PROJECT REPORT

Of

JAGGERY MANUFACTURING

PURPOSE OF THE DOCUMENT

This particular pre-feasibility is regarding **JAGGERY MANUFACTURING UNIT**

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 Entreprenuer		XXXXXXX		
2	Constitution (legal Status)	:	XXXXXXX		
3	Father's/Spouce's Name		XXXXXXXX		
4	Unit Address	:	XXXXXXXX		
			Taluk/Block:		
			District :	XXXXX	
			Pin:	XXXXX	State:
			E-Mail :	XXXXX	
			Mobile	XXXXX	
5	Product and By Product	:	**Jaggery**		
6	Name of the project / business activity proposed :		**Jaggery**		
7	Cost of Project	:	Rs12.77 lac		
8	Means of Finance				
	Term Loan		Rs.6.32 Lacs		
	KVIC Margin Money	-	As per Project Eligibility		
	Own Capital		Rs.1.28 Lacs		
	Working Capital		Rs.5.17 Lacs		
9	Debt Service Coverage Ratio	:	6.92		
10	Pay Back Period	:	5	Years	
11	Project Implementation Period	:	6	Months	
12	Break Even Point	:	25%		
13	Employment	:	12	Persons	
14	Power Requirement	:	40.00	HP	
15	Major Raw materials	:	**Sugar Cane**		
16	Estimated Annual Sales Turnover	:	63.48	Lacs	
16	Detailed Cost of Project & Means of Finance				

COST OF PROJECT

(Rs. In Lacs)

Particulars	Amount
Land	Rented/Owned
Building & Civil Work	3.00
Plant & Machinery	3.28
Furniture & Fixtures	0.74
Working Capital Requirement	5.75
Total	**12.77**

MEANS OF FINANCE

Particulars	Amount
Own Contribution @10%	1.28
Term Loan	6.32
Workign Capital Finance	5.17
Total	**12.77**

	General	**Special**
Beneficiary's Margin Monery (% of Project Cost)	10%	5%

Jaggery Extraction Unit

INTRODUCTION

Sugar industry in India is a well-developped industry and one of the largest after textiles. It provides rural employment opportunities and plays an important role in Indian economy. Jaggery is also manufactured from sugarcane juice and is very widely used not only in individual households but also in many eateries, restaurants, clubs and hostels and it has certain industrial applications as well. Manufacture of sugar involves many technical aspects and the capital investment is also on the higher side. Compared to this, production of jiggery is very simple and the capital cost is also very limited. Due to its wide applications, the market for jaggery is continuously growing.

PRODUCTS

Jaggery is a typical Indian product with several uses in daily food preparations and it is also used to make many sweet food preparations. This is a product with scattered market and can be manufactured in the states like Maharashtra, UP, Gujarat, Bihar, Jharkhand etc.

MARKET POTENTIAL

The demand for jaggery is steadily growing many folds in the urban, rural and semi-urban areas. There are several applications of jaggery and almost all Indian households use it on day-to-day basis. Market for jaggery is round the year whereas its production is only during the sugarcane season and thus factory works for around 6 to 7 months every year. Apart from individual households, it is used in large quantities in restaurants, road-side dhabas, other eateries, hostels and clubs and by caterers. It has shelf-life of more than couple of months. Its production is undertaken at several places but Maharashtra, Uttar Pradesh, Bihar and Tamil Nadu are the leading manufacturers. In view of constantly growing market, it should not be difficult for a new entrant to enter and capture the market.

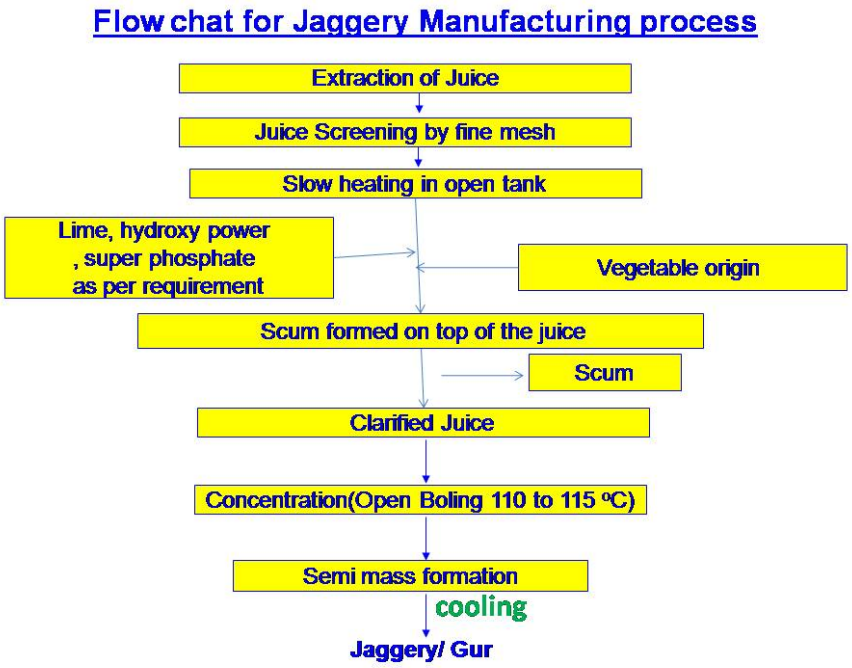
MANUFACTURING PROCESS

Jaggery manufacturing is done on a small scale by a group of farmers. The juice is extracted from fresh sugarcane. Then it is filtered and boiled in wide, shallow iron pans with continous

stirring and, simultaneously soda or bhindi juice is added in required quantity. While boiling,brownish foams come at the top which are continuously removed to get golden yellow colour of jaggery. The consistency of the juice becomes thick and then it is poured into the small to medium sized iron or aluminum cans where blocks of jaggery are formed after cooling. Size of the blocks can vary from 1 kg. to 12 kgs. Finally, these blocks are packed in gunny bags.
From 100 kgs. of sugarcane, 10 kgs. of jaggery is made. The process flow chart is as under:

- Juice Extraction
- Filtration and Boiling
- Cooling and Packing

The main raw material is sugarcane with minimum 19.0 Brix reading. The extraction of juice from the sugarcane works out to about 45%. The states of Bihar and Jharkhand produce large quantity of sugarcane and availability should not be a bottleneck. Other materials like soda/bhindi juice shall be available locally. Gunny bags of different capacity shall be the packing material.



CLARIFICATION OF JUICE:

- The sugar juice contains colloidal matter, inorganic salts, fiber, various nitrogenous substances, lipids, gums, wax organic acid, inorganic acid, pectin etc. All these impurities removed totally or partially in this clarification process.
- In the clarification process generally used two types of clarificants are used they are Organic Clarificants and Inorganic Clarificants. *In* organic clarificants are form

vegetable origin like Bendi, Sulkali and Doela. *Inorganic clarificants used like* Lime, Hydrous Power and super phosphate.

- The screen juice taken in open pan and firing starts slowly so that dissolved air escaped and gummy, colloidal substances get coagulated by the adding of clarificants as per requirement. It comes at top surface of the juice know as scum and it is removing continuously . In this process temperature requirement is 70^oC to 80^0
- First added vegetable origin simultaneously small quantity of lime water is added to reduce the acidity of juice but not to the extent to make juice neutrals because taste and colour of gur produced will be inferior. In this lime process pH maintained 6.2 to 6.5. In some cases super phosphate. P_2O_5, and 0.25% concentrated hydrous power are also added to obtain good colour of Gur (jaggey). While juice temperature rising scum is removed by perforated strainers.

CONCENTRATION OF JUICE:

After clarification completed by vigorous boiling, temperature of boiling mass is around 110 to 115^o Boiling take place about 2 to 3 hours. The stage at which semi fluid material is formed then it is transferred rectangular boxes or Bucket shape boxes as per requirement. This mass is allowed to cool for solid form.

COMPOSITION AND SPECIFICATION OF JAGGERY (GUR):

- It contains all the nutrients and substances present in cane juice. The nutrient value of jaggery is slightly higher than that of crystalline sugar because it contains all constituents which are normally separated in molasses in manufacturing of sugar.
- Recovery of jaggery in the range from 8 to 12% that depending upon the total solids in cane.
- Jaggery graded in the market according to basis of colour, taste, hardness and crystalinity which is judged by visual appearance. While in practically graded of jaggery should be consider sucrose %, reducing sugar, moisture and colour.

STORAGE OF JAGGERY:

Jaggery is consumed throughout the year in daily regular practice. The jaggery detoriates faster in monsoon season when relative humidity is more than 70%. During this season gur absorbs moisture from the atmosphere and becomes viscous and dark colour. Hence jaggery blocks packed in gunny bags along with water proof sheet.

ORGANIC JAGGERY MAKING PROCESS:

In Manufacturing of organic Jaggery taking care from growing of sugar cane. In sugar cane cultivation maximum used only natural organic fertilizers like cow dung.

The difference between organic and commercial jaggery making is mainly in clarification process. In organic jaggery making process used only organic clarificants and little bit of lime to decrease the acidity of juice. So organic jaggery colour having dark when compare with commercial jaggery.

PLANT & MACHINERY

PARTICULARS	QTY.	RATE	AMOUNT IN RS.
Double Roller Sugar Cane Crushers with 2HP Motors	2.00	50000.00	100000.00
Plastic Juice Storage Tanks 3x2x1 Mts	4.00	10000.00	40000.00
1.5 mts Iron Pan with 2-3 handles	1.00	25000.00	25000.00
Storage Tank	1.00	35000.00	35000.00
Strong Iron Scrappers with Long handle	4.00	2000.00	8000.00
Sealing Packing fillingMachine	1.00	5,000.00	5,000.00
Weighing scale	1.00	15,000.00	15,000.00
Misc tools and Equipments	LS	1,00,000.00	1,00,000.00
TOTAL			**3,28,000.00**

PROJECTED BALANCE SHEET

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Capital Account	1.28	1.28	1.28	1.28	1.28
Retained Profit	11.46	24.18	37.96	52.54	67.78
Term Loan	6.32	4.74	3.16	1.58	- 0.31
Cash Credit	5.17	5.17	5.17	5.17	5.17
Sundry Creditors	0.84	0.98	1.12	1.19	1.26
Provisions & Other Liab	0.36	0.40	0.44	0.48	0.53
TOTAL :	**25.43**	**36.75**	**49.13**	**62.24**	**75.71**
APPLICATION OF FUND					
Fixed Assets (Gross)	7.02	7.02	7.02	7.02	7.02
Gross Dep.	0.83	1.59	2.25	2.83	3.33
Net Fixed Assets	6.19	5.43	4.77	4.19	3.69
Current Assets					
Sundry Debtors	2.12	2.58	2.95	3.15	3.33
Stock in Hand	4.47	5.22	5.96	6.34	6.71
Cash and Bank	10.15	20.77	32.42	45.24	58.32
Deposits & Advances	2.50	2.75	3.03	3.33	3.66
TOTAL :	**25.43**	**36.75**	**49.13**	**62.24**	**75.71**
	-	-	-	-	-

PROJECTED CASH FLOW STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
SOURCES OF FUND					
Share Capital	1.28	-			
Reserve & Surplus	11.46	14.13	17.23	18.23	19.05
Depriciation & Exp. W/off	0.83	0.76	0.66	0.58	0.50
Increase in Cash Credit	5.17	-	-	-	-
Increase In Term Loan	6.32	-	-	-	-
Increase in Creditors	0.84	0.14	0.14	0.07	0.07
Increase in Provisions	0.36	0.04	0.04	0.04	0.05
TOTAL :	**26.26**	**15.06**	**18.07**	**18.92**	**19.67**
APPLICATION OF FUND					
Increase in Fixed Assets	7.02	-	-	-	-
Increase in Stock	4.47	0.75	0.75	0.37	0.37
Increase in Debtors	2.12	0.46	0.37	0.19	0.19
Increase in Deposits & Adv	2.50	0.25	0.28	0.30	0.33
Repayment of Term Loan	-	1.58	1.58	1.58	1.89
Taxation	-	1.41	3.45	3.65	3.81
TOTAL :	**16.11**	**4.45**	**6.42**	**6.09**	**6.59**
Opening Cash & Bank Balance	-	10.15	20.77	32.42	45.24
Add : Surplus	10.15	10.61	11.65	12.82	13.08
Closing Cash & Bank Balance	**10.15**	**20.77**	**32.42**	**45.24**	**58.32**

PROJECTED PROFITABILITY STATEMENT

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
A) SALES					
Gross Sale	63.48	77.41	88.54	94.39	99.96
Total (A)	**63.48**	**77.41**	**88.54**	**94.39**	**99.96**
B) COST OF SALES					
Raw Mateiral Consumed	36.00	42.00	48.00	51.00	54.00
Elecricity Expenses	3.44	4.01	4.58	4.87	5.16
Repair & Maintenance	-	0.77	0.89	0.94	1.00
Labour & Wages	8.18	9.00	9.90	10.89	11.98
Depriciation	0.83	0.76	0.66	0.58	0.50
Consumables and Other Expenses	1.27	1.55	1.77	1.89	2.00
Cost of Production	49.72	58.09	65.80	70.17	74.64
Add: Opening Stock /WIP	-	2.67	3.12	3.56	3.79
Less: Closing Stock /WIP	2.67	3.12	3.56	3.79	4.01
Cost of Sales (B)	47.05	57.65	65.36	69.95	74.42
C) GROSS PROFIT (A-B)	16.44	19.76	23.18	24.44	25.54
	26%	**26%**	**26%**	**26%**	**26%**
D) Bank Interest (Term Loan)	0.54	0.66	0.48	0.30	0.11
Bank Interest (C.C. Limit)	0.52	0.52	0.52	0.52	0.52
E) Salary to Staff	2.64	2.90	3.19	3.51	3.87
F) Selling & Adm Expenses Exp.	1.27	1.55	1.77	1.89	2.00
TOTAL (D+E)	**4.97**	**5.63**	**5.96**	**6.21**	**6.49**
H) NET PROFIT	11.46	14.13	17.23	18.23	19.05
I) Taxation	-	1.41	3.45	3.65	3.81
J) PROFIT (After Tax)	11.46	12.72	13.78	14.58	15.24

COMPUTATION OF MANUFACTURING OF JAGGERY

Items to be Manufactured **Jaggery**

Manufacturing Capacity per day	-	1.35	MT
	-		
No. of Working Hour		8	
No of Working Days per month		25	
No. of Working Day per annum		150	
Total Production per Annum		202.50	MT
Year		Capacity	MT
		Utilisation	
IST YEAR		60%	122
IIND YEAR		70%	142
IIIRD YEAR		80%	162
IVTH YEAR		85%	172
VTH YEAR		90%	182

COMPUTATION OF RAW MATERIAL

Item Name		Quantity of Raw Material	Recovery	Unit Rate of / MT	Total Cost Per Annum (100%)
		MT			
Raw Material Sugarcane	100%	2,000.00	10%	3,000.00	60.00
			Total (Rounded off in lacs)		60.00

Annual Consumption cost (In Lacs) 60.00

Raw Material Consumed	Capacity Utilisation	Amount (Rs.)
IST YEAR	60%	36.00
IIND YEAR	70%	42.00
IIIRD YEAR	80%	48.00
IVTH YEAR	85%	51.00
VTH YEAR	90%	54.00

COMPUTATION OF SALE

Particulars	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Op Stock	-	6	7	8	9
Production	122	142	162	172	182
	122	148	169	180	191
Less : Closing Stock	6	7	8	9	9
Net Sale	115	141	161	172	182
Sale Price per MT	55,000.00	55,000.00	55,000.00	55,000.00	55,000.00
Sale (in Lacs)	**63.48**	**77.41**	**88.54**	**94.39**	**99.96**

COMPUTATION OF ELECTRICITY

(A) POWER CONNECTION				
Total Working Hour per day		Hours	8	
Electric Load Required			40	
Load Factor			0.7460	
Electricity Charges		per unit	8.00	
Total Working Days			300	
Electricity Charges (8 Hrs Per day)				5,72,928.00
Add : Minimim Charges (@ 10%)				
(B) D.G. SET				
No. of Working Days			300	days
No of Working Hours			-	Hour per day
Total no of Hour			-	
Diesel Consumption per Hour			8	
Total Consumption of Diesel			-	
Cost of Diesel			65.00	Rs. / Ltr
Total cost of Diesel			-	
Add : Lube Cost @15%			-	
Total			**-**	
Total cost of Power & Fuel at 100%				5.73
Year		**Capacity**		**Amount**
				(in Lacs)
IST YEAR		60%		3.44
IIND YEAR		70%		4.01
IIIRD YEAR		80%		4.58
IVTH YEAR		85%		4.87
VTH YEAR		90%		5.16

COMPUTATION OF CLOSING STOCK & WORKING CAPITAL

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
Finished Goods					
(15 Days requirement)	2.67	3.12	3.56	3.79	4.01
Raw Material					
(15 Days requirement)	1.80	2.10	2.40	2.55	2.70
Closing Stock	**4.47**	**5.22**	**5.96**	**6.34**	**6.71**

COMPUTATION OF WORKING CAPITAL REQUIREMENT

Particulars			Total
			Amount
Stock in Hand			4.47
Sundry Debtors			2.12
		Total	6.59
Sundry Creditors			0.84
Working Capital Requirement			**5.75**
Margin			0.57
Working Capital Finance			**5.17**

BREAK UP OF LABOUR

Particulars		Wages	No of	Total
		Per Month	Employees	Salary
Skilled Worker		8,000.00	4	32,000.00
Unskilled Worker		5,000.00	6	30,000.00
				62,000.00
Add: 10% Fringe Benefit				6,200.00
Total Labour Cost Per Month				68,200.00
Total Labour Cost for the year (In Rs. Lakhs)				8.18

BREAK UP OF SALARY

Particulars		Salary	No of	Total
		Per Month	Employees	Salary
Manager		12,000.00	1	12,000.00
Accountant		8,000.00	1	8,000.00
Total Salary Per Month				20,000.00
Add: 10% Fringe Benefit				2,000.00
Total Salary for the month				22,000.00
Total Salary for the year (In Rs. Lakhs)				2.64

COMPUTATION OF DEPRECIATION

Description	Land	Building/shed	Plant & Machinery	Furniture	**TOTAL**
Rate of Depreciation		**10.00%**	**15.00%**	**10.00%**	
Opening Balance	Leased	-	-	-	-
Addition	-	3.00	3.28	0.74	7.02
	-	3.00	3.28	0.74	7.02
Less : Depreciation	-	0.30	0.49	0.04	0.83
WDV at end of Ist year	-	2.70	2.79	0.70	6.19
Additions During The Year	-	-	-	-	-
	-	2.70	2.79	0.70	6.19
Less : Depreciation	-	0.27	0.42	0.07	0.76
WDV at end of IInd Year	-	2.43	2.37	0.63	5.43
Additions During The Year	-	-	-	-	-
	-	2.43	2.37	0.63	5.43
Less : Depreciation	-	0.24	0.36	0.06	0.66
WDV at end of IIIrd year	-	2.19	2.01	0.57	4.77
Additions During The Year	-	-	-	-	-
	-	2.19	2.01	0.57	4.77
Less : Depreciation	-	0.22	0.30	0.06	0.58
WDV at end of IV year	-	1.97	1.71	0.51	4.19
Additions During The Year	-	-	-	-	-
	-	1.97	1.71	0.51	4.19
Less : Depreciation	-	0.20	0.26	0.05	0.50
WDV at end of Vth year	-	1.77	1.46	0.46	3.69

REPAYMENT SCHEDULE OF TERM LOAN

11.5%

Year	Particulars	Amount	Addition	Total	Interest	Repayment	Cl Balance
IST YEAR	Opening Balance						
	Ist Quarter	-	6.32	6.32	-	-	6.32
	Iind Quarter	6.32	-	6.32	0.18	-	6.32
	IIIrd Quarter	6.32	-	6.32	0.18	-	6.32
	Ivth Quarter	6.32	-	6.32	0.18	-	6.32
					0.54	-	
IIND YEAR	Opening Balance						
	Ist Quarter	6.32	-	6.32	0.18	0.39	5.92
	Iind Quarter	5.92	-	5.92	0.17	0.39	5.53
	IIIrd Quarter	5.53	-	5.53	0.16	0.39	5.13
	Ivth Quarter	5.13		5.13	0.15	0.39	4.74
					0.66	1.58	
IIIRD YEAR	Opening Balance						
	Ist Quarter	4.74	-	4.74	0.14	0.39	4.34
	Iind Quarter	4.34	-	4.34	0.12	0.39	3.95
	IIIrd Quarter	3.95	-	3.95	0.11	0.39	3.55
	Ivth Quarter	3.55		3.55	0.10	0.39	3.16
					0.48	1.58	
IVTH YEAR	Opening Balance						
	Ist Quarter	3.16	-	3.16	0.09	0.39	2.76
	Iind Quarter	2.76	-	2.76	0.08	0.39	2.37
	IIIrd Quarter	2.37	-	2.37	0.07	0.39	1.97
	Ivth Quarter	1.97		1.97	0.06	0.39	1.58
					0.30	1.58	
VTH YEAR	Opening Balance						
	Ist Quarter	1.58	-	1.58	0.05	0.39	1.18
	Iind Quarter	1.18	-	1.18	0.03	0.39	0.79
	IIIrd Quarter	0.79	-	0.79	0.02	0.55	0.24
	Ivth Quarter	0.24		0.24	0.01	0.55 -	0.31
					0.11	1.89	

CALCULATION OF D.S.C.R

PARTICULARS	IST YEAR	IIND YEAR	IIIRD YEAR	IVTH YEAR	VTH YEAR
CASH ACCRUALS	12.29	13.48	14.44	15.16	15.74
Interest on Term Loan	0.54	0.66	0.48	0.30	0.11
Total	12.84	14.13	14.92	15.45	15.85
REPAYMENT					
Instalment of Term Loan	1.58	1.58	1.58	1.89	1.89
Interest on Term Loan	0.54	0.66	0.48	0.30	0.11
Total	2.12	2.24	2.06	2.18	2.00
DEBT SERVICE COVERAGE RATIO	**6.04**	**6.32**	**7.26**	**7.07**	**7.93**
AVERAGE D.S.C.R.			**6.92**		

BREAK EVEN POINT ANALYSIS

Year	I	II	III	IV	V
Net Sales & Other Income	63.48	77.41	88.54	94.39	99.96
Less : Op. WIP Goods	-	2.67	3.12	3.56	3.79
Add : Cl. WIP Goods	2.67	3.12	3.56	3.79	4.01
Total Sales	**66.16**	**77.85**	**88.99**	**94.61**	**100.18**
Variable & Semi Variable Exp.					
Raw Material & Tax	36.00	42.00	48.00	51.00	54.00
Electricity Exp/Coal Consumption at 85%	2.92	3.41	3.90	4.14	4.38
Manufacturing Expenses 80%	1.02	1.86	2.13	2.27	2.40
Wages & Salary at 60%	6.49	7.14	7.86	8.64	9.51
Selling & adminstrative Expenses 80%	1.02	1.24	1.42	1.51	1.60
Intt. On Working Capital Loan	0.52	0.52	0.52	0.52	0.52
Total Variable & Semi Variable Exp	**47.97**	**56.17**	**63.81**	**68.08**	**72.41**
Contribution	**18.19**	**21.68**	**25.18**	**26.54**	**27.77**
Fixed & Semi Fixed Expenses					
Manufacturing Expenses 20%	0.25	0.46	0.53	0.57	0.60
Electricity Exp/Coal Consumption at 15%	0.52	0.60	0.69	0.73	0.77
Wages & Salary at 40%	4.33	4.76	5.24	5.76	6.34
Interest on Term Loan	0.54	0.66	0.48	0.30	0.11
Depreciation	0.83	0.76	0.66	0.58	0.50
Selling & adminstrative Expenses 20%	0.25	0.31	0.35	0.38	0.40
Total Fixed Expenses	**6.73**	**7.56**	**7.95**	**8.31**	**8.73**
Capacity Utilization	**60%**	**70%**	**80%**	**85%**	**90%**
OPERATING PROFIT	**11.46**	**14.13**	**17.23**	**18.23**	**19.05**
BREAK EVEN POINT	**22%**	**24%**	**25%**	**27%**	**28%**
BREAK EVEN SALES	**24.46**	**27.12**	**28.10**	**29.63**	**31.47**

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