constitution (legal Status) : xxxxxxxxxx
- 3 Father / Spouse Name : xxxxxxxxxxxxxx
- 4 Unit Address : xxxxxxxxxxxxxxxxxxxxxxxx
- District : xxxxxxxx  
Pin: xxxxxxxx State: xxxxxxxxxx  
Mobile xxxxxxxx
- 5 Product and By Product : **PET Bottle**
- 6 Name of the project / business activity proposed : **PET Bottle Manufacturing Unit**
- 7 Cost of Project : Rs.46.12 Lakhs
- 8 Means of Finance  
Term Loan Rs.35.01 Lakhs  
Own Capital Rs.4.61 Lakhs  
Working Capital Rs.6.5 Lakhs
- 9 Debt Service Coverage Ratio : 2.38
- 10 Pay Back Period : 5 Years
- 11 Project Implementation Period : 5-6 Months
- 12 Break Even Point : 30%
- 13 Employment : 15 Persons
- 14 Power Requirement : 20 HP
- 15 Major Raw materials : PET Resins, PET Preforms etc
- Estimated Annual Sales Turnover (Max Utilized Capacity) : 142.80 Lakhs
- 17 Detailed Cost of Project & Means of Finance

**COST OF PROJECT**

(Rs. In Lakhs)

Particulars	Amount
Land	Own/Rented
Building /Shed 2000 Sq ft	Own/Rented
Plant & Machinery	37.30
Furniture & Fixtures	1.60
Working Capital	7.22
<b>Total</b>	<b>46.12</b>

**MEANS OF FINANCE**

Particulars	Amount
Own Contribution	4.61
Term Loan	35.01
Working Capital	6.50
<b>Total</b>	<b>46.12</b>

# **PRE-FEASIBILITY REPORT**

## **Packaging Industry**

### **„The PET Bottles Manufacturing unit“**



## **1 EXECUTIVE SUMMARY**

The PET Bottles Manufacturing unit is a project of Plastic Sector, in which, the most convenience-size bottles are made from Polyethylene Terephthalate. PET has become the material of choice for bottled beverages because it is lightweight and shatter resistant, and PET has been extensively tested for safety. PET resin has superior properties i.e. attractive, pure, safe, good barrier, no leakage, design flexibility, recyclable, etc. Bottles made with PET are widely used for everything from water and fruit juice to soft drinks etc.

Every day, lacs of consumers rely on the safety and ease of plastic bottles to help to preserve the quality and freshness of what we drink and serve our families. Plastic make possible an array of opportunities for transporting, storing and serving our favorite beverages, and today's convenience-size bottles are an increasingly popular choice for busy people everywhere.

## **2 INTRODUCTION**

### **2.1 Project Brief**

PET bottles are a packaging medium, made up of Polyethylene Terephthalate (PET) . These are widely used in food grade packaging and are the preferred packaging medium in this segment, due to their several advantages over other resins like PE, HDPE and PVE.

The objective of this pre-feasibility study is to provide information for setting up a PET bottles manufacturing unit.

## 2.2 Project Rationale

PET bottles are used as packaging in a variety of products. The demand of PET bottles is on a rise as most of the food manufactures from different businesses are converting to PET bottles for the packaging of their products. The PET bottles/containers are commonly used for the packaging of the following:

- Mineral Water
- Carbonated Beverages
- Edible Oil
- Household Food Containers
- Detergents
- Paints
- Lubricating Oils
- Feeding Bottles for Babies

As PET bottles provide better packaging, and have a lower cost than the bottles made from glass and other materials, different businesses in beverage, food and non-food industry are shifting towards PET bottles.

The PET resin has superior properties, which are as follows:

- ◆ **Attractive:** Products look good, pure and healthy because of attractiveness of PET bottles.
- ◆ **Pure:** Products taste good as PET complies with international food contact regulations.
- ◆ **Safe:** PET bottles are tough and virtually unbreakable. If they do fail, they split, not shatter. Their high impact and tensile strength makes them ideal for carbonated products.
- ◆ **Good barrier:** The low permeability of PET to oxygen, carbon dioxide and water means that it protects and maintains the integrity of products giving a good shelf life. PET also has good chemical resistance.
- ◆ **Lightweight:** One tenth the weight of an equivalent glass pack, PET bottles reduce shipping costs, and because the material in the wall is thinner, shelf utilization is improved by 25% on volume compared to glass. High strength, low weight PET bottles can be stacked as high as glass.
- ◆ **No leakage:** Absolute closure integrity is possible because of the injection molded neck finish. The absence of a weld line in the base means that PET bottles have no leakage.
- ◆ **Design flexibility:** PET bottles are suitable for containers of all shapes, sizes, neck finish designs and colors.
- ◆ **Recyclable:** Used PET bottles can be washed, granulated into flakes and reshaped as PET bottles or employed as material for strapping, carpeting, fiber filling, etc. Specially designed thick-wall bottles can be washed, refilled and reused. PET is made from the same three elements (carbon, oxygen, and hydrogen) as paper, and contains no toxic substances. When burned, it produces carbon dioxide gas and water, leaving no toxic residues. Being recyclable is the most important factor of success of business of PET bottles.

**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	-	6.74	10.51	14.03	18.37
Add: Additions	4.61	-	-	-	-
Add: Net Profit	7.13	11.77	15.51	19.34	23.41
Less: Drawings	5.00	8.00	12.00	15.00	18.00
<b>Closing Balance</b>	<b>6.74</b>	<b>10.51</b>	<b>14.03</b>	<b>18.37</b>	<b>23.78</b>
CC Limit	6.50	6.50	6.50	6.50	6.50
Term Loan	31.12	23.34	15.56	7.78	-
Sundry Creditors	<u>0.60</u>	<u>0.70</u>	<u>0.82</u>	<u>0.94</u>	<u>1.06</u>
<b>TOTAL :</b>	<b><u>44.96</u></b>	<b><u>41.05</u></b>	<b><u>36.90</u></b>	<b><u>33.59</u></b>	<b><u>31.34</u></b>
<b><u>APPLICATION OF FUND</u></b>					
<b>Fixed Assets ( Gross)</b>	38.90	38.90	38.90	38.90	38.90
Gross Dep.	<u>5.76</u>	<u>10.65</u>	<u>14.83</u>	<u>18.38</u>	<u>21.41</u>
Net Fixed Assets	33.15	28.25	24.07	20.52	17.49
<b>Current Assets</b>					
Sundry Debtors	4.33	4.84	5.54	6.31	7.14
Stock in Hand	3.63	4.11	4.69	5.31	5.98
Cash and Bank	3.85	3.86	2.60	1.45	0.72
<b>TOTAL :</b>	<b><u>44.96</u></b>	<b><u>41.05</u></b>	<b><u>36.90</u></b>	<b><u>33.59</u></b>	<b><u>31.34</u></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	81.20	96.73	110.86	126.19	142.80
<b>Total (A)</b>	<b><u>81.20</u></b>	<b><u>96.73</u></b>	<b><u>110.86</u></b>	<b><u>126.19</u></b>	<b><u>142.80</u></b>
<b><u>B) COST OF SALES</u></b>					
Raw Mateiral Consumed	36.00	42.24	48.96	56.16	63.84
Electricity Expenses	1.79	1.97	2.15	2.33	2.51
Repair & Maintenance	0.41	0.48	0.55	0.63	0.71
Labour & Wages	11.02	12.12	13.34	14.67	16.14
Depreciation	5.76	4.90	4.17	3.55	3.03
<b>Cost of Production</b>	<b><u>54.97</u></b>	<b><u>61.72</u></b>	<b><u>69.17</u></b>	<b><u>77.34</u></b>	<b><u>86.22</u></b>
<b>Add: Opening Stock /WIP</b>	-	1.83	2.00	2.24	2.50
<b>Less: Closing Stock /WIP</b>	1.83	2.00	2.24	2.50	2.79
Cost of Sales (B)	53.14	61.55	68.93	77.08	85.94
<b>C) GROSS PROFIT (A-B)</b>	28.06	35.17	41.93	49.11	56.86
	<b>34.55%</b>	<b>36.36%</b>	<b>37.82%</b>	<b>38.92%</b>	<b>39.82%</b>
D) Bank Interest (Term Loan )	3.80	3.10	2.25	1.39	0.53
ii) Interest On Working Capital	0.71	0.71	0.71	0.71	0.71
E) Salary to Staff	7.92	8.71	9.58	10.54	11.60
F) Selling & Adm Expenses Exp.	8.12	9.67	11.09	12.62	14.28
<b>TOTAL (D+E)</b>	<b><u>20.55</u></b>	<b><u>22.20</u></b>	<b><u>23.63</u></b>	<b><u>25.27</u></b>	<b><u>27.12</u></b>
H) NET PROFIT	7.51	12.97	18.30	23.85	29.73
	<b>9.2%</b>	<b>13.4%</b>	<b>16.5%</b>	<b>18.9%</b>	<b>20.8%</b>
I) Taxation	0.38	1.20	2.78	4.50	6.33
J) PROFIT (After Tax)	7.13	11.77	15.51	19.34	23.41

**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	4.61	-			
Net Profit	7.51	12.97	18.30	23.85	29.73
Depreciation & Exp. W/off	5.76	4.90	4.17	3.55	3.03
Increase In Cash Credit	6.50				
Increase In Term Loan	35.01	-	-	-	-
Increase in Creditors	<u>0.60</u>	<u>0.10</u>	<u>0.11</u>	<u>0.12</u>	<u>0.13</u>
<b>TOTAL :</b>	<b><u>59.98</u></b>	<b><u>17.97</u></b>	<b><u>22.58</u></b>	<b><u>27.52</u></b>	<b><u>32.89</u></b>
<b><u>APPLICATION OF FUND</u></b>					
Increase in Fixed Assets	38.90	-	-	-	-
Increase in Stock	3.63	0.48	0.58	0.62	0.67
Increase in Debtors	4.33	0.51	0.71	0.77	0.83
Repayment of Term Loan	3.89	7.78	7.78	7.78	7.78
Taxation	0.38	1.20	2.78	4.50	6.33
Drawings	<u>5.00</u>	<u>8.00</u>	<u>12.00</u>	<u>15.00</u>	<u>18.00</u>
<b>TOTAL :</b>	<b><u>56.13</u></b>	<b><u>17.96</u></b>	<b><u>23.85</u></b>	<b><u>28.67</u></b>	<b><u>33.61</u></b>
Opening Cash & Bank Balance	-	3.85	3.86	2.60	1.45
Add : Surplus	3.85	0.01	- 1.26	- 1.15	- 0.72
Closing Cash & Bank Balance	<b>3.85</b>	<b>3.86</b>	<b>2.60</b>	<b>1.45</b>	<b>0.72</b>

**COMPUTATION OF PET BOTTLE MANUFACTURING UNIT****Items to be Manufactured PET Bottle**

Manufacturing Capacity per Day		8,000.00	pcs
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		300	
Total Production per Annum		2,400,000	pcs
Year		Capacity	PET Bottle
		Utilisation	
I		50%	1,200,000
II		55%	1,320,000
III		60%	1,440,000
IV		65%	1,560,000
V		70%	1,680,000

**COMPUTATION OF RAW MATERIAL**

Item Name	Quantity of Raw Material	Unit	Unit Rate of	Total CostPer Annum (100%)
Raw Material Consumed	2,400,000.00	pcs	3.00	7,200,000.00
Total	<b>2,400,000.00</b>			<b>7,200,000.00</b>

Total Raw material in Rs lacs at 100% Capacity 72.00  
Average Cost per Bottle (In Rs) **3.00**

Raw Material Consumed	Capacity Utilisation	Rate	Amount (Rs.)
I	50%	3.00	36.00
II	55%	3.20	42.24
III	60%	3.40	48.96
IV	65%	3.60	56.16
V	70%	3.80	63.84

**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><u>Finished Goods</u></b>					
(10 Days requirement)	1.83	2.00	2.24	2.50	2.79
<b><u>Raw Material</u></b>					
(15 Days requirement)	1.80	2.11	2.45	2.81	3.19
<b>Closing Stock</b>	<b>3.63</b>	<b>4.11</b>	<b>4.69</b>	<b>5.31</b>	<b>5.98</b>

**COMPUTATION OF WORKING CAPITAL REQUIREMENT**

<b>Particulars</b>	<b>Amount</b>	<b>Margin(10%)</b>	<b>Net Amount</b>
Stock in Hand	3.63		
Less:			
Sundry Creditors	0.60		
<b>Paid Stock</b>	<b>3.03</b>	<b>0.30</b>	<b>2.73</b>
Sundry Debtors	4.33	0.43	3.90
<b>Working Capital Requirement</b>			<b>6.63</b>
<b>Margin</b>			0.74
<b>MPBF</b>			<b>6.63</b>
<b>Working Capital Demand</b>			<b>6.50</b>

**BREAK UP OF LABOUR**

Particulars	Wages Per Month	No of Employees	Total Salary
Plant Operator	15,000.00	1	15,000.00
Unskilled Worker	8,500.00	6	51,000.00
Helper	5,000.00	2	10,000.00
Security Guard	7,500.00	1	7,500.00
			83,500.00
Add: 10% Fringe Benefit			8,350.00
Total Labour Cost Per Month			91,850.00
Total Labour Cost for the year ( In Rs. Lakhs)		10	11.02

**BREAK UP OF SALARY**

Particulars	Salary Per Month	No of Employees	Total Salary
Accountant cum store keeper	10,000.00	1	10,000.00
Administrative Staffs	12,500.00	4	50,000.00
Total Salary Per Month			60,000.00
Add: 10% Fringe Benefit			6,000.00
Total Salary for the month			66,000.00
Total Salary for the year ( In Rs. Lakhs)		5	7.92

**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	-		37.30	1.60	38.90
	-		37.30	1.60	38.90
TOTAL		-	37.30	1.60	38.90
Less : Depreciation	-	-	5.60	0.16	5.76
WDV at end of 1st year	-	-	31.71	1.44	33.15
Additions During The Year	-	-	-	-	-
	-	-	31.71	1.44	33.15
Less : Depreciation	-	-	4.76	0.14	4.90
WDV at end of IIInd Year	-	-	26.95	1.30	28.25
Additions During The Year	-	-	-	-	-
	-	-	26.95	1.30	28.25
Less : Depreciation	-	-	4.04	0.13	4.17
WDV at end of IIIrd year	-	-	22.91	1.17	24.07
Additions During The Year	-	-	-	-	-
	-	-	22.91	1.17	24.07
Less : Depreciation	-	-	3.44	0.12	3.55
WDV at end of IV year	-	-	19.47	1.05	20.52
Additions During The Year	-	-	-	-	-
	-	-	19.47	1.05	20.52
Less : Depreciation	-	-	2.92	0.10	3.03
WDV at end of Vth year	-	-	16.55	0.94	17.49

**REPAYMENT SCHEDULE OF TERM LOAN**

11.0%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	CI Balance
<b>I</b>	Opening Balance						
	Ist Quarter	-	35.01	35.01	0.96	-	35.01
	IInd Quarter	35.01	-	35.01	0.96	-	35.01
	IIIrd Quarter	35.01	-	35.01	0.96	1.95	33.07
	Ivth Quarter	33.07	-	33.07	0.91	1.95	31.12
					3.80	3.89	
<b>II</b>	Opening Balance						
	Ist Quarter	31.12	-	31.12	0.86	1.95	29.18
	IInd Quarter	29.18	-	29.18	0.80	1.95	27.23
	IIIrd Quarter	27.23	-	27.23	0.75	1.95	25.29
	Ivth Quarter	25.29		25.29	0.70	1.95	23.34
					3.10	7.78	
<b>III</b>	Opening Balance						
	Ist Quarter	23.34	-	23.34	0.64	1.95	21.40
	IInd Quarter	21.40	-	21.40	0.59	1.95	19.45
	IIIrd Quarter	19.45	-	19.45	0.53	1.95	17.51
	Ivth Quarter	17.51		17.51	0.48	1.95	15.56
					2.25	7.78	
<b>IV</b>	Opening Balance						
	Ist Quarter	15.56	-	15.56	0.43	1.95	13.62
	IInd Quarter	13.62	-	13.62	0.37	1.95	11.67
	IIIrd Quarter	11.67	-	11.67	0.32	1.95	9.72
	Ivth Quarter	9.72		9.72	0.27	1.95	7.78
					1.39	7.78	
<b>V</b>	Opening Balance						
	Ist Quarter	7.78	-	7.78	0.21	1.95	5.83
	IInd Quarter	5.83	-	5.83	0.16	1.95	3.89
	IIIrd Quarter	3.89	-	3.89	0.11	1.95	1.94
	Ivth Quarter	1.94		1.94	0.05	1.95	0.00
					0.53	7.78	

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><u>CASH ACCRUALS</u></b>	12.89	16.67	19.69	22.90	26.43
Interest on Term Loan	3.80	3.10	2.25	1.39	0.53
Total	16.68	19.77	21.93	24.29	26.97
<b><u>REPAYMENT</u></b>					
Repayment of Term Loan	3.89	7.78	7.78	7.78	7.78
Interest on Term Loan	3.80	3.10	2.25	1.39	0.53
Total	7.69	10.88	10.03	9.17	8.31
<b>DEBT SERVICE COVERAGE RATIO</b>	<b>2.17</b>	<b>1.82</b>	<b>2.19</b>	<b>2.65</b>	<b>3.24</b>
<b>AVERAGE D.S.C.R.</b>			<b>2.38</b>		

**COMPUTATION OF SALE**

Particulars	I	II	III	IV	V
Op Stock	-	40,000.00	44,000.00	48,000.00	52,000.00
Production	1,200,000.00	1,320,000.00	1,440,000.00	1,560,000.00	1,680,000.00
Less : Closing Stock(10 Days)	40,000.00	44,000.00	48,000.00	52,000.00	56,000.00
Net Sale	1,160,000.00	1,316,000.00	1,436,000.00	1,556,000.00	1,676,000.00
Avg Sale Price per Bottle	7.00	7.35	7.72	8.11	8.52
<b>Sale (in Lacs)</b>	<b>81.20</b>	<b>96.73</b>	<b>110.86</b>	<b>126.19</b>	<b>142.80</b>

<b>COMPUTATION OF ELECTRICITY</b>				
<b>(A) POWER CONNECTION</b>				
Total Working Hour per day	Hours		8	
Electric Load Required	HP		20	
Load Factor			0.7460	
Electricity Charges	per unit		7.50	
Total Working Days			300	
<b>Electricity Charges</b>				2.69
Add : Minimim Charges (@ 10%)				
<b>(B) DG set</b>				
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 & Fuel at 100%				3.58
Year		Capacity		Amount (in Lacs)
I		50%		1.79
II		55%		1.97
III		60%		2.15
IV		65%		2.33
V		70%		2.51

## **DISCLAIMER**

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