Project Profiles

FOOD

Processing Industry

Bakery, Milk & Milk Based Products

Department of Food Processing Industries
& Horticulture
Govt. of West Bengal

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মহঃ গোলাম রব্বানী
ভারপ্রাপ্ত মন্ত্রী
খাদ্য প্রক্রিয়াকরণ শিল্প ও উদ্যানপালন দপ্তর, পশ্চিমবঙ্গ সরকার

محمد غلام ربانی
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Foreword

West Bengal has the natural advantage of fertile soil, adequate water, and varied climatic conditions to produce a wide variety of food commodities. Farmer communities, private companies and processors of food products can be benefitted immensely from a vibrant food processing sector in West Bengal.

Entrepreneurs interested in investing in the food processing sector need good bankable projects to start their ventures, but the preparation of DPRs for such projects are both time- consuming and expensive. Besides, there is unavailability of good consultants for the same. The Directorate of Food Processing Industries recognizing this as a gap that needs to be filled up, has come up with this set of 21 DPRs of potential projects.

The aim of this set of project profiles is to further develop the food processing sector in West Bengal that meets its aspirations to become a leading state in food processing sector. Our goal remains to minimize post-harvest losses, stimulating employment and building a thriving entrepreneurship ecosystem which would benefit the state's economy and improve the quality of life. It is intended through these project profile documents to create a transparent, time-bound, responsive and positively inclined ecosystem to encourage food processing ventures in the state.

It is expected that these project profiles will help prospective entrepreneurs in the matter of ready DPRS, which may be edited easily to accommodate projects of varying scales. This would also result in savings of time and resources for the entrepreneur.

My department is committed to being by the side of entrepreneurs. This set of publications has been developed after considerable inputs from across the state to take ahead the food processing sector in the state.

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Introduction

Consumption of bakery products is on the rise specially with respect to things like cakes, pastries and other bakery items. There are two ways of looking at a bakery unit. The more variety one wants to produce from a bakery unit, more would be the number of product lines. Thus, this kind of a thing would either be on a small scale initially and scaled up later as business increases. The other alternative would be to look at mass production of some of the bakery items. This project report focuses on mass items like cup cake and bar cake. The demand for such bakery items are on the rise as it enables people to have it on the go. These are simple products and not messy. You can have it when you are travelling or even when you are working in office. Such snack food helps in taking care of requirement of food as and when needed unlike a meal. The popularity of these kind of items will increase further simply because of the lifestyle and the culture of unitary families where both husband and wife are working.

Promoters - Some specific requirements

The details of the promoters will have to be obtained along with other information. The Proforma for promoter detail is given in Annexure – 1.

History of the company

The project has been prepared as if a new set up is being made for the purpose of making cakes and other bakery items. The same could be part of another company or a new company all together. The details of the existing company or the proposed company have to be obtained/presented in the project report. Proforma for company report is given in Annexure-2.

Finished product and its utility

Pastries and specially cakes like cup cakes and bar cakes are consumed everywhere by people as a food which can be taken on the go. It is also eaten along with tea or as a part of evening snacks. School children love it as a part of their lunch break in the school. Mostly people are going towards such cakes without egg and are categorized as vegetarian food.

Market, Demand and Major Competitors

Barring some companies like Brittania, Sunfeast (ITC), Monginis and some such companies, cake manufacturing is a localized product in India. You have other companies like Mio Amore in Kolkata which produces a variety of bakery items and have a large number of product lines. There are others who are producing cakes for ages and have a niche market like Flurry's or Nahoum and sons Pvt. Ltd. in Kolkata. Incidentally most of the cities have such old bakeries taking care of the local market. However, there is no denying that the market is expanding and there is room for more specially in small tier 2 or tier 3 towns.

One of the strategies could be to go in for mass produced products like cup cake and bar cake. These items have a decent shelf life and can be sold through the kirana shops directly. Along with that the unit can have a small outlet to start with to sell customized products like birthday cakes, pastries, cream rolls, etc. these would be done on a smaller scale and with increase in popularity number of outlets and production of such items will be increased. Incidentally, the same equipments can be used for the purpose and so very little additional investment would be required other than space which would be accounted for in the current project itself. However, local competition of starting such an outlet has to be analyzed very carefully.

Note: In addition details of localized competition, has to be mentioned while preparing the final DPR based on where the unit is going to be set up.

Raw Material Requirement

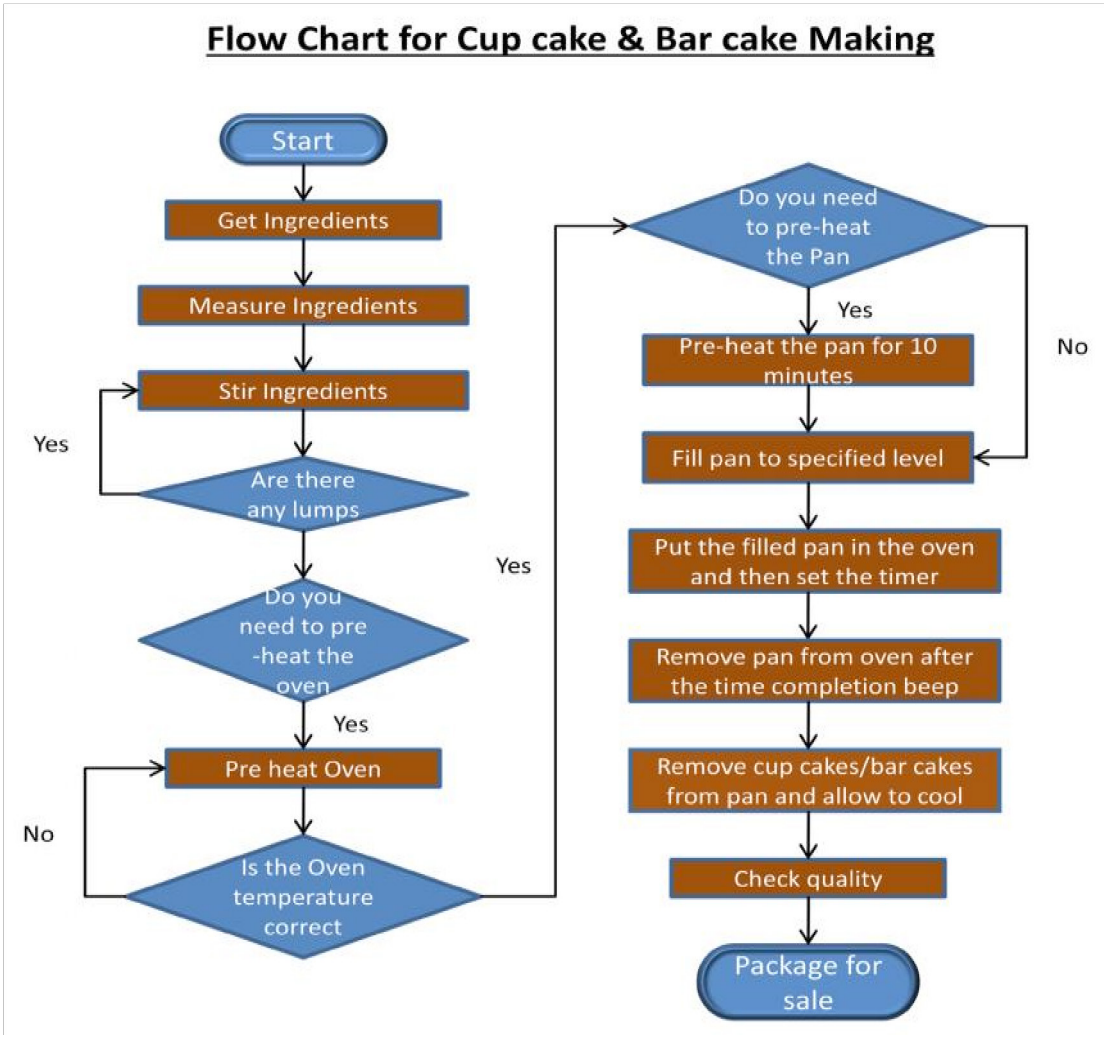
The raw material required for bakery products are refined wheat flour, sugar, water and hydrogenated oil in general. Along with that, egg, baking powder, butter and milk also will be needed. For making specialized items like birthday cakes, etc., things like chocolate, cream, etc. may also be required. All these items are available in the market or through websites like IndiaMart. Availability of raw material should not be a problem at any point of time. Hence storing huge quantity of raw material in this case would not make any sense. Maintaining a 7 day inventory, it is felt should be more than enough for ensuring continuity of production in case there is a break down in the supply chain. The total capacity of the unit in terms of refined wheat flour would be that of 250 kg or 0.25 tonnes per day which converts to 75 tonnes per annum. In case of a bakery unit producing cakes and such other items there will be requirement of other raw material in substantial quantity like, eggs, vanilla essence, baking powder, butter, sugar. In fact as per estimates the amount of other material required would more or less double the cost of raw material which will be factored in the project

Manufacturing Process

The process of manufacture for cup cake/bar cake is well-established. The general process which is followed is explained here.

- The refined flour is passed through a sifter to ensure no large particles are in it. However, this process may not be required if we are certain about the quality of the flour.

- The ingredients viz., refined wheat flour, water, sugar, eggs, baking powder, butter, vanilla, etc. are then mixed at the desired proportion
- The ingredients are stirred to the extent that no lumps are left in the mixture.
- The oven is pre-heated to the desired level
- The pan is preheated for 10 minutes
- The cup cake/bar cake moulds are filled upto the desired level and put in the oven in the pan
- The pan is removed from the oven on time completion
- The cup cakes and bar cakes are allowed to be removed from the pan and alloed to cool
- The cakes are then removed from the mould
- The cakes are then, packed, and are ready for sale in the market.



SWOT ANALYSIS

Strengths	Weakness
➢ Increasing Demand due to life style changes ➢ Young population prefer these kind of products ➢ Raw material availability	➢ Limited Shelf life of product and hence demand estimation has to be accurate ➢ Lack of availability of skilled manpower
Opportunities	**Threats**
➢ People keen in looking for variety ➢ Scope for diversification within the domain ➢ Capturing local market in semi-urban areas where big city based bakeries are yet to make a dent ➢ Net based marketing possible	➢ Local as well as national competitors ➢ Covid like situation could hamper business including availability of raw material

Financial Aspects of the Project

Infrastructure requirement

Any project preparation is based on a set of assumptions made which are close to the market reality. In this project the land used is assumed to be own land. The major component of a bakery unit is land, building, plant and machinery and civil works. List of all the assumptions made is given in Annexure 3. Raw material storage would be for about 7 days. Finished goods inventory would be for 2 day as the shelf life of bakery items is generally for 3-4 days. This business however needs more working capital because of the collection of money from vendors take longer time. The building would have a raw material storage room, one finished goods storage room, and the main processing room along with an office room and toilet. Space required would be of around 6000 sq ft. taking into account the future expansion plan.

Land and its development

A plot of approximately 10000 sq.ft would be necessary for setting up a bakery unit of this scale. It is assumed that a land of 0.25 acre will be available in case of further expansion in the future. The land should be free from any encumbrance and shall be mortgageable. The land should be classified as industry/non-agriculture. Permission for industry/non-agriculture use, wherever applicable, shall be obtained for the land.

Size of the unit

The capacity has been restricted to 250 kg ton of wheat flour per day. The bakery is exp[ected to operate for 300 days in a year. However, based on the level of competition, the entrepreneur should be mentally prepared to run the unit 365 days in a year. It would be better to restrict the size of operation at this level because of two

reasons. The raw material will be sourced from the local wholesalers. In the first 2 years, the brand would have to establish itself in the locality. We are taking one shift per day and if the product succeeds the same can be increased to two shifts. Given the nature of the product the same machinery cannot be used for three shifts as machines would also need some rest. This capacity would lead to a processing of 250 kg of the basic raw material which is refined wheat flour, is commonly called Maida. Based on estimates this would be adequate to cater to the market surrounding the production area. Second reason is marketing of end product. As one has to go in for direct marketing, it would be necessary to have a brand which needs to be established in quick time in the last phase of the first year and beginning of second year. And then the same will get settled in a year or two and earn a good name if quality is maintained. If the brand gets established, the unit can then diversify into other bakery products with minimal additional investment.

Machineries and Equipment

Various machineries and equipments will be required for setting up the plant. The list of such equipment and number of such units required for setting up a Bread making unit along with Miscellaneous fixed assets for which investment has to be made is given below. This would have a maximum capacity 250 kg or 0.25 tonnes per day @ rate of 8 hours per day. For 300 days in a year this would mean 75 tonnes per annum.

Processing Equipment cost				
Sl no.	**Machine**	**Unit**	**Unit Cost**	**Amount in Rs.**
1	Planetary Mixer (20 ltr) (0.75 Kw)	1	65000	65000
2	Planetary Mixer (60 ltr) (2.2 Kw)	1	315000	315000
3	Smart Drop LCD display panel (3 HP)	1	810000	810000
4	Gas Two deck baking oven (0.2 Kw)	1	225000	225000
5	Dough Sheeter (0.75 Kw)	1	280000	280000
6	Cake Slicing Machine (multiple types of cutting/slicing) (0.5Kw)	1	1200000	1200000
7	Baking Tray	100	475	47500
8	Trolley	4	20000	80000
9	Cup cake mould	100	475	47500
10	Bar cake Mould	100	220	22000
11	Other small equipments like bucket, steel containers, etc as a set and lab equipments for testing	1	500000	500000
12	10.5 KVA genset	1	225000	225000
	Total cost of equipment			3817000
	Addl charges for GST, transportation, etc		30%	1145100
	Total cost of equipment incl GST, etc.			**4962100**

1. Prices quoted for equipments by Orange Multiventures or any other company on Indiamart are generally excluding GST, Transportation, installation and training charges as well as any other taxes applicable. Accordingly, an additional 30% has been taken on the ex-factory equipment cost.
2. Based on the searches on Indiamart, it is observed that there are companies supplying all the equipments giving a single window solution. It is suggested that it would be better for an entrepreneur to buy all equipments from a single vendor because the following reasons.
    a. There will not be any mismatch between equipments and automation would be smoother.
    b. Single point of contact would not allow any blame game between vendors in case something goes wrong.
    c. Power assessment would be better and line can be drawn accordingly
    d. A single unit set up by any of these can be visited to get a clear overview.
    e. Training would be much easier as it would from one agency
3. The packaging machine would depend on what volume we want to pack. As we are targeting direct marketing in this case, packaging would be for say 100/200 grams to a maximum of 1 kg.
4. List of Manufacturers is given in Annexure 5.

Miscellaneous fixed assets				
Sl. No.	**Particulars**	**Units**	**Unit cost**	**Amount in Rs.**
1	Electrical and water Connection	1	200000	200000
2	Effluent Treatment Unit	1	300000	300000
3	Chairs	11	2500	27500
4	Table	2	5000	10000
5	Computer	2	50000	100000
6	Printer	1	15000	15000
	Total			**652500**

Waste management today and effluent treatment specially for water is one of the most important thing in setting up an industry. Waste water in bakeries is primarily generated from cleaning operations including equipment cleaning and floor washing. It can be characterized as high loading, fluctuating flow and contains rich oil and grease. Flour, sugar, oil, grease, and yeast are the major components in the waste. Primary treatment is a series of physical and chemical operations, which precondition the wastewater as well as remove some of the wastes. The treatment is normally arranged in the following order: screening, flow equalization and neutralization, optional FOG separation, optional acidification, coagulation–sedimentation, and dissolved air flotation. Cost for the same is taken in Misc Fixed assets.

There would be a necessity of small vehicles for distribution of the product to the retailers directly. AT least 3 such vehicles would be necessary for the purpose to cover a small township.

Vehicles for Transportation of goods	Units	price	Amount in Rs.
Small vehicles for finished goods distribution	5	400000	2000000

Given the fact that the raw material would be procured from local wholesalers we need not stock raw material for more than a 7 days. Only a room adjacent to the processing room would be made to store the raw material. Similarly finished goods inventory would not be more than 2 days. The production would be managed accordingly. The finished goods will also be stored in a room adjacent to the production area. The project could be done on a 6000 sq ft plot. Land however has been taken at 0.25 acre to enable sufficient space for loading and unloading as well as keeping in mind future expansion.

The total building cost is given in table below:

Land and Building			
Particulars	**Area reqd**	**Rate/sqft in Rs.**	**Amount in Rs.**
Land cost	Own land - 0.25 acre		0
Building cost @ 1430/-- per sq ft including storage area	6000	1430	8580000
Cost of setting up two outlets (factory outlet and one at the nearby township	lumpsum		2000000
Total cost			**10580000**

Pricing of the Finished Goods

The main source of income is from the cup cakes and bar cakes. It is expected that in the first 2-3 years the business will rely more on the mainstream product of cup cakes and bar cakes. Based on how the success of the other products come up, more products can be thought of at a later stage like cookies, muffins, pizza base, puff, patties, cream rolls croissant, etc. The equipments also have been taken to allow diversification into such products in future. It may be stated that income from the two outlets has been taken into account at a very nominal level. The income from the two outlets selling products like birthday cakes and pastries has been taken at a very nominal level selling only 1000 pieces of pastries and 100 birthday cakes only in a year at 100% capacity utilisation. The assumptions regarding price and share in capacity untilisation is given below:

Price of products and product mix						
Item	pieces per pack	Weight in grams	production capacity	No. of packs produced	Price in Rs.	Total Income
Cup cakes	5	200	35%	438	120	52560
Bar cakes	1	100	35%	875	35	30625
Pastries	1	50	20%	1000	25	25000
Birthday cakes	1	250	10%	100	600	60000
Total				2413		168185
Annual Income in Rs. At 100% capacity utilisation						**50455500**
Average Price per unit in Rs.					**70**	

The weighted average price per unit arrived at in the above table has been used for the analysis of the project.

The total bank loan component based on the assumptions made and unit costs taken would be as follows:

Project Summary			
Project Cost excluding land			**18194600**
Preoperative expemses			**181946**
Total Cost excluding land			**18376546**
Own Contribution			**7350618.4**
Estimated Bank loan			**11025928**
Own Contribution in Rs. Lakh			**73.51**
Bank Loan in Rs. Lakh			**110.26**

In addition interest cost of the first year will be capitalized as the project would need a moratorium for 12 months. This would increase the outstanding at the end of the first year.

Project Timeline

The project to start off production would need around one year for implementation to be completed. The breakup for the same is given in table below:

Activities	Projected time period
Arrangement of finance	3 months
Building of premises/Acquisition of premises	6 months
Procurement of equipments	2 months
Recruitment of manpower	1 month
Training	1 month

As recruitment of manpower can be done along with procurement of equipment and the activity would not be part of the critical path, the total time taken would be 12 months for setting up the project and to reach a position to start production.

Working Capital requirement

Working capital requirement has been assessed keeping in view the banking requirements. Own contribution has been taken at 25%. However, before calculating the working capital requirement it is necessary to find out the overall raw material requirement, production and details of stock based on the assumptions stated above from which working capital requirement is generated. In the following tables details of working capital requirement is assessed.

Capacity utilisation in the second year has been kept at 80%. Bread Production in the first five years of the project is expected to be as follows:

Cake Production for 5 years					
Production Period	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	0%	65%	70%	75%	80%
Raw material requirement per day	0	0.16	0.18	0.19	0.2
Raw material required in tonnes for the year	0	48.75	52.5	56.25	60
Rate per tonne including additives in Rs.	0	125000	131250	137813	144704
Cost of packaging material per unit of cake	0	10	10.5	11.03	11.58
Total Cost in Rs. Lakh	0	62.96	71.19	80.09	89.7
Calculation of Sales					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Production of Cake					
Opening Stock	0	0	1568	1689	1810
Production in units per day	0	1568	1689	1810	1930
Production in units per annum		470400	506700	543000	579000
Closing Sock of 1 day in units	0.00	1568	1689	1810	1930
Net Sales in units	0	468832	505011	541190	577070
Sales price per packet of 400 gm incl packaging	0	70	74	78	82
Sales value in Rs. Lakh	**0.00**	**328.18**	**373.71**	**422.13**	**473.20**

Working capital requirement has to be evaluated based on the above mentioned details. The same is given in the table below:

Working Capital Assessment					
Computation of value of closing stock and working capital requirement					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Finished goods inventory in units of cake	0	1568	1689	1810	1930
Price of finished goods per unit of cake produced	0	70	74	78	82
Total finished goods stock price in Rs.	0	109760	124986	141180	158260
Raw material inventory in tonne	0	1.12	1.26	1.33	1.4
Price of Raw Material/tonne in Rs.	0	125000	131250	137813	144704
Packaging Material per unit of cake produced	0	10	10.5	11.03	11.58
Total Raw Material Stock Price	0	308910	342731	369599	398183
Total value of stock	0	418670	467717	510779	556443
Amount in Lakh	0	4.19	4.68	5.11	5.56
Less Creditors in lakh	0	1.05	1.17	1.28	1.39
Paid Stock in lakh	0	3.14	3.51	3.83	4.17
Add sundry debtors in lakh	0	16.76	18.72	20.44	22.24
Total	**0**	**19.9**	**22.23**	**24.27**	**26.41**
Own contribution @ 25%	**0**	**4.98**	**5.56**	**6.07**	**6.6**
Working Capital requirement*	**0**	**14.92**	**16.67**	**18.2**	**19.81**
*** WC requirement has been taken based on the requirement of the second year as the first year would be treated as moratorium period for setting up the project.**					

The project is expected to generate enough cash and working capital limit is pegged at the requirement of the second year, first year being the moratorium for setting up the factory.

Other Expenses

There are other expenses which may be also termed as running cost. They are mainly salary, and electricity charges packaging cost, and admin n& marketing expenses. The details of these expenses are given below:

Labour and Staff Salary/wages				
Particulars	**Wages/ Salary per month**	**No. of employees**	**Total Salary per month**	**Annual Salary**
Manager	30000	1	30000	360000
Accountant	25000	1	25000	300000
Bakery specialist	30000	1	30000	360000
Machine Operator	20000	3	60000	720000
Skilled labour	15000	5	75000	900000
Unskilled labour	10000	15	150000	1800000
Field staff cum driver for distribution and cash collection	15000	5	75000	900000
Total Salary			**370000**	**5340000**

Projected Salary Expenses					
Salary expenses Projection	1st year	2nd year	3rd year	4th year	5th year
Annual Salary expenses	0	5340000	5874000	6461400	7107540
Salary expenses rounded off to lakhs	**0**	**53.4**	**58.74**	**64.61**	**71.08**
Electricity Charges					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	**0%**	**65%**	**70%**	**75%**	**80%**
Consumption of power per day in units	0	81.25	87.5	93.75	100
Rate per unit in Rs.	9.00	9.00	9.00	9.00	9.00
Power bill per month in Rs.	0	18281.25	19687.5	21093.75	22500
Total power bill per year	**0**	**219375**	**236250**	**253125**	**270000**
Power bill in Rs. Lakh	**0**	**2.19**	**2.36**	**2.53**	**2.7**
Packaging Cost					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cost of Packaging per unit of cake	0	10	10.5	11.03	11.58
Total Production in units of cake	0	470400	506700	543000	579000
Packaging cost in Rs. Lakh	**0.00**	**47.04**	**53.20**	**59.89**	**67.05**
Selling, transportation and administrative expenses					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Sales and branding expenses per annum	0	1000000	1000000	1000000	1000000
Admin Expenses	0	120000	120000	120000	120000
Transportation charges	0	480000	480000	480000	480000
Total Expenditure on Sales, Admin &Transportation in Rs. Lakh	**0**	**16**	**16**	**16**	**16**

All these costs will be factored in later in the report while evaluating the financial benefits of the project

Depreciation

The depreciation calculation is as follows:

Depreciation Calculation					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Total value of equipments	0	7614600	6472410	5501548	4676316
Depreciation @15%	**0**	**1142190**	**970862**	**825232**	**701447**
Value at the end of the year to be carried forward	0	6472410	5501548	4676316	3974869
Total Value of building	0	10580000	9522000	8569800	7712820
Depreciation of building@10%	**0**	**1058000**	**952200**	**856980**	**771282**
Value at the end of the year to be carried forward	0	9522000	8569800	7712820	6941538
Total depreciation	**0**	**2200190**	**1923062**	**1682212**	**1472729**
Total depn in Rs. Lakh	0	22	19.23	16.82	14.73

Repairs and maintenance

In case of new equipments including computers, generally they give a warranty for one year. Thus the maintenance cost would be starting from the second year onwards. The same in general is given at a service charge of 15% per annum. In case there are any major spares to be replaced the cost of that has to be borne by the customers. Given these general terms, it can be taken at 20% of the equipment cost per annum. The same would then be as follows:

Cost of Maintenance	
Particulars	**Amount**
Total fixed cost	7614600
Maintenance cost in percentage	20%
Cost of Maintenance	1522920
Maintenance cost in Rs. Lakh	15.23

Cost of Project and Means of Finance

Based on the data presented above on cost of plant and machinery, working capital requirement, etc., the cost of the project and means of finance required can be summarized as follows:

Cost of The Project	
	(in Rs. Lakh)
Particulars	**Amount**
Land & Building*	105.8
Plant & Machinery and Pre op. expenses	51.44
Misc. Items incl. vehicles	26.53
Working Capital	19.9
Total	203.67
*Land is assumed as own land and hence cost taken is 0	

Means of Finance	
	(in Rs. Lakh)
Particulars	Amount
Own Contribution	73.51
Term Loan from Bank	110.26
Working Capital Own contribution	4.98
Working Capital	14.92
total	203.67

The detailed repayment schedule of the term loan is indicated in Annexure 4. The interest for the first year is capitalized and loan outstanding accordingly increased in the end of the first year. It is assumed that the working capital limit given will be renewed every year for the next five years. Any increase in the working capital may not be necessary as the project should be able to generate sufficient profits and the internal accruals should be able to take care of additional working capital requirements. The summary of interest payment for working capital and term loan and principal repayment is given in the table below:

Year-wise Interest on Bank Loan					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Interest on Term Loan in Rs.*	0	1192014	855445	518874	182305
Interest on Term Loan in Rs. Lakh	0.00	11.92	8.55	5.19	1.82
Interest on working Capital	0	1.64	1.64	1.64	1.64
Principal Repayment in Rs.	0	3059724	3059724	3059724	3059692
Principal Repayment in Rs. Lakh	0.00	30.60	30.60	30.60	30.60
Balance outstanding - end of the year	122.39	91.79	61.19	30.59	0.00
* Interest on term loan has been capitalisedfor 12 months leading to increase in the capital outlay. This has been done to account for the 12 month moratorium.					

Financial Statements

The profitability of the project can be judged based on the financial statements generated based on the data presented above in the series of tables. Accordingly the projected profit and loss account, balance sheet, and cash flow statement along with breakeven analysis is presented in the tables below. During the moratorium period the interest is charged by the bank which has to be capitalized to ensure that the same is repaid over a period of time. Capitalisation thus leads to increase in the loan quantum at the end of the first year which can be seen in the balance sheet.

Projected P&L Statement					
					(in Rs. Lakh)
Particulars	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation%	0%	65%	70%	75%	80%
Gross Sale of Cake	0	328.18	373.71	422.13	473.2
Total	**0**	**328.18**	**373.71**	**422.13**	**473.2**
Cost of Production					
Raw Material Consumed	0	60.94	68.91	77.52	86.82
Electricity Charges	0	2.19	2.36	2.53	2.7
Depreciation	0	22	19.23	16.82	14.73
Salary and wages	0	53.4	58.74	64.61	71.08
Repair and Maintenance	0	15.23	15.23	15.23	15.23
Packaging	0	47.04	53.20	59.89	67.05
Selling & Admn Expenses	0	16.00	16.00	16.00	16.00
Total Cost of Production	**0**	**216.8**	**233.67**	**252.6**	**273.61**
Profit before interest and taxes	**0**	**111.38**	**140.04**	**169.53**	**199.59**
Interest on Term Loan*	0.00	11.92	8.55	5.19	1.82
Interest on Working Capital	0	1.64	1.64	1.64	1.64
Total Interest Payment	**0.00**	**13.56**	**10.19**	**6.83**	**3.46**
Profit before Tax	0.00	97.82	129.85	162.70	196.13
Income Tax	0	24.46	32.46	40.68	49.03
Net profit after tax	**0.00**	**73.36**	**97.39**	**122.02**	**147.10**
Term loan interest for first year capitalised to account for the moratorium					

Projected Balance Sheet					
					Rs. In Lakh
Particulars	1st year	2nd year	3rd year	4th year	5th year
Liabilities					
Capital					
Opening Balance	0	73.51	151.85	249.24	371.26
Own Capital Contribution	73.51	4.98			
Retained Earnings	0.00	73.36	97.39	122.02	147.10
Total-Closing Balance	**73.51**	**151.85**	**249.24**	**371.26**	**518.36**
Term Loan	122.39	91.79	61.19	30.59	0.00
Working Capital Limit	0.00	14.92	14.92	14.92	14.92
Sundry Creditors	0	1.05	1.17	1.28	1.39
Total Liabilities	**195.9**	**259.61**	**326.52**	**418.05**	**534.67**

Assets					
Fixed Assets	183.77	183.77	183.77	183.77	183.77
Gross Depreciation	0	22	41.23	58.05	72.78
Net Fixed Assets	**183.77**	**161.77**	**142.54**	**125.72**	**110.99**
Sundry Debtors	0	16.76	18.72	20.44	22.24
Stock in Hand	0	4.19	4.68	5.11	5.56
Interest capitalised	12.13	0	0	0	0
Cash and Bank Balance	0	76.89	160.58	266.78	395.88
Total Assets	**195.9**	**259.61**	**326.52**	**418.05**	**534.67**

As can be seen, the unit would be in profits after tax from second year onwards at 65% capacity utilization. The project is generating healthy profit from second year with the first year being moratorium as presented above. The breakeven analysis indicates the level of operation at which the operations will breakeven and not have any loss. It becomes important to identify the fixed and the variable costs. Even within variable component there is always a part which is fixed. For example, even if the plant is not running there will be lights and fans which will be used for administrative work, people will have to be paid salary for those days as well, etc. Accordingly, a portion of the variable expenses have been taken as fixed cost to arrive at the contribution and the total fixed cost. Total fixed cost divided by the contribution (fixed cost÷Contribution) gives us the breakeven point. In this case the breakeven capacity utilization in year 2 comes at 43% capacity utilisation.

Breakeven Point Analysis		
Rs. In Lakh		
Total Sale (Sales - opening WIP + closing WIP)	**Year 1**	**Year 2**
Net Sales	0.00	328.18
Less: Opening Stock	0.00	0.00
Add: Closing Stock	0.00	1.10
Total Production/Sales	**0.00**	**329.28**
Variable Expenses		
Raw Material and Packaging	0.00	62.96
Interest on working Capital	0.00	1.64
Repair and Maintenance	0.00	3.81
Salary expenses	0.00	5.34
Sales & Admin Expenses	0.00	2.40
Energy - Electricity	0.00	2.15
Total	**0.00**	**78.30**
Contribution	**0.00**	**250.98**
Contribution per unit of cake	**NA**	**53.53**

Fixed expenses		
Interest on Term Loan	0.00	11.92
Repair and Maintenance	0.00	11.42
Salary expenses	0.00	48.06
Sales & Admin Expenses	0.00	13.60
Energy - Electricity	0.00	0.04
Depreciation	0.00	22.00
Total	**0.00**	**107.04**
Capacity utilisation	0%	65%
Operating Profit	**0.00**	**143.94**
Breakeven point in units of cake	**NA**	**199951**
Breakeven point in capacity utilisation (%)	**NA**	**43%**

Cash Flow Statement				
Rs. In Lakh				
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**
Sources of Fund				
Own margin	73.51	4.98		
Profit Before Interest and Tax	0.00	111.38	140.04	169.53
Depreciation	0.00	22.00	19.23	16.82
Working Capital accretion	0.00	14.92	0.00	0.00
Term Loan accretion	110.26	12.13	0.00	0.00
Creditors	0.00	1.05	0.12	0.11
Total	**183.77**	**166.46**	**159.39**	**186.46**
Uses of Fund				
Fixed Assets	183.77	0.00	0.00	0.00
Stock in Trade - Accretion	0.00	4.19	0.49	0.43
Debtors - Accretion	0.00	16.76	1.96	1.72
Repayment of term Loan	0.00	30.60	30.60	30.60
Interest on Term Loan	0.00	11.92	8.55	5.19
Interest on working capital	0.00	1.64	1.64	1.64
Income Tax	0.00	24.46	32.46	40.68
Accretion in cash & bank balance	0.00	76.89	83.69	106.20
Total	**183.77**	**166.46**	**159.39**	**186.46**

The cash flow statement above indicates that chance of any problem with the cash is very little or so to say practically nil in the project. The project generates cash, and the entrepreneur can maintain a healthy cash balance for any eventuality or a rainy day. There are risks like equipment failure and the repair time

required for the same, sudden problem with supply of raw material or shipment not arriving, etc. Now these are unforeseen risk which always cannot be factored in. It is for these kinds of problems that a healthy cash balance is necessary for running a business. This project enables the entrepreneur to have that.

Calculation of DSCR					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cash Accruals					
Depreciation	0	22	19.23	16.82	14.73
Profit before interest and taxes	0	111.38	140.04	169.53	199.59
Total	**0**	**133.38**	**159.27**	**186.35**	**214.32**
Repayments					
Interest on Term Loan	0.00	11.92	8.55	5.19	1.82
Term Loan Instalments	0.00	30.60	30.60	30.60	30.60
Total	**0.00**	**42.52**	**39.15**	**35.79**	**32.42**
Debt Service Coverage Ratio	**NA**	**3.14**	**4.07**	**5.21**	**6.61**

The debt service coverage ratio from second year is 3.14 and above indicating that the project should not have any problem in servicing the loan in the structure suggested which is a five-year loan including one year moratorium.

IRR/NPV and BC Ratio

The calculation for internal rate of return (IRR) a, BC Ratio and net present value (NPV) is given below. The BC ratio is a healthy 1.89 considering a discount rate of 15%. The net present value of future benefits at a discount rate of 15% comes to Rs. 732.68 lakh. And the internal rate of return comes to 111% which essentially indicates that at 111% discount rate the net present value of net benefits would be zero. This also acts as an indicator of the risk bearing capacity of the project.

BC Ratio, NPV and IRR								(Amt in Rs. Lakh)
Costs and revenue items	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**	**6th year**	**7th year**	**8th year**
Fixed Costs	183.77							
Variable costs								
Raw material	0	62.96	71.19	80.09	89.7	94.19	98.9	103.84
Salary	0	53.4	58.74	64.61	71.08	78.18	86	94.6
Electricity	0	2.19	2.36	2.53	2.7	2.7	2.7	2.7
Maintenance	0	15.23	15.23	15.23	15.23	15.23	15.23	15.23
Sales and Admin exp	0	16	16	16	16	16	16	16
Total Costs	**183.77**	**149.78**	**163.52**	**178.46**	**194.71**	**206.3**	**218.83**	**232.37**
Rate of discount	15%							
Present value of costs	826.83							

Revenues								
Sale of finished goods								
Cake sales		328.18	373.71	422.13	473.20	496.28	519.36	548.22
Total	**0**	**328.18**	**373.71**	**422.13**	**473.2**	**496.28**	**519.36**	**548.22**
Rate of discount	15%							
Present value of benefits	1559.51							
BC Ratio	1.89							
Net Benefits	-183.77	178.4	210.19	243.67	278.49	289.98	300.53	315.85
Rate of discount	15%							
NPV	732.68							
IRR	111%							

Registration/Certification

There are four registrations necessary for MSMEs which are involved in food proceesing. A brief on the same is given below:

1. **GST**: GST registration in today's environment is a necessity for anyone doing a business. The entrepreneur must get himself registered for the same first. Many of the benefits given by central government is being linked to GST registration. Necessary system should be put in place to file the GST return from time to time as per the rules laid down by GoI. (https://reg.gst.gov.in/registration/)
2. **FSSAI:** The processing units should follow the Food Safety and Standard Authority of India (FSSAI) act 2006. FSSAI Act is applicable pan India for all food products. It prescribes minimum standards operating procedures, food safety norms, packaging & labeling norms. The new units need to take a license called FSSAI number from Food Safety and Standards Authority of India. The registration can be done at FSSAI website. (https://fssai.gov.in/cms/registration.php)
3. **UDYAM:** The entrepreneur may consider getting himself registered in UDYAM. (https://udyamregistration.gov.in/Government-India/Ministry-MSME-registration.htm).
4. **ISO:** ISO certification is a seal of approval from a third party body that a company runs to one of the international standards developed and published by the International Organization for Standardization (ISO). It is absolutely essential if one wants to venture into exports. Even for domestic sales this certification adds value. A person feels comfortable with ISO certification mentioned in the packaging along with FSSAI registration. Various agencies are there doing this job of certification. One such site available ishttps://legalwaycertification.com/iso/. There are many other such agencies who have been authorized to issue ISO certification.

All three viz., GST registration, FSSAI registration and ISO certification has to be mentioned on the packaging. It is also important that these certifications are renewed as and when required. For example, ISO certification is valid for 1 year in many cases. If so, the certification needs to be renewed every year. In addition to the ones stated above, it would be necessary to take fire and pollution clearances. It would also be advisable choose a brand name for the product and secure the name with trademark.

Having a trademark is useful for bulk sale and is necessary for direct marketing as well as exports.

Model Project Report on

Bakery for Bread

Bread Making Unit

Introduction

Bread is one of the oldest processed food consumed by human beings across the world. The shapes and forms of the same may be different but the basic ingredients remain same. The advent of bread is closely associated with the rise of agriculture based living among human beings. Bread is a mixture of flour, water, salt, sugar, yeast and hydrogenated oil. However, the principal ingredient continues to be the flour. Bread can be made out of various kinds of flour but the most commonly used bread is made from refined wheat flour or all purpose flour commonly, known in India as *"Maida".* With more and more people becoming health conscious, the concept of whole wheat bread, multi-grain bread, etc. are picking up. However, the major consumption relates to bread made from refined wheat flour. The basic dietary minerals, mainly magnesium, calcium, potassium, sodium, and iron, are also obtained from bread.

Promoters - Some specific requirements

The details of the promoters will have to be obtained along with other information. The Proforma for promoter detail is given in Annexure – 1.

History of the company

The project has been prepared as if a new set up is being made for the purpose of bread making. The same could be part of another company or a new company all together. The details of the existing company or the proposed company have to be obtained/presented in the project report. Proforma for company report is given in Annexure-2.

Finished product and its utility

Bread is consumed in India mostly as a part of breakfast in the morning or even as meal by office goers who prefer to have a quick lunch of sandwich made by using common sliced bread. School children love it as a part of their lunch break in the school. At home bread is processed in various ways like making toasts, french toast, bread pakoda, etc.

Market, Demand and Major Competitors

There are bread manufacturers across the country but given the population and the fact that the product has a huge potential specially with most families in urban areas consisting of working couples. The large potential in rural areas also can be tapped. The most common brands of bread in India are Brittania, Modern bread, etc. In bread the local brands play a crucial role in the market due to its short shelf life.

Bread has evolved from being perceived as a basic breakfast food item to being a confectionary item for some customers. Over the years, increasing disposable incomes, urbanization, and changing consumer preferences and lifestyles have given a boost to the bread industry. Indian bread market stood at $ 640.73 million in 2017, and is projected to grow at a CAGR of over 10.70%, in value terms, during 20192024, to reach $1024.54 million by 2024. The increasing working population and disposable income along with lifestyle changes is expected to increase the demand for bread over the next few years. Moreover, awareness regarding the consumption of a balanced and healthy diet to reduce health problems is also an important reason for the increase in demand for good quality bread.

India's bread industry is dominated by unorganized players contributing to about 55% of the total market. However, their share is expected to decrease in the coming years, primarily due to increasing health awareness among consumers and their preferences shifting towards quality food products. Hence, it would create room for a proper bread producing unit not only through increase in demand but also through taking over the demand created by unorganized sector.

Note: In addition details of localized competition, has to be mentioned while preparing the final DPR based on where the unit is going to be set up.

Raw Material Requirement

The raw material required for bread making are refined wheat flour, yeast, sugar, salt, water and hydrogenated oil. All these items are available in the market or through websites like IndiaMart. Availability of raw material will not be a problem at any point of time. Hence storing huge quantity of raw material in this case would not make any sense. Maintaining a 7 day inventory, it is felt should be more than enough for ensuring continuity of production in case there is a break down in the supply chain.

SWOT Analysis

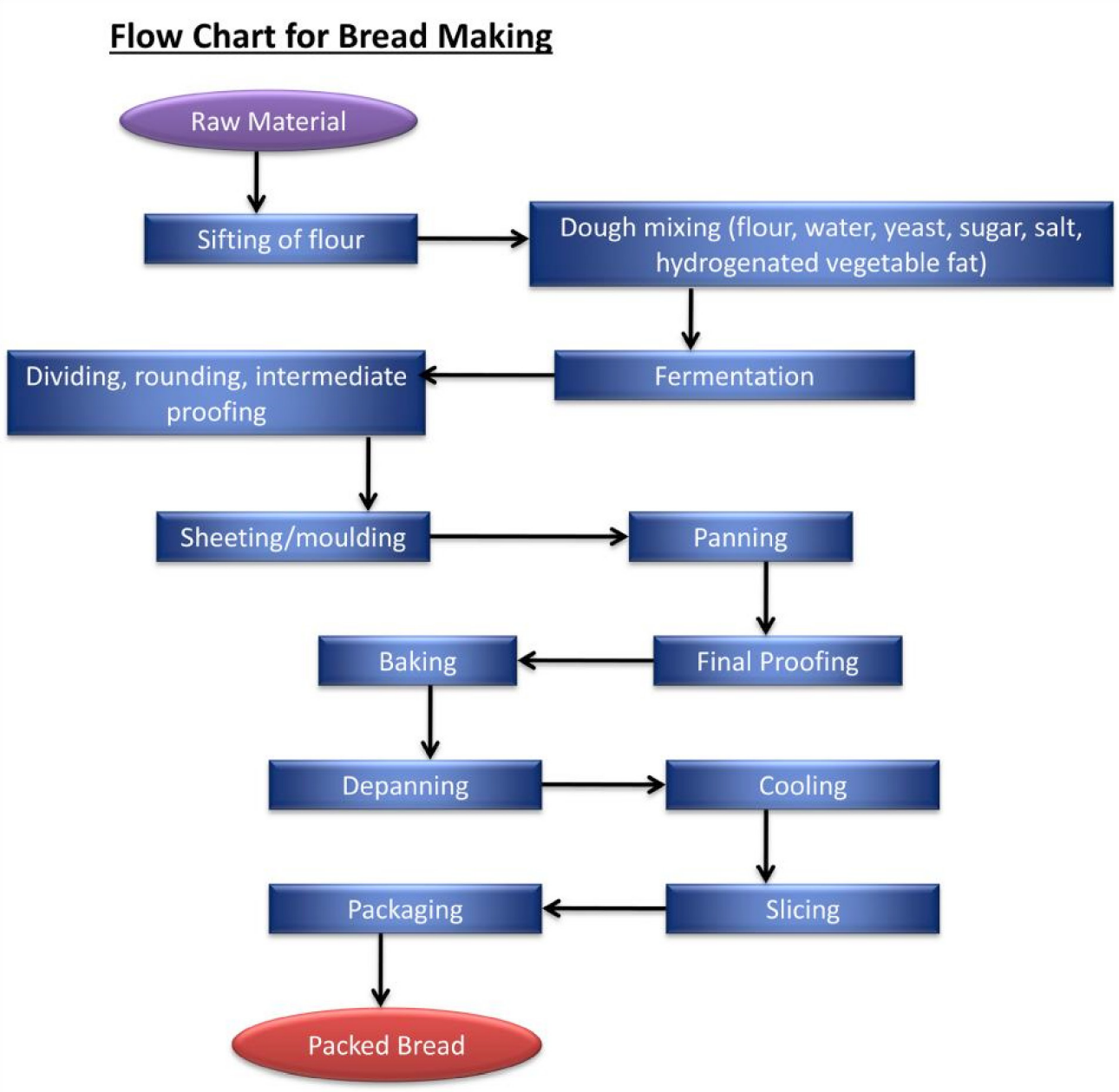
Strengths	Weakness
➢ Increasing Demand due to life style changes. People even have bread for dinner instead of making chapatti in families where both husband and wife are working ➢ It's a daily need product in every household.	➢ Limited Shelf life of product and hence demand estimation has to be accurate ➢ Lack of availability of skilled manpower ➢ With only one product breakeven point is very high and hence has to operate at a high capacity utilization. Failure on that part would make the project a loss making one

Opportunities	Threats
➢ People keen in looking for variety ➢ Scope for diversification within the domain. By bringing out different kinds of bread like whole wheat, brown bread, multigrain bread wil increase profitability. ➢ Capturing local market in semi-urban areas where big city based bakeries are yet to make a dent	➢ Local as well as national competitors ➢ Highly automated plants can become a threat in the long run. To overcome this, technology upgradation is a must from time to time.

Manufacturing Process

The process of manufacture for bread is well-established. The general process which is followed is explained here.

- The refined flour is passed through a sifter to ensure no large particles are in it. However, this process may not be required if we are certain about the quality of the flour.
- The ingredients viz., refined wheat flour, yeast, water, sugar, salt and hydrogenated oil are then mixed.
- The dough is then allowed to ferment. The dough is then kneaded. By kneading the dough the air bubbles and the carbon dioxide (CO_2) formed by fermentation that have accumulated is removed.
- The dough is then divided, rounded and left for intermediate proofing. Proofing is the process of leaving the dough in the machine for 30 to 50 minutes at a steady temperature of 27°C.
- This is followed by moulding. In cases of other bread products like Pizza base, sheeting is done.
- The dough is shaped for use in a baking pan. The forming of the dough into a long roll is called shaping. During the shaping process the dough ball is rolled into a slab. This slab is then rolled back up to fit into the bread moulds.
- This is followed by final proofing so that the shape becomes even.
- The bread moulds are then put into the baking oven.
- The bread is then cooled and removed from the moulds.
- The breads are then passed through a slicer machine, packed, stamped and is ready for sale in the market.



Financial Aspects of the Project

Infrastructure required

Any project preparation is based on a set of assumptions made which are close to the market reality. In this project ***the land used is assumed to be own land***. The major component of a bread making unit is land, building, plant and machinery and civil works. List of all the assumptions made is given in Annexure 3. Raw material storage would be for about 7 days. Finished goods inventory would be for two days as the shelf life

of bread is generally for 3-4 days. This business however needs more working capital because of the collection of money from vendors takes longer time. The building would have a raw material storage room, one finished goods storage room, and the main processing room along with an office room and toilet. Space required would be of around 6000 sq ft. taking into account the future expansion plan.

Land and its development

A plot of approximately 10000 sq.ft would be necessary for setting up a Bread making factory of this scale. It is assumed that a land of 0.5 acre would be available in case of further expansion in the future. The land should be free from any encumbrance and shall be mortgageable. The land should be classified as non-agriculture. Permission for non-agriculture use, wherever applicable, shall have to be obtained for the land.

Size of the unit

The capacity has been restricted to 1.5 ton of wheat flour per day. The requirement of bread in households is a daily one. There cannot be an off day. However, it is observed that in small towns in the state like Bolpur which is away from Kolkata, bread is generally not available for a day. So it is assumed that the plant will remain operational for a maximum of 313 days. To make the calculations simple we have taken 300 days in a year. However, based on the level of competition, the entrepreneur should be mentally prepared to run the unit 365 days in a year. It would be better to restrict the size of operation at this level because of two reasons. The raw material will be sourced from the local wholesalers. In the first 2 years, the brand would have to establish itself in the locality. We are taking one shift per day and if the product succeeds the same can be increased to two shifts. Given the nature of the product the same machinery cannot be used for three shifts as machines would also need some rest. This capacity would lead to a production of 3500-3750 pieces of 400 gm bread at 100% capacity utilization. Based on estimates this would be adequate to cater to the market surrounding the production area. Second reason is marketing of end product. As one has to go in for direct marketing, it would be necessary to have a brand which needs to be established in quick time in the last phase of the first year and beginning of second year. And then the same will get settled in a year or two and earn a good name if quality is maintained. If the brand gets established, the unit can then diversify into other bakery products but for that additional investment would be necessary though the additional cost would be lesser than setting up an independent unit because the Rotary rack oven required for both the units which costs around 8.50 lakh would not be further required during expansion. Similarly there will be overlap of manpower, the requirement of which with scale would be lesser.

Machineries and Equipment

Various machineries and equipments will be required for setting up the plant. The list of such equipment and number of such units required for setting up a Bread making unit along with Miscellaneous fixed assets for which investment has to be made is given below. This would have a maximum capacity 1500 kg or 1.5 tonnes per day @ rate of 8 hours per day. For 300 days in a year this would mean 450 tonnes per annum.

Processing Equipment cost				
Sl no.	**Machine**	**Unit**	**Unit Cost**	**Amount in Rs.**
1	Electric rotary rack oven - 80 trays - (3.3 Kw)	1	850000	850000
2	Spiral Mixer - (flour 50 Kg; dough 80 Kg) (5.6 Kw)	1	295000	295000
3	Dough moulder (2500 pcs) (2.5 HP)	1	325000	325000
4	Humidifier controller (8 Trolleys) (9.9 Kw)	1	355000	355000
5	High speed bread slicer (1500 pcs/hr) (1.21 Kw)	1	485000	485000
6	Baking tray	100	475	47500
7	Bread moulds	250	1050	262500
8	Trolley	4	20000	80000
9	Bread Packing machine	1	750000	750000
10	Testing equipments & Other small equipments like bucket, steel containers, etc as a set	1	200000	200000
11	30-35 kva generator	1	310000	310000
	Total cost of equipment			3960000
	Addl charges for GST, transportation, etc		30%	1188000
	Total cost of equipment incl GST, etc.			**5148000**

1. Prices quoted for equipments by Orange Multiventures or any other company on Indiamart are generally excluding GST, Transportation, installation and training charges as well as any other taxes applicable. Accordingly, an additional 30% has been taken on the ex-factory equipment cost.
2. Based on the searches on Indiamart, it is observed that there are companies supplying all the equipments giving a single window solution. It is suggested that it would be better for an entrepreneur to buy all equipments from a single vendor because of the following reasons.
    a. There will not be any mismatch between equipments and automation would be smoother.
    b. Single point of contact would not allow any blame game between vendors in case something goes wrong.
    c. Power assessment would be better and line can be drawn accordingly
    d. A single unit set up by any of these can be visited to get a clear overview.
    e. Training would be much easier as it would in from one agency

The packaging machine would depend on what volume we want to pack. As we are targeting direct marketing in this case, packaging would be for say 100/200 grams to a maximum of 1 kg.

Miscellaneous fixed assets				
Sl. No.	Particulars	Units	Unit cost	Amount in Rs.
1	Electrical and water Connection	1	200000	200000
2	Effluent treatment Unit	1	500000	500000
3	Chairs	11	2500	27500
4	Table	2	5000	10000
5	Computer	2	50000	100000
6	Printer	1	15000	15000
	Total			**852500**

There would be a necessity of small vehicles for distribution of the product to the retailers directly. AT least 3 such vehicles would be necessary for the purpose to cover a small township.

Vehicles for Transportation of goods	Units	price	Amount in Rs.
Small vehicles for finished goods distribution	3	400000	1200000

Given the fact that the raw material would be procured from local wholesalers we need not stock raw material for more than a 7 days. Only a room adjacent to the processing room would be made to store the raw material. Similarly finished goods inventory would not be more than 2 days. The production would be managed accordingly. The finished goods will also be stored in a room adjacent to the production area. The project could be done on a 6000 sq ft plot. Land however has been taken at 0.5 acre to enable sufficient space for loading and unloading as well as keeping in mind future expansion. The total building cost is given in table below:

Land and Building			
Particulars	Area reqd	Rate/sqft in Rs.	Amount in Rs.
Land cost	Own land - 0.5 acre		0
Building cost @ 1430/-- per sq ft including storage area	6000	1430	8580000
Total cost			**8580000**

Project Timeline

The project to start off production would need around one year for implementation. The breakup for the same is given in table below:

Activity	
Arrangement of finance	3 months
Building of premises/Acquisition of premises	6 months
Procurement of equipments	2 months
Recruitment of manpower	1 month
Training	1 month

As recruitment of manpower can be done along with procurement of equipment and the activity would not be part of the critical path, the total time taken would be 12 months for setting up the project and to reach a position to start production. Hence, one year moratorium has been taken. If "ready to move in" premises suitable for the project is acquired, then the timeline would come down by around 3 months. However, in this project it has been assumed that the unit will be set up in own land and costing has been done assuming the same.

The total bank loan component based on the assumptions made and unit costs taken would be as follows:

Project Summary	
Project Cost excluding land & building	**15780500**
Preoperative Expenses	**157805**
Total Project Cost	**15938305**
Own Contribution	**7969152.5**
Estimated Bank loan	**7969152.5**
Own Contribution in Rs. Lakh	**79.69**
Bank Loan in Rs. Lakh	**79.69**

In addition interest cost of the first year will be capitalized as the project would need a moratorium for 12 months. This would increase the outstanding at the end of the first year.

Working Capital requirement

Working capital requirement has been assessed keeping in view the banking requirements. Own contribution has been taken at 25%. However, before calculating the working capital requirement it is necessary to find out the overall raw material requirement, production and details of stock based on the assumptions stated above from which working capital requirement is generated. In the following tables details of working capital requirement is assessed.

Capacity utilisation in the second year has been kept at 80%. Bread production in the first five years of the project is expected to be as follows:

Bread Production for 5 years					
Production Period	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	0%	80%	85%	90%	95%
Raw material requirement per day	0	1.2	1.28	1.35	1.43
Raw material required in tonnes for the year	0	360	382.5	405	427.5
Rate per tonne in Rs.	0	32000	33600	35280	37044
Cost of packaging material per 400 grams	0	1.5	1.58	1.66	1.74
Total Cost in Rs. Lakh	0	128.57	143.48	159.52	176.77

Calculation of Sales					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Production of Bread					
Opening Stock	0	0	2.38	2.52	2.67
Production in tonnes	0	356.4	378.675	400.95	423.225
Closing Sock	0.00	2.38	2.52	2.67	2.82
Net Sales in tonnes	0	354.02	378.535	400.8	423.075
Sales price per packet of 400 gm incl packaging	0	26	27	28	29
Sales value in Rs. Lakh	**0.00**	**230.11**	**255.51**	**280.56**	**306.73**

Working capital requirement has to be evaluated based on the above mentioned details. The same is given in the table below:

Working Capital Assessment					
Computation of value of closing stock and working capital requirement					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Finished goods inventory in tonnes	0	2.38	2.52	2.67	2.82
Price of finished good/200 grams in Rs. including packaging material	0	26	27	28	29
Total finished goods stock price in Rs.	0	154700	170100	186900	204450
Raw material inventory in tonne	0	8.4	8.96	9.45	10.01
Price of Raw Material/tonne in Rs.	0	32000	33600	35280	37044
Packaging Material per 200 grams	0	1.5	1.58	1.66	1.74
Total Raw Material Stock Price	0	331170	315213	349083	388228
Total value of stock	0	485870	485313	535983	592678
Amount in Lakh	0	4.86	4.85	5.36	5.93
Less Creditors in lakh	0	1.22	1.21	1.34	1.48
Paid Stock in lakh	0	3.64	3.64	4.02	4.45
Add sundry debtors in lakh	0	9.72	9.7	10.72	11.86
Total	**0**	**13.36**	**13.34**	**14.74**	**16.31**
Own contribution @ 25%	**0**	**3.34**	**3.34**	**3.69**	**4.08**
Working Capital requirement*	**0**	**10.02**	**10**	**11.05**	**12.23**
*** WC requirement has been taken based on the requirement of the second year as the first year would be treated as moratorium period for setting up the project.**					

The project is expected to generate enough cash and working capital limit is pegged at the requirement of the second year, first year being the moratorium for setting up the factory.

Other Expenses

There are other expenses which may be also termed as running cost. They are mainly salary, and electricity charges packaging cost, and admin & marketing expenses. The details of these expenses are given below:

Labour and Staff Salary/wages				
Particulars	**Wages/ Salary per month**	**No. of employees**	**Total Salary per month**	**Annual Salary**
Manager	30000	1	30000	360000
Accountant	25000	1	25000	300000
Helper	10000	1	10000	120000
Machine Operator	20000	3	60000	720000
Skilled labour	15000	5	75000	900000
Unskilled labour	10000	5	50000	600000
Field staff for distribution and cash collection	15000	3	45000	540000
Total Salary			**250000**	**3540000**

Projected Salary Expenses					
Salary expenses Projection	1st year	2nd year	3rd year	4th year	5th year
Annual Salary expenses	0	3540000	3894000	4283400	4711740
Salary expenses rounded off to lakhs	**0**	**35.4**	**38.94**	**42.83**	**47.12**
Electricity Charges					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	**0%**	**80%**	**85%**	**90%**	**95%**
Consumption of power per day in units	0	299.8	299.85	299.9	299.95
Rate per unit in Rs.	9.00	9.00	9.00	9.00	9.00
Power bill per month in Rs.	0	67455	67466.25	67477.5	67488.75
Total power bill per year	**0**	**809460**	**809595**	**809730**	**809865**
Power bill in Rs. Lakh	**0**	**8.09**	**8.1**	**8.1**	**8.1**
Packaging Cost					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cost of Packaging per unit (400 grams)	0	1.5	1.58	1.66	1.74
Total Production in kg	0	356400	378675	400950	423225
Packaging cost in Rs. Lakh	**0.00**	**13.37**	**14.96**	**16.64**	**18.41**
Selling, transportation and administrative expenses					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Sales and branding expenses per annum	0	500000	500000	500000	500000
Admin Expenses	0	120000	120000	120000	120000
Transportation charges	0	480000	480000	480000	480000
Total Expenditure on Sales, Admin & Transportation	**0**	**1100000**	**1100000**	**1100000**	**1100000**

All these costs will be factored in later in the report while evaluating the financial benefits of the project

Depreciation

The depreciation calculation is as follows:

Depreciation Calculation					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Total value of equipments	0	7200500	6120425	5202361	4422007
Depreciation @15%	**0**	**1080075**	**918064**	**780354**	**663301**
Value at the end of the year to be carried forward	0	6120425	5202361	4422007	3758706
Total Value of building	0	8580000	7722000	6949800	6254820
Depreciation of building@10%	**0**	**858000**	**772200**	**694980**	**625482**
Value at the end of the year to be carried forward	0	7722000	6949800	6254820	5629338
Total depreciation	**0**	**1938075**	**1690264**	**1475334**	**1288783**
Total depn in Rs. Lakh	0	19.38	16.9	14.75	12.89

Repairs and maintenance

In case of new equipments including computers, generally they give a warranty for one year. Thus the maintenance cost would be starting from the second year onwards. The same in general is given at a service charge of 15% per annum. In case there are any major spares to be replaced the cost of that has to be borne by the customers. Given these general terms, it can be taken at 20% of the equipment cost per annum. The same would then be as follows:

Cost of Maintenance	
Particulars	**Amount**
Total fixed cost	7200500
Maintenance cost in percentage	20%
Cost of Maintenance	1440100
Maintenance cost in Rs. Lakh	14.4

Cost of Project and Means of Finance

Based on the data presented above on cost of plant and machinery, working capital requirement, etc., the cost of the project and means of finance required can be summarized as follows:

Cost of The Project	
	(in Rs. Lakh)
Particulars	**Amount**
Land & Building*	85.8
Plant & Machinery	39.6
Misc. Items	20.53
Working Capital	13.36
Total	159.29
*Land is assumed as own land and hence cost taken is 0	

Means of Finance	
	(in Rs. Lakh)
Particulars	Amount
Own Contribution	79.69
Term Loan from Bank	79.69
Working Capital Own contribution	3.34
Working Capital	10.02
total	172.74

The detailed repayment schedule of the term loan is indicated in Annexure 4. The interest for the first year is capitalized and loan outstanding accordingly increased in the end of the first year. It is assumed that the working capital limit given will be renewed every year for the next five years. Any increase in the working capital may not be necessary as the project should be able to generate sufficient profits and the internal accruals should be able to take care of additional working capital requirements. The summary of interest payment for working capital and term loan and principal repayment is given in the table below:

Year-wise Interest on Bank Loan					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Interest on Term Loan in Rs.*	0	861523	618268	375013	131758
Interest on Term Loan in Rs. Lakh	0.00	8.62	6.18	3.75	1.32
Interest on working Capital	0	1.1	1.1	1.1	1.1
Principal Repayment in Rs.	0	2211408	2211408	2211408	2211364
Principal Repayment in Rs. Lakh	0.00	22.11	22.11	22.11	22.11
Balance outstanding - end of the year	88.46	66.35	44.24	22.13	0.00
* Interest on term loan has been capitalisedfor 12 months leading to increase in the capital outlay. This has been done to account for the 12 month moratorium.					

Financial Statements

The profitability of the project can be judged based on the financial statements generated based on the data presented above in the series of tables. Accordingly the projected profit and loss account, balance sheet, and cash flow statement along with breakeven analysis is presented in the tables below. During the moratorium period the interest is charged by the bank which has to be capitalized to ensure that the same is repaid over a period of time. Capitalisation thus leads to increase in the loan quantum at the end of the first year which can be seen in the balance sheet.

Projected P&L Statement					
					(in Rs. Lakh)
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Capacity Utilisation%	0%	80%	85%	90%	95%
Gross Sale of Bread	0	230.11	255.51	280.56	306.73
Total	**0**	**230.11**	**255.51**	**280.56**	**306.73**
Cost of Production					
Raw Material Consumed	0	115.2	128.52	142.88	158.36
Electricity Charges	0	8.09	8.1	8.1	8.1
Depreciation	0	19.38	16.9	14.75	12.89
Salary and wages	0	35.4	38.94	42.83	47.12
Repair and Maintenance	0	14.4	14.4	14.4	14.4
Packaging	0	13.37	14.96	16.64	18.41
Selling & Admn Expenses	0	11.00	11.00	11.00	11.00
Total Cost of Production	**0**	**216.84**	**232.82**	**250.6**	**270.28**
Profit before interest and taxes	**0**	**13.27**	**22.69**	**29.96**	**36.45**
Interest on Term Loan*	0.00	8.62	6.18	3.75	1.32
Interest on Working Capital	0	1.1	1.1	1.1	1.1
Total Interest Payment	**0.00**	**9.72**	**7.28**	**4.85**	**2.42**
Profit before Tax	0.00	3.55	15.41	25.11	34.03
Income Tax	0	0.89	3.85	6.28	8.51
Net profit after tax	**0.00**	**2.66**	**11.56**	**18.83**	**25.52**
Term loan interest for first year capitalised to account for the moratorium					

As can be seen, the unit would be in profits after tax from second year onwards at 80% capacity utilisation

Projected Balance Sheet					
					Rs. In Lakh
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Liabilities					
Capital					
Opening Balance	0	79.69	85.69	97.25	116.08
Own Capital Contribution	79.69	3.34			
Retained Earnings	0.00	2.66	11.56	18.83	25.52
Total-Closing Balance	**79.69**	**85.69**	**97.25**	**116.08**	**141.6**
Term Loan	88.46	66.35	44.24	22.13	0.00
Working Capital Limit	0.00	10.02	10.02	10.02	10.02
Sundry Creditors	0	1.22	1.21	1.34	1.48
Total Liabilities	**168.15**	**163.28**	**152.72**	**149.57**	**153.1**

Assets					
Fixed Assets	159.38	159.38	159.38	159.38	159.38
Gross Depreciation	0	19.38	36.28	51.03	63.92
Net Fixed Assets	**159.38**	**140**	**123.1**	**108.35**	**95.46**
Sundry Debtors	0	9.72	9.7	10.72	11.86
Stock in Hand	0	4.86	4.85	5.36	5.93
Interest capitalised	8.77	0	0	0	0
Cash and Bank Balance	0.00	8.7	15.07	25.14	39.85
Total Assets	**168.15**	**163.28**	**152.72**	**149.57**	**153.1**

The project is generating healthy profit from second year with the first year being moratorium as presented above. The breakeven analysis indicates the level of operation at which the operations will breakeven and not have any loss. It becomes important to identify the fixed and the variable costs. Even within variable component there is always a part which is fixed. For example, even if the plant is not running there will be lights and fans which will be used for administrative work, people will have to be paid salary for those days as well, etc. Accordingly, a portion of the variable expenses have been taken as fixed cost to arrive at the contribution and the total fixed cost. Total fixed cost divided by the contribution (fixed cost÷Contribution) gives us the breakeven point. In this case the breakeven capacity utilization in year 2 comes at 73% capacity utilisation.

Breakeven Point Analysis		
		Rs. In Lakh
Total Sale (Sales - opening WIP + closing WIP)	**Year 1**	**Year 2**
Net Sales	0.00	230.11
Less: Opening Stock	0.00	0.00
Add: Closing Stock	0.00	3.09
Total Production/Sales	**0.00**	**233.20**
Variable Expenses		
Raw Material and Packaging	0.00	128.57
Interest on working Capital	0.00	1.10
Repair and Maintenance	0.00	3.60
Salary expenses	0.00	3.54
Sales & Admin Expenses	0.00	1.65
Energy - Electricity	0.00	7.93
Total	**0.00**	**146.39**
Contribution	**0.00**	**86.81**
Contribution per unit (per tonne)	**NA**	**24521.21**

Fixed expenses		
Interest on Term Loan	0.00	8.62
Repair and Maintenance	0.00	10.80
Salary expenses	0.00	31.86
Sales & Admin Expenses	0.00	9.35
Energy - Electricity	0.00	0.16
Depreciation	0.00	19.38
Total	**0.00**	**80.17**
Capacity utilisation	0%	80%
Operating Profit	**0.00**	**6.64**
Breakeven point in physical units	**NA**	**327**
Breakeven point in capacity utilisation (%)	**NA**	**73%**

Cash Flow Statement					
Rs. In Lakh					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Sources of Fund					
Own margin	79.69				
Profit Before Interest and Tax	0.00	13.27	22.69	29.96	36.45
Depreciation	0.00	19.38	16.90	14.75	12.89
Working Capital accretion	0.00	10.02	0.00	0.00	0.00
Term Loan accretion	79.69	8.77	0.00	0.00	0.00
Creditors	0.00	1.22	-0.01	0.13	0.14
Total	**159.38**	**52.66**	**39.58**	**44.84**	**49.48**
Uses of Fund					
Fixed Assets	159.38	0.00	0.00	0.00	0.00
Stock in Trade - Accretion	0.00	4.86	-0.01	0.51	0.57
Debtors - Accretion	0.00	9.72	-0.02	1.02	1.14
Repayment of term Loan	0.00	22.11	22.11	22.11	22.11
Interest on Term Loan	0.00	8.62	6.18	3.75	1.32
Interest on working capital	0.00	1.10	1.10	1.10	1.10
Income Tax	0.00	0.89	3.85	6.28	8.51
Accretion in cash & bank balance	0.00	5.36	6.37	10.07	14.73
Total	**159.38**	**52.66**	**39.58**	**44.84**	**49.48**

The cash flow statement above indicates that chance of any problem with the cash is very little or so to say practically nil in the project. The project generates cash, and the entrepreneur can maintain a healthy cash balance for any eventuality or a rainy day. There are risks like equipment failure and the repair time

required for the same, sudden problem with supply of raw material or shipment not arriving, etc. Now these are unforeseen risk which always cannot be factored in. It is for these kinds of problems that a healthy cash balance is necessary for running a business. This project enables the entrepreneur to have that.

Calculation of DSCR					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cash Accruals					
Depreciation	0	19.38	16.9	14.75	12.89
Profit before interest and taxes	0	13.27	22.69	29.96	36.45
Total	**0**	**32.65**	**39.59**	**44.71**	**49.34**
Repayments					
Interest on Term Loan	0.00	8.62	6.18	3.75	1.32
Term Loan Instalments	0.00	22.11	22.11	22.11	22.11
Total	**0.00**	**30.73**	**28.29**	**25.86**	**23.43**
Debt Service Coverage Ratio	**NA**	**1.06**	**1.4**	**1.73**	**2.11**

The debt service coverage ratio from second year is 1.06 and above with an own contribution of 50% on fixed cost indicating that the project should not have any problem in servicing the loan in the structure suggested which is a five-year loan including one year moratorium. In case the entrepreneur wants to have lesser own contribution, it would be necessary to increase the repayment period to 7 years with one year moratorium.

IRR/NPV and BC Ratio

The calculation for internal rate of return (IRR), BC Ratio and net present value (NPV) is given below. The BC ratio is a healthy 1.02 considering a discount rate of 15%. The net present value of future benefits at a discount rate of 15% comes to Rs. 21.52 lakh. And the internal rate of return comes to 20% which essentially indicates that at 20% discount rate the net present value of net benefits would be zero. This also acts as an indicator of the risk bearing capacity of the project. In this case the risk bearing capacity based on the assumptions made appears to be low. The breakeven level of the project is at 73%, to manage the loan component needed for investment the project would need 50% owners contribution and operate at 80% capacity to attain profitability indicating its sensitivity to capacity utilization indicating the importance of marketing the product in a proper manner and doing a proper analysis of the demand in the local market. The best way to manage this risk is diversification of the products to more profitable one like whole wheat bread, Brown bread and multigrain bread.

BC Ratio, NPV and IRR								(Amt in Rs. Lakh)
Costs and revenue items	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**	**6th year**	**7th year**	**8th year**
Fixed Costs	159.383							
Variable costs								
Raw material	0	128.57	143.48	159.52	176.77	185.64	194.91	204.7
Salary	0	35.4	38.94	42.83	47.12	51.83	57.01	62.71
Electricity	0	8.09	8.1	8.1	8.1	8.1	8.1	8.1

Maintenance	0	14.40	14.40	14.40	14.40	14.40	14.40	14.40
Sales and Admin exp	0	11	11	11	11	11	11	11
Total Costs	**159.383**	**197.46**	**215.92**	**235.85**	**257.39**	**270.97**	**285.42**	**300.91**
Rate of discount	15%							
Present value of costs	1015.51							
Revenues								
Sale of finished goods								
400 gram pack Bread		230.11	255.51	280.56	306.73	317.42	338.58	359.74
Total	**0**	**230.11**	**255.51**	**280.56**	**306.73**	**317.42**	**338.58**	**359.74**
Rate of discount	15%							
Present value of benefits	1037.02							
BC Ratio	1.02							
Net Benefits	-159.38	32.65	39.59	44.71	49.34	46.45	53.16	58.83
Rate of discount	15%							
NPV	21.52							
IRR	20%							

Registration/Certification

There are four registrations necessary for MSMEs which are involved in food proceesing. A brief on the same is given below:

1. **GST**: GST registration in today's environment is a necessity for anyone doing a business. The entrepreneur must get himself registered for the same first. Many of the benefits given by central government is being linked to GST registration. Necessary system should be put in place to file the GST return from time to time as per the rules laid down by GoI. (https://reg.gst.gov.in/registration/)

2. **FSSAI:** The processing units should follow the Food Safety and Standard Authority of India (FSSAI) act 2006. FSSAI Act is applicable pan India for all food products. It prescribes minimum standards operating procedures, food safety norms, packaging & labeling norms. The new units need to take a license called FSSAI number from Food Safety and Standards Authority of India. The registration can be done at FSSAI website. (https://fssai.gov.in/cms/registration.php)

3. **UDYAM:** This is meant for becoming eligible for any subsidy given by the government. The model project has been prepared without taking into account any subsidy. However, any such support comes from the government to reduce the risk of investment and can be availed by the entrepreneur. Accordingly the entrepreneur may consider getting himself registered in UDYAM. (https://udyamregistration.gov.in/Government-India/Ministry-MSME-registration.htm).

4. **ISO:** ISO certification is a seal of approval from a third party body that a company runs to one of the international standards developed and published by the International Organization for Standardization (ISO). It is absolutely essential if one wants to venture into exports. Even for domestic sales this

certification adds value. A person feels comfortable with ISO certification mentioned in the packaging along with FSSAI registration. Various agencies are there doing this job of certification. One such site available ishttps://legalwaycertification.com/iso/. There are many other such agencies who have been authorized to issue ISO certification.

5. **AGMARK:** AGMARK, or Agriculture Mark, is the certification mark to assure the quality of agricultural products in India. AGMARK acts as a third-party guarantee for the agricultural products that are produced and consumed in India. AS the target would be initially to create a foothold in the country, it would be necessary to obtain necessary certification

All three viz., GST registration, FSSAI registration and ISO certification has to be mentioned on the packaging. It is also important that these certifications are renewed as and when required. For example, ISO certification is valid for 1 year in many cases. If so, the certification needs to be renewed every year.

In addition to the ones stated above, it would be necessary to take fire and pollution clearances. It would also be advisable choose a brand name for the product and secure the name with trademark. Having a trademark is useful for bulk sale and is necessary for direct marketing as well as exports.

Model Project Report on

Ghee manufacturing

Ghee manufacturing unit

Introduction

India is a leading milk producing country in the world, accounting for 19 percent of the global market share and expected to grow at compound annual growth rate (CAGR) of 14.8% between FY 2018 – 2023. During fiscal year 2019, milk production in India amounted to about 187 million metric tons. Major production in the dairy industry and milk processing market comes under unorganized sector, where milk is processed in unhygienic infrastructure, which affects the overall quality of milk and milk-based products. Consumption patterns of liquid milk at the farm level and fewer infrastructure for processing is the main reason for low value addition of milk. The demand for value added products especially traditional dairy products is increasing day by day and the dairy industry of the country is trying to meet the present demand. Out of the different dairy products, the most common and oldest one consumed in India is Ghee. It is a famous traditional dairy product in India made from milk, cream, or butter of several animal species. A little amount of ghee adds a lot of flavour to the food.

Uttar Pradesh is the largest milk-producing state, as it has the highest buffalo population and the secondhighest cattle population in the country. Majority of the rural population in this state is engaged in livestock nurture and dairy farming. Gujarat holds several cooperative dairy unions, milk cooperative societies and private dairy plants, which play vital roles in the production of milk and milk-based products in the state. West Bengal ranks 12th in milk production based on the 2018-19 data. Milk Production data 0f 2011-12 to 2018-19 is given in Annexure 1.

Promoters - Some specific requirements

The details of the promoters will have to be obtained along with other information. The Proforma for promoter detail is given in Annexure – 2.

History of the company

The project has been prepared as if a new set up is being made for the purpose of Ghee manufacturing. The same could be part of another company or a new company all together. The details of the existing company or the proposed company have to be obtained/presented in the project report. Proforma for company report is given in Annexure-3.

Finished product and its utility

Ghee is one of the most commonly used cooking medium in India for various preparations including sweets. A spoon of ghee completely changes the taste of preparations and adds a lot of flavor to the food.

Market, Demand and Major Competitors

Ghee is produced both by organized and unorganized sector. Ghee, which is widely used in Indian cooking, is the pure butter fat left over after the milk solids and water are removed from butter. It is very fragrant with a rich nutty taste and represents the second largest consumed dairy product in India, after liquid milk. The market is further expected to reach a value of Rs. 4,65,300 crore by 2024. The healthy growth of the market can be attributed to numerous forces. Population growth, rising disposable incomes, easy availability, and growing awareness about the benefits of ghee are some of the factors that are broadening the growth aspects of the market. Currently, Uttar Pradesh represents the largest market of the total ghee market in the country. It is followed by Rajasthan and Madhya Pradesh. Some of the prominent players operating in the market include GCMMF, RCDF, Mother Dairy, Patanjali, SMC Foods, etc. As such there is potential and scope for further expansion. However, the market is very competitive. Moreover, it would not be economically a sound decision to have a standalone ghee producing unit. It is necessary that other milk products are also produced from the skimmed milk left after production of Ghee. Details of the same in this project will be discussed in the manufacturing process

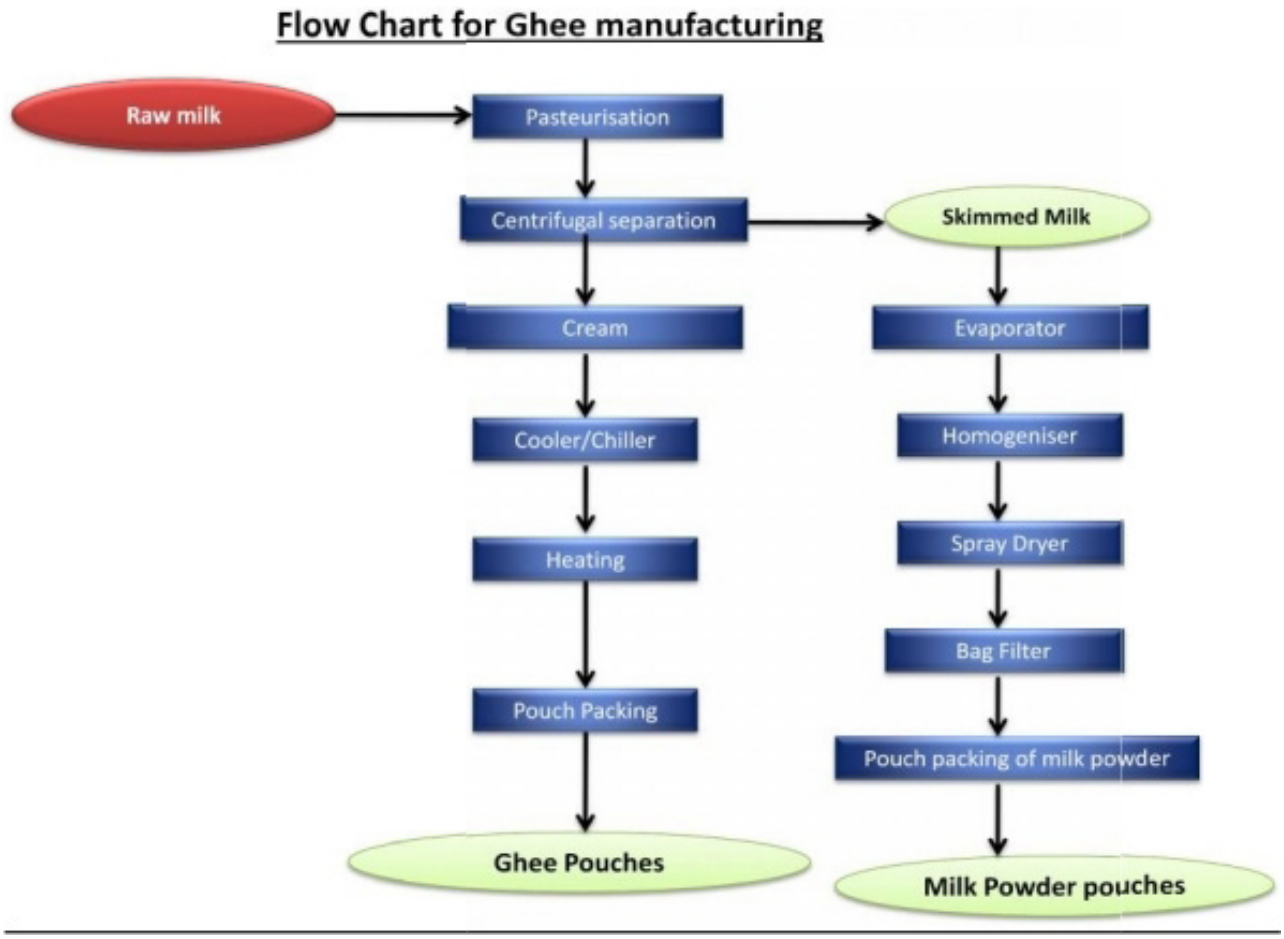
Note: In addition details of localized competition, has to be mentioned while preparing the final DPR based on where the unit is going to be set up.

Raw Material Requirement

Raw material in this case is milk which is available in West Bengal. However, the unit should be set up in an area where we can have 3 or 4 milk collection routes. The requirement of the unit would be around 6000 litres of milk per day in two shifts. The material has to be collected from either certain centres or from the farmgate. Given the kind of pattern in India where 2-4 animals are kept by the farmers as a secondary source of income, it would be ideal to collect the milk from certain pre-decided locations where the farmers can come, test the milk for fat content and sell the same. It is specifically for this reason 4 milk collection van of 1 ton capacity has been included in the project. A proper mechanism for the same has to be put in place by the entrepreneur so that farmers can receive the payment directly in their bank account through electronic mode.

Manufacturing Process

Ghee can be manufactured in different ways. There are traditional methods and there are more advanced methods for production of Ghee. It also needs to be stated that Ghee production alone should not be taken up as it would lead to lot of wastage of valuable milk proteins which also could enable substantial income. Skimmed milk can be converted to milk powder which can be used as dairy whitener, curd or milk protein concentrate. In this case we have opted for production of milk powder as an additional product. In fact, if a person would like to opt for milk protein concentrate the costing and benefits would be similar. The advantage of going with MPC is it needs lesser storage space but milk powder gives more benefits but needs overall higher investments due to additional space requirement for storage.



SWOT Analysis

Strengths	Weakness
➢ It's a daily need product is every household. ➢ Ghee as per many reports does have certain medical benefits including having cancer fighting CLA in it. It contains heart healthy fat, and also has anti-inflammatory properties	➢ A wrong notion around ghee that it is unhealthy.
Opportunities	**Threats**
➢ People always looking for quality in Ghee. Hence if the brand is positioned as that of a good quality ghee, it could be very successful	➢ Local as well as national competitors like Amul ➢ Price dependent on price of raw material which of late is increasing

Financial Aspects of the Project

Infrastructure requirement

Any project preparation is based on a set of assumptions made which are close to the market reality. In this project the land used is assumed to be own land. The major component of a Ghee processing unit is land, building, plant and machinery and civil works. List of all the assumptions made is given in Annexure 3. The space required would depend on the size of the unit.

Land and its development

A plot of approximately 5000 sq.ft. would be required for setting up an ghee and milk powder manufacturing unit with necessary storage space for both raw material and finished goods. The land should be free from any encumbrance and shall be mortgageable. The land should be classified as non-agriculture. Permission for nonagriculture use, wherever applicable, shall be obtained for the land.

Size of the unit

The plant and machinery could be such which would have flexibility of ghee produced. The plant size is pegged at 3200 litres of milk per day would cost around Rs.2 crore excluding land but including building construction. The flexibility here is that we have taken only one shift for working out the viability. The plant can operate 2 or even three shifts in a day in case the milk availability is not a problem and there is demand created by the initial sale of produce.

Machineries and Equipment

Various machineries and equipments will be required for setting up the plant. A broad classification of the set of equipments required along with the overall price is given below in the table. This investment in plant and machinery is required for 3200 litre per day capacity.

Dairy industries have grown in most countries because of the demand in milk and milk products. This rise has led to the growth of dairy industries. The wastewaters discharged from this industry contain high concentrations of nutrients, chemical oxygen demand (COD), biological oxygen demand (BOD), total suspended solids (TSS) and organic and inorganic contents, which can cause serious environmental problems if not properly treated. The conventional biological treatment methods are suitable for dairy wastewaters due to its high biodegradability. However, long chain fatty acids formed during the hydrolysis of lipids show the inhibitory action during anaerobic treatment. Sequencing batch reactor (SBR) and up flow anaerobic sludge blanket

(UASB) systems seem to be the most promising technology for the biological treatment of dairy wastewaters. Several research papers have been published on the application of aerobic and anaerobic treatment technologies for dairy industry wastewater, but both treatment methods still have some disadvantages. The most important challenge is to find cost-efficient and environmentally sustainable approaches to enable water reuse and waste management. Therefore, alternative treatment technologies against biological treatment

methods such as coagulation, adsorption, membrane and electrolysis processes are under investigation. AN estimated Rs.2.5 lakh has been taken for effluent treatment plant.

Processing Equipment cost				
Sl no.	**Machine**	**Unit**	**Unit Cost**	**Amount in Rs.**
1	Bulk Milk Chiller - 4 HP*3 i.e., 12 HP	3	465000	1395000
2	Pasteurizer Plant 3 HP	1	400000	400000
3	Ghee making Plant 3 HP	1	1000000	1000000
4	Pouch packing of ghee 5 HP	1	265000	265000
5	Evaporator 5 HP	1	100000	100000
6	Homogeniser 3 HP	1	200000	200000
7	Spray Dryer 10 HP	1	1000000	1000000
8	Bag Filter 2 HP	1	100000	100000
9	Milk Powder pouch packing machine 5 HP	1	100000	100000
10	40 KVA Genset	1	340000	340000
11	Other small equipments like bucket, steel containers, etc (1 Set) and a small testing lab	1	200000	200000
12	Effluent Treatment Plant	1	250000	250000
	Total cost of equipment			5350000
	Addl Cost for transportation, GST, Installation and training as a percentage of the equipment cost		30%	1605000
	Total cost of equipment incl GST, etc.			**6955000**

1. Prices quoted on Indiamart or companies are generally excluding GST, Transportation charges and installation charges as well as any other taxes applicable. Accordingly, an additional 30% has been taken on the ex-factory equipment cost.
2. Most of the prices available for Ghee production are for turnkey projects wherein the firm takes up the responsibility of supplying all equipments and implementation of the project.
3. It is suggested that it would be better for an entrepreneur to buy all equipments from a single vendor because the following reasons.
    a. There will not be any mismatch between equipments and automation would be smoother.
    b. Single point of contact would not allow any blame game between vendors in case something goes wrong.
    c. Power assessment would be better and line can be drawn accordingly
    d. A single unit set up by any of these can be visited to get a clear overview.
    e. Training would be much easier as it would from one agency

The packaging machine would depend on what kind of packaging the entrepreneur wants. As direct marketing is being targeted in this case, packaging would be for 0.5 Kg and 1 kg packs and in pouch. Depending on what kind of packaging is preferred, the packaging equipment will undergo change. For example, other than pouch pack, it could be tetra pack, and tin packing of 10 or 20 kg for bulk selling. Different kinds of packaging need different kinds of equipments. These can be added later if the need arises.

Misc Fixed Assets - Requirement and price		
Particulars	**Units**	**Unit cost in Rs.**
Electrical and water Connection	1	500000
Chairs	11	2500
Table	2	5000
Computer	2	50000
Printer	1	15000

As there would be a need for transportation of bulk material both raw material (milk) and finished goods (Ghee and milk powder), it would be necessary to maintain a number of trucks and small transport vehicles. The cost of the same is given below:

Vehicles for Transportation of goods	Units	Price/unit	Total Cost
Milk collection van (1 ton capacity)	4	1400000	5600000
Small transport vehicle (1 tonne)	2	800000	1600000
Total Cost			**7200000**

The cost of building is given below. You will need a storage space for finished goods and hence larger floor area.

Land and Building			
Particulars	**Area reqd**	**Rate/sqft in Rs.**	**Amount in Rs.**
Land cost		Own land	0
Building cost @ 1430/-- per sq ft	5000	1430	7150000
Total cost			**7150000**

Project Timeline

The project to start off production would need around one year for implementation to be completed. The breakup for the same is given in table below:

Activities	Projected time period
Arrangement of finance	3 months
Building of premises/Acquisition of premises	6 months
Procurement of equipments	2 months
Recruitment of manpower	1 month
Training	1 month

Unless the project is implemented in a very planned manner, this timeline may not be achieved and the moratorium period required may become higher. It is suggested that the planning of the project as well as supply of equipments should be planned and executed in a time bound manner. If the entrepreneur feels that this is a very tight timeline he may consider increasing the same.

The total bank loan component based on the assumptions made and unit costs taken would be as follows:

Project Summary			
Project Cost excluding land			**21952000**
Pre-operative Expenses			**219520**
Total Project Cost excluding land			**22171520**
Own Contribution			**8868608**
Estimated Bank loan			**13302912**
Own Contribution in Rs. Lakh			**88.69**
Bank Loan in Rs. Lakh			**133.03**

In addition interest cost of the first year will be capitalized as the project would need a moratorium for 12 months. This would increase the outstanding at the end of the first year.

Price of finished goods

Based on the rates available the price of ghee varies widely based on how it is positioned in the market. For example Amul Ghee is priced at 475/- per litre where as the Amul cow ghee is priced at 515/- per litre. There are ghee available even at Rs.1000/- or more per litre with either some value addition or due to the process followed. For example the popular Jharna Ghee is priced Rs.304/- for 500 ml making it approximately Rs.600/- per kg. In this project based on the method followed it is aligned to the taste of the cheaper variety which is Amul Ghee. Hence the price has been taken at Rs.290/- per litre. It is felt that this is one area where variations in raw material price has to be monitored very carefully. The entrepreur may consider fixing a higher rate bringing in the local feel while branding and marketing. Moreover if only cow milk with high fat percentage can be procured, then the price of the ghee could be pitched at a higher level by branding it as a cow ghee which is in general costlier than ordinary ghee wherein buffalo milk is also used.

Working Capital requirement

Working capital requirement has been assessed keeping in view the fact that the raw material is highly perishable and cannot be stored for more than a day or two. Own contribution has been taken at 25%. However, before calculating the working capital requirement it is necessary to find out the overall raw material requirement, production and details of stock based on the assumptions stated above from which working capital requirement is generated. In the following tables details of working capital requirement is assessed.

Capacity utilisation in the second year has been kept at 75% as the market demand of the product is high. In the first year while the project is being implemented time has to be used to develop milk route, talking to local SHGs, FPOs, etc., to ensure regular supply of milk. Market linkages of sale of Ghee also has to be developed during that period. Ghee and Milk Powder production in the first five years of the project is expected to be as follows:

Ghee and milk Production for 5 years - Raw material cost					
Production Period	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	0%	75%	80%	85%	90%
Raw material requirement per day in litres	0	2400	2560	2720	2880
Raw material required in litres	0	720000	768000	816000	864000
Production of Ghee in Kg		48600	51840	55080	58320
Rate per litre in Rs.	0	30	32	34	36
Cost of packaging material per 0.5 Ghee/ 1kg milk powder	0	2	2.1	2.21	2.32
Total Cost in Rs. Lakh	0	218.42	248.45	280.42	314.32

Calculation of Sales					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Production of Ghee					
Opening Stock	0	0	1134	1209.6	1285.2
Production in Kg	0	48600	51840	55080	58320
Closing Sock	0.00	1134	1210	1285	1361
Net Sales in Kg	0	47466	51764.4	55004.4	58244.4
Sales price per pack of 1 kg Ghee incl packaging	0	290	305	320	336
Sales value in Rs. Lakh	**0.00**	**275.30**	**315.76**	**352.03**	**391.40**
Production of Milk powder					
Opening Stock	0	0	1120	1194.67	1269.33
Production in Kg	0	48000	51200	54400	57600
Closing Sock	0.00	1120	1195	1269	1344
Net Sales in Kg	0	46880	51125.3	54325.3	57525.3
Sales price per pack of 1 kg skimmed milk powder incl packaging	0	210	221	232	244
Sales value in Rs. Lakh	**0.00**	**98.45**	**112.99**	**126.03**	**140.36**
Total Sales	**0.00**	**373.75**	**428.75**	**478.06**	**531.76**

Working capital requirement has to be evaluated based on the above mentioned details. The same is given in the table below:

Working Capital Assessment					
Computation of value of closing stock and working capital requirement					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Finished goods inventory in kg	0	1134	1209.6	1285.2	1360.8
Price of finished good/kg in Rs. including packaging material	0	290	305	320	336
Total finished goods stock price in Rs.	0	657720	737856	822528	914457.6
Raw material inventory in litres	0	2400	2560	2720	2880
Price of Raw Material/Kg in Rs.	0	30	32	34	36
Packaging Material per kg	0	2	2.1	2.21	2.32
Total Raw Material Stock Price	0	72324	82283	92886	104131
Total value of stock	0	730044	820139	915414	1018588.6
Amount in Lakh	0	7.3	8.2	9.15	10.19
Less Creditors in lakh	0	1.83	2.05	2.29	2.55
Paid Stock in lakh	0	5.47	6.15	6.86	7.64
Add sundry debtors in lakh	0	1.1	1.23	1.37	1.53
Total	**0**	**6.57**	**7.38**	**8.23**	**9.17**
Own contribution @ 25%	**0**	**1.64**	**1.85**	**2.06**	**2.29**
Working Capital requirement*	**0**	**4.93**	**5.53**	**6.17**	**6.88**
*** WC requirement has been taken based on the requirement of the second year as the first year would be treated as moratorium period for setting up the project.**					

The project is expected to generate sufficient cash and working capital limit is pegged at the requirement of the second year, first year being the moratorium for setting up the factory.

Other Expenses

There are other expenses which may be also termed as running cost. They are mainly salary, and electricity charges packaging cost, and admin & marketing expenses. The details of these expenses are given below:

Labour and Staff Salary/wages				
Particulars	**Wages/ Salary per month**	**No. of employees**	**Total Salary per month**	**Annual Salary**
Manager	30000	1	30000	360000
Accountant	25000	1	25000	300000
Helper/unskilled labour	10000	10	100000	1200000
Plant equipment Operator	20000	3	60000	720000
Skilled labour	15000	8	120000	1440000
Total Salary			**335000**	**4020000**

Projected Salary Expenses					
Salary expenses Projection	1st year	2nd year	3rd year	4th year	5th year
Annual Salary expenses	0	4020000	4422000	4864200	5350620
Salary expenses rounded off to lakhs	**0**	**40.2**	**44.22**	**48.64**	**53.51**
Electricity Charges					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	**0%**	**75%**	**80%**	**85%**	**90%**
Consumption of power per day in units	0	262.5	280	297.5	315
Rate per unit in Rs.	9.00	9.00	9.00	9.00	9.00
Power bill per month in Rs.	0	59062.5	63000	66937.5	70875
Total power bill per year	**0**	**708750**	**756000**	**803250**	**850500**
Power bill in Rs. Lakh	**0**	**7.09**	**7.56**	**8.03**	**8.51**
Packaging Cost					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cost of Packaging per 0.5 kg	0	2	2.1	2.21	2.32
Total Production of Ghee in kg	0	48600	51840	55080	58320
Total Production of MPC in kg	0	48000	51200	54400	57600
Packaging cost in Rs. Lakh	**0.00**	**2.90**	**3.25**	**3.64**	**4.04**
Selling, transportation and administrative expenses					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Sales and branding expenses per annum	0	1000000	1000000	1000000	1000000
Admin Expenses	0	240000	240000	240000	240000
Transportation charges	0	960000	960000	960000	960000
Total Expenditure on Sales, Admin & Transportation	**0**	**2200000**	**2200000**	**2200000**	**2200000**

All these costs will be factored in later in the report while evaluating the financial benefits of the project.

Depreciation

The depreciation calculation is as follows:

Depreciation Calculation					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Total value of equipments	0	14802000	12581700	10694445	9090278
Depreciation @15%	**0**	**2220300**	**1887255**	**1604167**	**1363542**
Value at the end of the year to be carried forward	0	12581700	10694445	9090278	7726736
Total Value of building	0	7150000	6435000	5791500	5212350
Depreciation of building@10%	**0**	**715000**	**643500**	**579150**	**521235**
Value at the end of the year to be carried forward	0	6435000	5791500	5212350	4691115
Total depreciation	**0**	**2935300**	**2530755**	**2183317**	**1884777**
Total depn in Rs. Lakh	0	29.35	25.31	21.83	18.85

Repairs and maintenance

In case of new equipments including computers, generally they give a warranty for one year. Thus the maintenance cost would be starting from the second year onwards. The same in general is given at a service charge of 15% per annum. In case there are any major spares to be replaced the cost of that has to be borne by the customers. Given these general terms, it can be taken at 20% of the equipment cost per annum. The same would then be as follows:

Cost of Maintenance	
Particulars	**Amount**
Total fixed cost	14802000
Maintenance cost in percentage	20%
Cost of Maintenance	2960400
Maintenance cost in Rs. Lakh	29.6

Cost of Project and Means of Finance

Based on the data presented above on cost of plant and machinery, working capital requirement, etc., the cost of the project and means of finance required can be summarized as follows:

Cost of The Project	
	(in Rs. Lakh)
Particulars	**Amount**
Land & Building*	71.5
Plant & Machinery	69.55
Vehicles and Misc. Items & Pre-op Exp.	80.67
Working Capital	6.57
Total	228.29
*Land is assumed as own land and hence cost taken is 0	

Means of Finance	
	(in Rs. Lakh)
Particulars	**Amount**
Own Contribution	88.69
Term Loan from Bank	133.03
Working Capital Own contribution	1.64
Working Capital	4.93
Total	228.29

The detailed repayment schedule of the term loan is indicated in Annexure 5. The interest for the first year is capitalized and loan outstanding accordingly increased in the end of the first year. It is assumed that the working capital limit given will be renewed every year for the next five years. Any increase in the working

capital may not be necessary as the project should be able to generate sufficient profits and the internal accruals should be able to take care of additional working capital requirements. The summary of interest payment for working capital and term loan and principal repayment is given in the table below:

Year-wise Interest on Bank Loan					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Interest on Term Loan in Rs.*	0	1438176	1032107	626028	219958
Interest on Term Loan in Rs. Lakh	0.00	14.38	10.32	6.26	2.20
Interest on working Capital	0	0.54	0.54	0.54	0.54
Principal Repayment in Rs.	0	3691584	3691584	3691584	3691576
Principal Repayment in Rs. Lakh	0.00	36.92	36.92	36.92	36.92
Balance outstanding - end of the year	147.66	110.74	73.82	36.90	0.00
* Interest on term loan has been capitalisedfor 12 months leading to increase in the capital outlay. This has been done to account for the 12 month moratorium.					

Financial Statements

The profitability of the project can be judged based on the financial statements generated based on the data presented above in the series of tables. Accordingly the projected profit and loss account, balance sheet, and cash flow statement along with breakeven analysis is presented in the tables below. During the moratorium period the interest is charged by the bank which has to be capitalized to ensure that the same is repaid over a period of time. Capitalisation thus leads to increase in the loan quantum at the end of the first year which can be seen in the balance sheet.

Projected P&L Statement					
					(in Rs. Lakh)
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Capacity Utilisation%	0%	75%	80%	85%	90%
Gross Sale of Ghee	0	275.3	315.76	352.03	391.4
Gropss sale of MPC	0	98.45	112.99	126.03	140.36
Total	**0**	**373.75**	**428.75**	**478.06**	**531.76**
Cost of Production					
Raw Material Consumed	0	216	245.76	277.44	311.04
Electricity Charges	0	7.09	7.56	8.03	8.51
Depreciation	0	29.35	25.31	21.83	18.85
Salary and wages	0	40.2	44.22	48.64	53.51
Repair and Maintenance	0	29.6	29.6	29.6	29.6
Packaging	0	2.42	2.69	2.98	3.28
Selling & Admn Expenses	0	22.00	22.00	22.00	22.00

Total Cost of Production	**0**	**346.66**	**377.14**	**410.52**	**446.79**
Profit before interest and taxes	**0**	**27.09**	**51.61**	**67.54**	**84.97**
Interest on Term Loan*	0.00	14.38	10.32	6.26	2.20
Interest on Working Capital	0	0.54	0.54	0.54	0.54
Total Interest Payment	**0.00**	**14.92**	**10.86**	**6.80**	**2.74**
Profit before Tax	0.00	12.17	40.75	60.74	82.23
Income Tax	0	3.04	10.19	15.19	20.56
Net profit after tax	**0.00**	**9.13**	**30.56**	**45.55**	**61.67**
Term loan interest for first year capitalised to account for the moratorium					

As can be seen, the unit would be in profits after tax from second year onwards.

Projected Balance Sheet					
					Rs. In Lakh
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Liabilities					
Capital					
Opening Balance	0	88.69	99.46	130.02	175.57
Own Capital Contribution	88.69	1.64			
Retained Earnings	0.00	9.13	30.56	45.55	61.67
Total-Closing Balance	**88.69**	**99.46**	**130.02**	**175.57**	**237.24**
Term Loan	147.66	110.74	73.82	36.90	0.00
Working Capital Limit	0.00	4.93	4.93	4.93	4.93
Sundry Creditors	0	1.83	2.05	2.29	2.55
Total Liabilities	**236.35**	**216.96**	**210.82**	**219.69**	**244.72**
Assets					
Fixed Assets	221.72	219.52	219.52	219.52	219.52
Gross Depreciation	0	29.35	54.66	76.49	95.34
Net Fixed Assets	**221.72**	**190.17**	**164.86**	**143.03**	**124.18**
Sundry Debtors	0	1.1	1.23	1.37	1.53
Stock in Hand	0	7.3	8.2	9.15	10.19
Interest capitalised	14.63	0	0	0	0
Cash and Bank Balance	0	18.39	36.53	66.14	108.82
Total Assets	**236.35**	**216.96**	**210.82**	**219.69**	**244.72**

The project is generating healthy profit from second year with the first year being moratorium as presented above. The breakeven analysis indicates the level of operation at which the operations will breakeven and not have any loss. It becomes important to identify the fixed and the variable costs. Even within variable

component there is always a part which is fixed. For example, even if the plant is not running there will be lights and fans which will be used for administrative work, people will have to be paid salary for those days as well, etc. Accordingly, a portion of the variable expenses have been taken as fixed cost to arrive at the contribution and the total fixed cost. Total fixed cost divided by the contribution (fixed cost÷Contribution) gives us the breakeven point. In this case the breakeven capacity utilization in year 2 comes at 64% capacity utilisation.

Breakeven Point Analysis		
		Rs. In Lakh
Total Sale (Sales - opening WIP + closing WIP)	**Year 1**	**Year 2**
Net Sales	0.00	373.75
Less: Opening Stock	0.00	0.00
Add: Closing Stock	0.00	5.64
Total Production/Sales	**0.00**	**379.39**
Variable Expenses		
Raw Material and Packaging	0.00	218.42
Interest on working Capital	0.00	0.54
Repair and Maintenance	0.00	7.40
Salary expenses	0.00	4.02
Sales & Admin Expenses	0.00	3.30
Energy - Electricity	0.00	6.95
Total	**0.00**	**240.63**
Contribution	**0.00**	**138.76**
Contribution per unit (per tonne)	**NA**	**292.34**
Fixed expenses		
Interest on Term Loan	0.00	14.38
Repair and Maintenance	0.00	22.20
Salary expenses	0.00	36.18
Sales & Admin Expenses	0.00	18.70
Energy - Electricity	0.00	0.14
Depreciation	0.00	29.35
Total	**0.00**	**120.95**
Capacity utilisation	0%	75%
Operating Profit	**0.00**	**17.81**
Breakeven point in physical units	**NA**	**41374**
Breakeven point in capacity utilisation (%)	**NA**	**64%**

Cash Flow Statement					
					Rs. In Lakh
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Sources of Fund					
Own margin	88.69	1.64			
Profit Before Interest and Tax	0.00	27.09	51.61	67.54	84.97
Depreciation	0.00	29.35	25.31	21.83	18.85
Working Capital accretion	0.00	4.93	0.00	0.00	0.00
Term Loan accretion	133.03	14.63	0.00	0.00	0.00
Creditors	0.00	1.83	0.22	0.24	0.26
Total	**221.72**	**79.47**	**77.14**	**89.61**	**104.08**
Uses of Fund					
Fixed Assets	221.72	0.00	0.00	0.00	0.00
Stock in Trade - Accretion	0.00	7.30	0.90	0.95	1.04
Debtors - Accretion	0.00	1.10	0.13	0.14	0.16
Repayment of term Loan	0.00	36.92	36.92	36.92	36.92
Interest on Term Loan	0.00	14.38	10.32	6.26	2.20
Interest on working capital	0.00	0.54	0.54	0.54	0.54
Income Tax	0.00	3.04	10.19	15.19	20.56
Accretion in cash & bank balance	0.00	16.19	18.14	29.61	42.66
Total	**221.72**	**79.47**	**77.14**	**89.61**	**104.08**

The cash flow statement above indicates that chance of any problem with the cash is very little or so to say practically nil in the project. The project generates sufficient cash, and the entrepreneur can maintain a healthy cash balance for any eventuality or a rainy day. There are risks like equipment failure and the repair time required for the same, sudden problem with supply of raw material or shipment not arriving, etc. Now these are unforeseen risk which always cannot be factored in. It is for these kinds of problems that a healthy cash balance is necessary for running a business. This project enables the entrepreneur to have that.

Calculation of DSCR					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cash Accruals					
Depreciation	0	29.35	25.31	21.83	18.85
Profit before interest and taxes	0	27.09	51.61	67.54	84.97
Total	**0**	**56.44**	**76.92**	**89.37**	**103.82**
Repayments					
Interest on Term Loan	0.00	14.38	10.32	6.26	2.20
Term Loan Instalments	0.00	36.92	36.92	36.92	36.92
Total	**0.00**	**51.30**	**47.24**	**43.18**	**39.12**
Debt Service Coverage Ratio	**NA**	**1.1**	**1.63**	**2.07**	**2.65**

The debt service coverage ratio from second year is 1.1 and above indicating that the project should not have any problem in servicing the loan in the structure suggested which is a five-year loan including one year moratorium.

IRR/NPV and BC Ratio

The calculation for internal rate of return (IRR) a, BC Ratio and net present value (NPV) is given below. The BC ratio is a healthy 1.09 considering a discount rate of 15%. The net present value of future benefits at a discount rate of 15% comes to Rs. 147.90 lakh. And the internal rate of return comes to 34% which essentially indicates that at 34% discount rate the net present value of net benefits would be zero. This also acts as an indicator of the risk bearing capacity of the project.

BC Ratio, NPV and IRR								**(Amt in Rs. Lakh)**
Costs and revenue items	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**	**6th year**	**7th year**	**8th year**
Fixed Costs	219.52							
Variable costs								
Raw material	0	218.42	248.45	280.42	314.32	350.17	368.56	386.96
Salary	0	40.2	44.22	48.64	53.51	58.86	64.74	71.22
Electricity	0	7.09	7.56	8.03	8.51	8.98	8.98	8.98
Maintenance	0	29.60	29.60	29.60	29.60	29.60	29.60	29.60
Sales and Admin exp	0	22	22	22	22	22	22	22
Total Costs	**219.52**	**317.31**	**351.83**	**388.69**	**427.94**	**469.61**	**493.88**	**518.76**
Rate of discount	15%							
Present value of costs	1655.43							
Revenues								
Sale of finished goods								
1 kg pack of Ghee		275.30	315.76	352.03	391.40	434.08	456.78	480.17
MPC		98.45	112.99	126.03	140.36	155.46	163.55	171.46
Total	**0**	**373.75**	**428.75**	**478.06**	**531.76**	**589.54**	**620.33**	**651.63**
Rate of discount	15%							
Present value of benefits	1803.33							
BC Ratio	1.09							
Net Benefits	-219.52	56.44	76.92	89.37	103.82	119.93	126.45	132.87
Rate of discount	15%							
NPV	147.90							
IRR	34%							

The project on Ghee Production indicates that it is a profitable business. However, it may be stated that the project is sensitive to price of raw material and also finished good prices. Any major deviation in the same would put the project into problem in the second year. From third year onwards the capacity to face such situations would be better. Essentially, it means that the faster the unit increases its capacity utilization the better off it would be financially.

Registration/Certification

There are four registrations necessary for MSMEs which are involved in food proceesing. A brief on the same is given below:

1. **GST**: GST registration in today's environment is a necessity for anyone doing a business. The entrepreneur must get himself registered for the same first. Many of the benefits given by central government is being linked to GST registration. Necessary system should be put in place to file the GST return from time to time as per the rules laid down by GoI. (https://reg.gst.gov.in/registration/)
2. **FSSAI:** The processing units should follow the Food Safety and Standard Authority of India (FSSAI) act 2006. FSSAI Act is applicable pan India for all food products. It prescribes minimum standards operating procedures, food safety norms, packaging & labeling norms. The new units need to take a license called FSSAI number from Food Safety and Standards Authority of India. The registration can be done at FSSAI website. (https://fssai.gov.in/cms/registration.php)
3. **UDYAM:** This is meant for becoming eligible for any subsidy given by the government. The model project has been prepared without taking into account any subsidy. However, any such support comes from the government to reduce the risk of investment and can be availed by the entrepreneur. Accordingly the entrepreneur may consider getting himself registered in UDYAM. (https://udyamregistration.gov.in/Government-India/Ministry-MSME-registration.htm).
4. **ISO:** ISO certification is a seal of approval from a third party body that a company runs to one of the international standards developed and published by the International Organization for Standardization (ISO). It is absolutely essential if one wants to venture into exports. Even for domestic sales this certification adds value. A person feels comfortable with ISO certification mentioned in the packaging along with FSSAI registration. Various agencies are there doing this job of certification. One such site available ishttps://legalwaycertification.com/iso/. There are many other such agencies who have been authorized to issue ISO certification.
5. **AGMARK:** AGMARK, or Agriculture Mark, is the certification mark to assure the quality of agricultural products in India. AGMARK acts as a third-party guarantee for the agricultural products that are produced and consumed in India. AS the target would be initially to create a foothold in the country, it would be necessary to obtain necessary certification

All three viz., GST registration, FSSAI registration and ISO certification has to be mentioned on the packaging. It is also important that these certifications are renewed as and when required. For example, ISO certification is valid for 1 year in many cases. If so, the certification needs to be renewed every year.

In addition to the ones stated above, it would be necessary to take fire and pollution clearances. It would also be advisable choose a brand name for the product and secure the name with trademark. Having a trademark is useful for bulk sale and is necessary for direct marketing as well as exports.

Model Project Report on

Ice Cream Manufacturing

Ice cream manufacturing – Model Project Report

Introduction

Ice cream needs no introduction as a product. Simply put it probably brings out the child in every individual. It is served as dessert or snacks. It is a mixture of milk, cream, sugar, and ingredients that has been frozen into a soft, creamy delight using special techniques. Ice cream has been a popular treat for a long time but has only become common with advances in the refrigeration techniques. The credit for this invention goes to a milk dealer named Jacob Fussell from Baltimore, Maryland, USA in the year 1851. He did not know what to do with the surplus fresh cream. He made ice cream out of it and found it to be more profitable than selling milk. This is the first case recorded for ice cream preparation. The process however was tedious and cumbersome. The industry grew slowly until the advent of electric and steam power.

Over the years various kinds of ice creams have developed as an innovation to suit the palette of people as well as to take care of certain intolerances among people. The most commonly sold ice cream is what is known in the industry as Hard Ice Creams found in shops, cafes and ice cream parlours. The other ones are French Ice creams popularly known as custard ice creams, Light ice creams which has 25% less fat, Organic ice creams made using only organic ingredients, Sugarless ice creams for those who are diabetic, Soft ice creams, Lactosefree ice creams for those who are lactose intolerant and Gluten-free ice creams for people who are suffering from Celiac disease or have Gluten sensitivity. These are innovations which have come up with time. Of late with more and more people opting for vegan diet, you also have Vegan ice creams which do not have dairy based inputs. The focus of this project is the one which is the most commonly consumed which is known as hard ice creams.

Promoters - Some specific requirements

The details of the promoters will have to be obtained along with other information. The Proforma for promoter detail is given in Annexure – 1.

History of the company

The project has been prepared as if a new set up is being made for the purpose of icecream manufacturing. The same could be part of another company or a new company all together. The details of the existing company or the proposed company have to be obtained/presented in the project report. Proforma for company report is given in Annexure-2.

Finished product and its utility

Milk or milk cream, as is well known, is something which perishes very fast. Producing ice cream using milk and milk cream only increases the shelf life of milk. Ice creams retain the goodness of milk and are also loved by people because of the different flavours. The value addition leads to better price realization for milk as the increasing demand for ice creams naturally increases the demand for milk which in turn positively affects the price. In the process the dairy farmers also gain.

Market, Demand and Major Competitors

India's ice cream market, one of the fastest growing markets in the world and is forecast to grow from Rs. 12100 cr. in 2018 to Rs. 21400 cr. in 2023, registering a annual growth rate of 12%. Population growth, rising disposable incomes, urbanization rates, changing consumer preferences, improved cold supply chain and growing deep freezer penetration are some of the factors which are leading to the growth of the ice cream market. Nearly one-fourth of the market by volume is in the organized sector with players like Amul, Hindustan Unilever, Mother Dairy, Vadilal having a major share. The rest of the market is supported by small players indicating that you have enough room for expansion in this product. The scope however is mainly in small town and rural areas as the focus of big players is mainly the urban and tourist centres. However, with the transportation facilities and the cold chain development and the network, the big companies have enabled themselves to approach the smaller towns today in order to capture the untapped market and the geographical areas dominated by small time operators.

Note: In addition details of localized competition, has to be mentioned while preparing the final DPR based on where the unit is going to be set up.

Raw Material Requirement

The basic raw material required for hard ice cream are dairy milk, milk powder, liquid glucose, Sugar, fat (butter) and stabilizer. There are added flavours like vanilla, fruits and nuts and even fruit essence which are added for different flavours along with permitted colours to give it an attractive look. One litre of basic raw material consists of 0.56 litre dairy milk, 0.08 kg milk powder, 0.05 litre liquid glucose, 0.22 kg Sugar, and 0.01 kg of stabiliser. This one kg raw material gives an output of 2.03 kg of ice cream.

Manufacturing Process

The manufacturing process is explained below in brief:

1. **Blending:** All ingredients as stated in the raw material are weighed based on the output we need and then put in the mixing tank for blending. High speed blenders are used in general.
2. **Pasteurization:** The blended material is put in the pasteirizer to kill any possible harmful bacteria which would lead to making the ice cream stale. The same is done at two different temperature levels – at 70°C and at 80°C for 30 minutes each

3. **Homogenization: H**omogenization is generally undertaken in two stages in ice cream preparation. Homogenization takes place at pressurized temperature and the temperature is maintained at the pasteurization level. No specific pressure levels are suitable for all conditions. The total fat and solids in the mix are inversely related which essentially means that if the fat and solid content is high, lower the pressure requirement. Generally, it is found that around 2250 PSI in the first stage and around 750 PSI at the second stage is found to be suitable in most cases.

4. **Ageing of the mix:** Ice cream mix is aged at 5°C or below for at 4-5 hours or overnight. Ageing the mix cools it down before freezing, allows the milk fat to partially crystallize and the gives the proteins stabilizers time to hydrate. This improves the whipping properties of the mix.

5. **Add Liquid Flavors and Colors:** Liquid flavors and colors may be added to the mix before freezing. Only ingredients that are liquid can be added before the freezing, to make sure the mix flows properly through the freezing equipment.

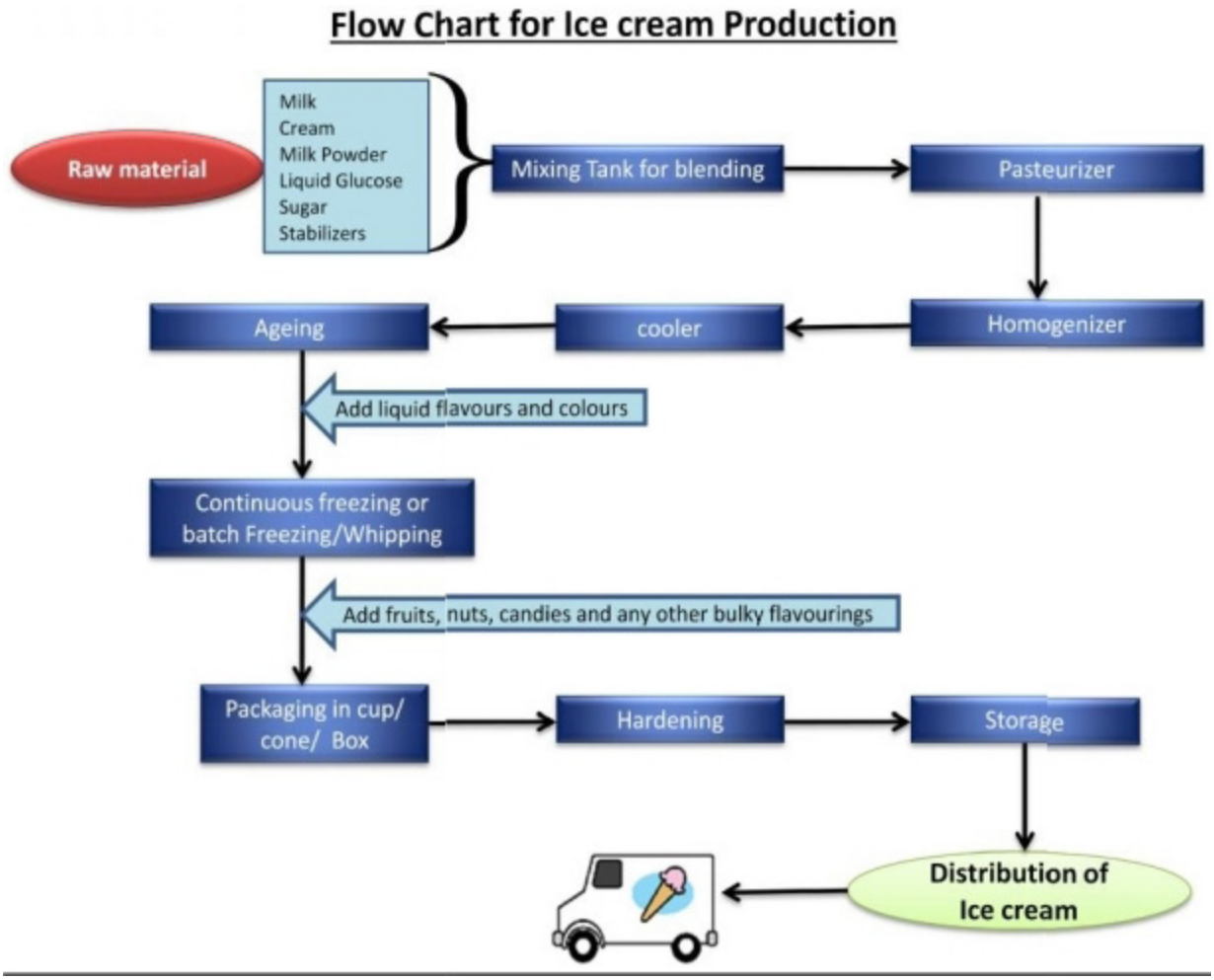
6. **Freezing:** The process involves freezing the mix and incorporating air. Ice cream mix can be frozen in batch or continuous freezers and the conditions used will depend on the type of freezer. Batch freezers consist of a rotating barrel that is usually filled one-third to one-half full with ice cream mix. As the barrel turns, the air in the barrel is incorporated into the ice cream mix. Ice cream freezers designed for home use are batch freezers. Continuous freezers consist of a fixed barrel that has a blade inside that constantly scrapes the surface of freezing barrel. The ice cream mix is pumped from a bulk tank to the freezing barrel and the air is incorporated with another pump just before it enters the freezing barrel. The continuous freezing process is much faster than the batch freezing process. The addition of air is called overrun and contributes to the lightness or denseness of ice cream. Up to 50% of the volume of the finished ice cream (100% overrun) can be air that is incorporated during freezing. The overrun level can be set as desired to adjust the denseness of the finished product. Premium ice creams have less overrun (approximately 80%) and are more dense than regular ice cream. At the point of discharge from the freezer (draw temperature), only about 50% of the water in ice cream is frozen. Soft serve ice cream is generated at this point in the freezing process.

7. **Packaging:** The ice creams are then packaged in cups, cones or boxes before the final step is taken up.

8. **Hardening**: After filling the cups/cones/boxes, they are left to harden in the freezer. The process is more like deep and quick freezing. It is kept at a temperature of -30 to -40°C. The ice cream is cooled as quickly as possible down to a holding temperature of less than -25°C. The temperatures and times of cooling will depend on the type of storage freezer. Rapid cooling will promote quick freezing of water and create small ice crystals.

9. **Storage:** The ice creams are now ready and stored at -25°C ready for transporting the same to the outlets

10. **Distribution:** The ice cream is then distributed using cold vans which are capable of maintaining a temperature of -15°C or less.



SWOT Analysis

Strengths ➢ Increasing Demand due to life style changes. ➢ It is part of outing for children and parents	**Weakness** ➢ Limited Shelf life of maximum 2 months in an unopened tub. Once opened it has to be finished in a month. Hence demand estimation and forecasting needs to be accurate
Opportunities ➢ Scope for diversification within the domain bringing out different kinds of ice creams having different flavours in different packaging like tubs, family pack, party pack is possible by minimal tweaking of the system ➢ Capturing local market in semi-urban areas where big city based ice cream makers are yet to make a dent	**Threats** ➢ Local as well as national competitors ➢ Highly automated plants can become a threat in the long run. To overcome this, technology upgradation is a must from time to time.

Financial Aspects of the Project

Infrastructure requirement

Any project preparation is based on a set of assumptions made which are close to the market reality. In this project the land used is assumed to be own land. The major component of a pasteurized milk processing unit is land, building, plant and machinery and civil works. List of all the assumptions made is given in Annexure 3.

The space required would depend on the size of the unit.

Land and its development

A plot of approximately 10000 sq.ft. would be required for setting up an ice cream manufacturing unit with necessary 5000 sq.ft area for the plant and another 1000 sq.ft area for storage space for both raw material and finished goods. The land should be free from any encumbrance and shall be mortgageable. The land should be classified as non-agriculture. Permission for non-agriculture use, wherever applicable, shall be obtained for the land.

Size of the unit

The plant and machinery could be such which would have flexibility of milk used for production. It could be standard milk or toned milk or even skimmed milk depending on the type of demand in the market.

The capacity taken in this case is 100 litres per day per cycle which makes it 60000 litres per annum. In the case of ice cream the volume in litres increases with the processing as air is also whipped into it leading to nearly doubling the volume. A plant of this size would cost around Rs.1.55 crore excluding land but including building construction. The plant is expected to operate for two cycles per day leading to a total capacity of 200 litres of raw material. A unit of this size would need a space of about 6000 sq. ft which would include 1000 sq. ft for storage room.

Machineries and Equipment

Various machineries and equipments will be required for setting up the plant. A broad classification of the set of equipments required along with the overall price is given below in the table. This investment in plant and machinery is required for 200 litre capacity per day.

In addition, backup power support is a must for any power failure. Hence a 45 KVA DG set would be a necessity for ice cream production unit of this size. Affluent treatment is another area which needs to be taken care of. Dairy industries have grown in most countries because of the demand in milk and milk products. This rise has led to the growth of dairy industries. The wastewaters discharged from this industry contain high concentrations of nutrients, chemical oxygen demand (COD), biological oxygen demand (BOD), total suspended solids (TSS) and organic and inorganic contents, which can cause serious environmental problems if not properly treated. The conventional biological treatment methods are suitable for dairy wastewaters

due to its high biodegradability. However, long chain fatty acids formed during the hydrolysis of lipids show the inhibitory action during anaerobic treatment. Sequencing batch reactor (SBR) and up flow anaerobic sludge blanket (UASB) systems seem to be the most promising technology for the biological treatment of dairy wastewaters. Mostly the effluent in ice cream industry is wastewater and effluent treatment can be managed with an investment of around Rs. 7 lakh.

Processing Equipment cost				
Sl no.	**Machine**	**Unit**	**Unit Cost**	**Amount in Rs.**
1	Milk Storage system (bulk milk cooler) 100 ltrs 5 HP	1	150000	150000
2	Batch Pasteurizer 2 HP	1	125000	125000
3	High Pressure Homogenizer 100 LPH 3 HP	1	125000	125000
4	Plate Heat exchanger 5 HP	1	80000	80000
5	Ageing Vat 2 HP	2	130000	260000
6	Continuous freezer 5 HP	1	325000	325000
7	Cup/Tub filling machine 4 HP	1	725000	725000
8	Hardening chamber 4 HP	1	150000	150000
9	Various other equipments like pump, coco dip tank, trolleys, etc.	1	100000	100000
10	Other small equipments like bucket, steel containers, etc (1 Set) and a testing laboratory	1	200000	200000
11	Effluent Treatment Plant	1	700000	700000
12	45 KVA diesel Genset	1	410000	410000
	Total cost of equipment			3350000
	Addl Cost for transportation, GST, Installation and training as a percentage of the equipment cost		30%	1005000
	Total cost of equipment incl GST, etc.			**4355000**

1. Prices quoted on Indiamart or companies are generally excluding GST, Transportation charges and installation charges as well as any other taxes applicable. Accordingly, an additional 30% has been taken on the ex-factory equipment cost.
2. Most of the prices available for Ghee production are for turnkey projects wherein the firm takes up the responsibility of supplying all equipments and implementation of the project.
3. It is suggested that it would be better for an entrepreneur to buy all equipments from a single vendor because the following reasons.
    a. There will not be any mismatch between equipments and automation would be smoother.
    b. Single point of contact would not allow any blame game between vendors in case something goes wrong.
    c. Power assessment would be better and line can be drawn accordingly.
    d. A single unit set up by any of these can be visited to get a clear overview.
    e. Training would be much easier as it would from one agency.

The packaging machine should be carefully chosen to take care of all the different kinds of packaging requirement

Miscellaneous fixed assets				
Sl. No.	**Particulars**	**Units**	**Unit cost**	**Amount in Rs.**
1	Electrical and water Connection	1	500000	500000
2	Chairs	11	2000	22000
3	Table	2	5000	10000
4	Computer	2	50000	100000
5	Printer	1	15000	15000
	Total			**647000**

As there would be a need for transportation of ice creams, it would be necessary to maintain a number of trucks and small transport vehicles. The cost of the same is given below:

Vehicles for Transportation of goods	Units	Price/unit	Total Cost
Two mobile sales vans	2	700000	1400000
Transport vehicle for distribution of ice cream	3	500000	1500000
Total Cost			**2900000**

The cost of building is given below. You will need a storage space for finished goods and hence larger floor area.

Land and Building			
Particulars	**Area reqd**	**Rate/sqft in Rs.**	**Amount in Rs.**
Land cost	Own land		0
Building cost @ 1430/-- per sq ft	6000	1430	8580000
4 Sales outlet equipped with deep freezer, etc	lumpsum		2000000
Total cost			**10580000**

The total bank loan component based on the assumptions made and unit costs taken would be as follows:

Project Summary			
Project Cost excluding land			**18482000**
Pre-operative expenses			**184820**
Total Project Cost excluding land			**18666820**
Own Contribution			**7466728**
Estimated Bank loan			**11200092**
Own Contribution in Rs. Lakh			**74.67**
Bank Loan in Rs. Lakh			**112.00**

In addition interest cost of the first year will be capitalized as the project would need a moratorium for 12 months. This would increase the outstanding at the end of the first year.

Project Timeline

The project to start off production would need around one year for implementation to be completed. The breakup for the same is given in table below:

Activities	Expected time required
Arrangement of finance	3 months
Building of premises/Acquisition of premises	6 months
Procurement of equipments	2 months
Recruitment of manpower	1 month
Training	1 month

Unless the project is implemented in a planned manner, this timeline may not be achieved and the moratorium period required may become higher. It is suggested that the planning of the project as well as supply of equipments should be planned and executed in a time bound manner. If the entrepreneur feels that this is a very tight timeline he may consider increasing the same.

Price of Finished Goods

Ice cream as we all know is available in various packaging. In this case It has been assumed that the same would be restricted to cups and cones of different flavours. The average price fo the two have been assumed to be Rs.25/- and Rs.30/- for the cups and the cones respectively. At present the packaging of party packs and family packs which are box packing has not been taken into consideration. Same can be taken up later when the brand becomes popular and people start feeling confident of serving the same to the family members and guests. Cups are generally consumed more but the popularity of cones is on the rise. Hence more production capacity is expected to be used for producing cups. Taking into all these assumptions the weighted average price her unit of ice cream has come to Rs.27.25 as explained below in the table.

	G	H	I	J	K	L	M
92	**Average Product pricing for a product mix**						
93	Item	Ice cream / unit in ml	Output utilised in percentage	Actual output utilised	No. of units produced	Price per unit	Total income per day
94	Cup ice cream	100	55%	220	2200	25	55000
95	Cones	100	45%	180	1800	30	54000
96	Total				4000		109000
97	**Average price per unit**						**27.25**

Any change in the product mix will naturally have an impact on the overall profitability of the project.

Working Capital requirement

Working capital requirement has been assessed keeping in view the fact that the raw material is highly perishable and cannot be stored for more than a day or two. Own contribution has been taken at 25% approximately of total requirement. However, before calculating the working capital requirement it is necessary to find out the overall raw material requirement, production and details of stock based on the assumptions stated above from which working capital requirement is generated. In the following tables details of working capital requirement is assessed.

Capacity utilisation in the second year has been kept at 65% as the market demand has to be created for the brand.

Ice cream Production for 5 years - Raw material cost					
Production Period	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	0%	65%	70%	75%	80%
Raw material requirement per day in litres	0	130	140	150	160
Raw material required per annum in litres	0	39000	42000	45000	48000
Production of ice cream per annum in ltrs		78000	84000	90000	96000
No. of units of ice cream produced		780000	840000	900000	960000
	0	138.27	145	152	160
Cost of packaging material per unit of ice cream	0	5	5.25	5.51	5.79
Total Cost in Rs. Lakh	0	92.93	105.00	117.99	132.38
Calculation of Sales					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Production of ice cream					
Opening Stock	0	0	26000	28000	30000
Production in units	0	780000	840000	900000	960000
Closing Sock in litres	0.00	26000	28000	30000	32000
Net Sales in Kg	0	754000	838000	898000	958000
Sales price per unit of ice cream	0	32.25	33.86	35.55	37.33
Sales value in Rs. Lakh	**0.00**	**243.17**	**283.75**	**319.24**	**357.62**

Working capital requirement has to be evaluated based on the above mentioned details. The same is given in the table below:

Working Capital Assessment					
Computation of value of closing stock and working capital requirement					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Finished goods inventory in units	0	26000	28000	30000	32000
Price of finished good/kg in Rs. including packaging material	0	32.25	33.86	35.55	37.33
Total finished goods stock price in Rs.	0	838500	948080	1066500	1194560
Raw material inventory in litres	0	1300	1400	1500	1600
Price of Raw Material/litres in Rs.	0	138.27	145	152	160
Packaging Material cost per unit	0	5	5.25	5.51	5.79
Total Raw Material Stock Price	0	379751	413000	448400	487600
Total value of stock	0	1218251	1361080	1514900	1682160
Amount in Lakh	0	12.18	13.61	15.15	16.82
Less Creditors in lakh	0	3.05	3.4	3.79	4.21
Paid Stock in lakh	0	9.13	10.21	11.36	12.61
Add sundry debtors in lakh	0	36.54	40.83	45.45	50.46
Total	**0**	**45.67**	**51.04**	**56.81**	**63.07**
Own contribution @ 25%	**0**	**11.42**	**12.76**	**14.2**	**15.77**
Working Capital requirement*	**0**	**34.25**	**38.28**	**42.61**	**47.3**
*** WC requirement has been taken based on the requirement of the second year as the first year would be treated as moratorium period for setting up the project.**					

The project is expected to generate sufficient cash and working capital limit is pegged at the requirement of the second year, first year being the moratorium for setting up the factory.

Other Expenses

There are other expenses which may be also termed as running cost. They are mainly salary, and electricity charges packaging cost, and admin n& marketing expenses. The details of these expenses are given below:

Labour and Staff Salary/wages				
Particulars	**Wages/ Salary per month**	**No. of employees**	**Total Salary per month**	**Annual Salary**
Manager	30000	1	30000	360000
Accountant	25000	1	25000	300000
Collection agent cum driver	15000	3	45000	540000
Plant equipment Operator	20000	2	40000	480000
Skilled labour	15000	4	60000	720000
Unskilled labour/helper	10000	4	40000	480000
Total Salary			**140000**	**2400000**

Projected Salary Expenses					
Salary expenses Projection	1st year	2nd year	3rd year	4th year	5th year
Annual Salary expenses	0	2400000	2640000	2904000	3194400
Salary expenses rounded off to lakhs	**0**	**24**	**26.4**	**29.04**	**31.94**
Electricity Charges					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	**0%**	**65%**	**70%**	**75%**	**80%**
Consumption of power per day in units	0	975	1050	1125	1200
Rate per unit in Rs.	9.00	9.00	9.00	9.00	9.00
Power bill per month in Rs.	0	263250	283500	303750	324000
Total power bill per year	**0**	**3159000**	**3402000**	**3645000**	**3888000**
Power bill in Rs. Lakh	**0**	**31.59**	**34.02**	**36.45**	**38.88**
Packaging Cost					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cost of Packaging per unit	0	5	5.25	5.51	5.79
Total no. of ice cream units produced	0	780000	840000	900000	960000
Packaging cost in Rs. Lakh	**0.00**	**39.00**	**44.10**	**49.59**	**55.58**
Selling, transportation and administrative expenses					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Sales and branding expenses per annum	0	2000000	2000000	2000000	2000000
Admin Expenses	0	240000	240000	240000	240000
Transportation charges	0	480000	480000	480000	480000
Total Expenditure on Sales, Admin & Transportation	**0**	**2720000**	**2720000**	**2720000**	**2720000**
Sales and Admin cost in Rs. Lakh	**0**	**27.2**	**27.2**	**27.2**	**27.2**

All these costs will be factored in later in the report while evaluating the financial benefits of the project

Depreciation

The depreciation calculation is as follows:

Depreciation Calculation					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Total value of equipments	0	7902000	6716700	5709195	4852816
Depreciation @15%	**0**	**1185300**	**1007505**	**856379**	**727922**
Value at the end of the year to be carried forward	0	6716700	5709195	4852816	4124894
Total Value of building	0	10580000	9522000	8569800	7712820
Depreciation of building@10%	**0**	**1058000**	**952200**	**856980**	**771282**
Value at the end of the year to be carried forward	0	9522000	8569800	7712820	6941538
Total depreciation	**0**	**2243300**	**1959705**	**1713359**	**1499204**
Total depn in Rs. Lakh	0	22.43	19.6	17.13	14.99

Repairs and maintenance and Rent

In case of new equipments including computers, generally they give a warranty for one year. Thus the maintenance cost would be starting from the second year onwards. The same in general is given at a service charge of 15% per annum. In case there are any major spares to be replaced the cost of that has to be borne by the customers. Given these general terms, it can be taken at 20% of the equipment cost per annum. In the project, as a part of marketing strategy, 4 outlets also have been thought of. There will be rent which has to be paid for that. The same has been taken at Rs.15000/- for a small outlet. The same would then be as follows:

Cost of Maintenance and rent	
Particulars	**Amount**
Total fixed cost	7902000
Maintenance cost in percentage	20%
Cost of Maintenance	1580400
Rental charges	720000
Maintenance cost in Rs. Lakh	23

Cost of Project and Means of Finance

Based on the data presented above on cost of plant and machinery, working capital requirement, etc., the cost of the project and means of finance required can be summarized as follows:

Cost of The Project	
	(in Rs. Lakh)
Particulars	**Amount**
Land & Building*	105.80
Plant & Machinery	43.55
Vehicles , Misc. Items & Pre-op Exp.	37.32
Working Capital	45.67
Total	232.34
*Land is assumed as own land and hence cost taken is 0	
Means of Finance	
	(in Rs. Lakh)
Particulars	**Amount**
Own Contribution	74.67
Term Loan from Bank	112.00
Working Capital Own contribution	11.42
Working Capital From Bank	34.25
Total	232.34

The detailed repayment schedule of the term loan is indicated in Annexure 4. The interest for the first year is capitalized and loan outstanding accordingly increased in the end of the first year. It is assumed that the working capital limit given will be renewed every year for the next five years. Any increase in the working

capital may not be necessary as the project should be able to generate sufficient profits and the internal accruals should be able to take care of additional working capital requirements. The summary of interest payment for working capital and term loan and principal repayment is given in the table below:

Year-wise Interest on Bank Loan					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Interest on Term Loan in Rs.*	0	1210825	868944	527062	185181
Interest on Term Loan in Rs. Lakh	0.00	12.11	8.69	5.27	1.85
Interest on working Capital	0	3.77	3.77	3.77	3.77
Principal Repayment in Rs.	0	3108012	3108012	3108012	3107968
Principal Repayment in Rs. Lakh	0.00	31.08	31.08	31.08	31.08
Balance outstanding - end of the year	124.32	93.24	62.16	31.08	0.00
* Interest on term loan has been capitalisedfor 12 months leading to increase in the capital outlay. This has been done to account for the 12 month moratorium.					

Financial Statements

The profitability of the project can be judged based on the financial statements generated based on the data presented above in the series of tables. Accordingly the projected profit and loss account, balance sheet, and cash flow statement along with breakeven analysis is presented in the tables below. During the moratorium period the interest is charged by the bank which has to be capitalized to ensure that the same is repaid over a period of time. Capitalisation thus leads to increase in the loan quantum at the end of the first year which can be seen in the balance sheet.

Projected P&L Statement					
					(in Rs. Lakh)
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Capacity Utilisation%	0%	65%	70%	75%	80%
Gross Sale of Ice cream	0.00	243.17	283.75	319.24	357.62
Total	**0**	**243.17**	**283.75**	**319.24**	**357.62**
Cost of Production					
Raw Material Consumed	0	53.93	60.9	68.4	76.8
Electricity Charges	0	31.59	34.02	36.45	38.88
Depreciation	0	22.43	19.6	17.13	14.99
Salary and wages	0	24	26.4	29.04	31.94
Repair and Maintenance & rent	0	23	23	23	23
Packaging	0	39.00	44.10	49.59	55.58
Selling & Admn Expenses	0	27.20	27.20	27.20	27.20
Total Cost of Production	**0**	**221.15**	**235.22**	**250.81**	**268.39**
Profit before interest and taxes	**0**	**22.015**	**48.5268**	**68.429**	**89.2314**

Interest on Term Loan*	0.00	12.11	8.69	5.27	1.85
Interest on Working Capital	0	3.77	3.77	3.77	3.77
Total Interest Payment	**0.00**	**15.88**	**12.46**	**9.04**	**5.62**
Profit before Tax	0.00	6.14	36.07	59.39	83.61
Income Tax	0	1.53	9.02	14.85	20.9
Net profit after tax	**0.00**	**4.61**	**27.05**	**44.54**	**62.71**
Term loan interest for first year capitalised to account for the moratorium					

As can be seen, the unit would be in profits after tax from second year onwards.

Projected Balance Sheet					
					Rs. In Lakh
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Liabilities					
Capital					
Opening Balance	0	74.67	90.7	117.75	162.29
Own Capital Contribution	74.67	11.42			
Retained Earnings	0.00	4.61	27.05	44.54	62.71
Total-Closing Balance	**74.67**	**90.70**	**117.75**	**162.29**	**225**
Term Loan	124.32	93.24	62.16	31.08	0.00
Working Capital Limit	0.00	34.25	34.25	34.25	34.25
Sundry Creditors	0	3.05	3.4	3.79	4.21
Total Liabilities	**198.99**	**221.24**	**217.56**	**231.41**	**263.46**
Assets					
Fixed Assets	186.67	186.67	186.67	186.67	186.67
Gross Depreciation	0	22.43	42.03	59.16	74.15
Net Fixed Assets	**186.67**	**164.24**	**144.64**	**127.51**	**112.52**
Sundry Debtors	0	36.54	40.83	45.45	50.46
Stock in Hand	0	12.18	13.61	15.15	16.82
Interest capitalised	12.32	0	0	0	0
Cash and Bank Balance	0	8.28	18.48	43.3	83.66
Total Assets	**198.99**	**221.24**	**217.56**	**231.41**	**263.46**

The project is generating healthy profit from second year with the first year being moratorium as presented above. The breakeven analysis indicates the level of operation at which the operations will breakeven and not have any loss. It becomes important to identify the fixed and the variable costs. Even within variable component there is always a part which is fixed. For example, even if the plant is not running there will be lights and fans which will be used for administrative work, people will have to be paid salary for those days

as well, etc. Accordingly, a portion of the variable expenses have been taken as fixed cost to arrive at the contribution and the total fixed cost. Total fixed cost divided by the contribution (fixed cost÷Contribution) gives us the breakeven point. In this case the breakeven capacity utilization in year 2 comes at 55% capacity utilisation.

Breakeven Point Analysis		
		Rs. In Lakh
Total Sale (Sales - opening WIP + closing WIP)	**Year 1**	**Year 2**
Net Sales	0.00	243.17
Less: Opening Stock	0.00	0.00
Add: Closing Stock	0.00	8.39
Total Production/Sales	**0.00**	**251.56**
Variable Expenses		
Raw Material and Packaging	0.00	92.93
Interest on working Capital	0.00	3.77
Repair and Maintenance	0.00	5.75
Salary expenses	0.00	2.40
Sales & Admin Expenses	0.00	4.08
Energy - Electricity	0.00	30.96
Total	**0.00**	**139.89**
Contribution	**0.00**	**111.67**
Contribution per unit (per tonne)	**NA**	**14.81**
Fixed expenses		
Interest on Term Loan	0.00	12.11
Repair and Maintenance	0.00	17.25
Salary expenses	0.00	21.60
Sales & Admin Expenses	0.00	23.12
Energy - Electricity	0.00	0.63
Depreciation	0.00	22.43
Total	**0.00**	**97.14**
Capacity utilisation	0%	65%
Operating Profit	**0.00**	**14.53**
Breakeven point in ice cream units	**NA**	**655922**
Breakeven point in capacity utilisation (%)	**NA**	**55%**

Cash Flow Statement					
					Rs. In Lakh
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Sources of Fund					
Own margin	74.67	11.42			
Profit Before Interest and Tax	0.00	22.02	48.53	68.43	89.23
Depreciation	0.00	22.43	19.60	17.13	14.99
Working Capital accretion	0.00	34.25	0.00	0.00	0.00
Term Loan accretion	112.00	12.32	0.00	0.00	0.00
Creditors	0.00	3.05	0.35	0.39	0.42
Total	**186.67**	**105.49**	**68.48**	**85.95**	**104.64**
Uses of Fund					
Fixed Assets	184.82	0.00	0.00	0.00	0.00
Stock in Trade - Accretion	0.00	12.18	1.43	1.54	1.67
Debtors - Accretion	0.00	36.54	4.29	4.62	5.01
Repayment of term Loan	0.00	31.08	31.08	31.08	31.08
Interest on Term Loan	0.00	12.11	8.69	5.27	1.85
Interest on working capital	0.00	3.77	3.77	3.77	3.77
Income Tax	0.00	1.53	9.02	14.85	20.90
Accretion in cash & bank balance	1.85	8.28	10.20	24.82	40.36
Total	**186.67**	**105.49**	**68.48**	**85.95**	**104.64**

The cash flow statement above indicates that chance of any problem with the cash is very little or so to say practically nil in the project. The project generates sufficient cash, and the entrepreneur can maintain a healthy cash balance for any eventuality or a rainy day. There are risks like equipment failure and the repair time required for the same, sudden problem with supply of raw material or shipment not arriving, etc. Now these are unforeseen risk which always cannot be factored in. It is for these kinds of problems that a healthy cash balance is necessary for running a business. This project enables the entrepreneur to have that.

Calculation of DSCR					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cash Accruals					
Depreciation	0	22.43	19.6	17.13	14.99
Profit before interest and taxes	0	22.015	48.5268	68.429	89.2314
Total	**0**	**44.445**	**68.1268**	**85.559**	**104.2214**
Repayments					
Interest on Term Loan	0.00	12.11	8.69	5.27	1.85
Term Loan Instalments	0.00	31.08	31.08	31.08	31.08
Total	**0.00**	**43.19**	**39.77**	**36.35**	**32.93**
Debt Service Coverage Ratio	**NA**	**1.03**	**1.71**	**2.35**	**3.16**

The debt service coverage ratio from second year is 1.03 and above indicating that the project should not have any problem in servicing the loan in the structure suggested which is a five-year loan including one year moratorium.

IRR/NPV and BC Ratio

The calculation for internal rate of return (IRR) a, BC Ratio and net present value (NPV) is given below. The BC ratio is a healthy 1.16 considering a discount rate of 15%. The net present value of future benefits at a discount rate of 15% comes to Rs. 168.53 lakh. And the internal rate of return comes to 38% which essentially indicates that at 38% discount rate the net present value of net benefits would be zero. This also acts as an indicator of the risk bearing capacity of the project.

BC Ratio, NPV and IRR								(Amt in Rs. Lakh)
Costs and revenue items	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**	**6th year**	**7th year**	**8th year**
Fixed Costs	186.6682							
Variable costs								
Raw material	0	92.93	105	117.99	132.38	147.7	154.84	162.69
Salary	0	24	26.4	29.04	31.94	35.14	38.65	42.52
Electricity	0	31.59	34.02	36.45	38.88	41.31	41.31	41.31
Maintenance	0	23.00	23.00	23.00	23.00	23.00	23.00	23.00
Sales and Admin exp	0	27.2	27.2	27.2	27.2	27.2	27.2	27.2
Total Costs	**186.6682**	**198.72**	**215.62**	**233.68**	**253.4**	**274.35**	**285**	**296.72**
Rate of discount	15%							
Present value of costs	1036.70							
Revenues								
Sale of finished goods								
Ice cream		243.17	283.75	319.24	357.62	399.06	419.83	440.84
Total	**0**	**243.17**	**283.75**	**319.24**	**357.62**	**399.06**	**419.83**	**440.84**
Rate of discount	15%							
Present value of benefits	1205.23							
BC Ratio	1.16							
Net Benefits	-186.668	44.445	68.1268	85.559	104.221	124.706	134.832	144.124
Rate of discount	15%							
NPV	168.53							
IRR	38%							

The project on ice cream production indicates that it is a profitable business. However, marketing will play a key role in its success. It is because of this sale outlets and mobile vans for sale of ice cream has been made part of the project. Along with this one could consider using the regular channels like grocery shops, malls also to sell its products.

Registration/Certification

There are four registrations necessary for MSMEs which are involved in food proceesing. A brief on the same is given below:

1. **GST**: GST registration in today's environment is a necessity for anyone doing a business. The entrepreneur must get himself registered for the same first. Many of the benefits given by central government is being linked to GST registration. Necessary system should be put in place to file the GST return from time to time as per the rules laid down by GoI. (https://reg.gst.gov.in/registration/)
2. **FSSAI:** The processing units should follow the Food Safety and Standard Authority of India (FSSAI) act 2006. FSSAI Act is applicable pan India for all food products. It prescribes minimum standards operating procedures, food safety norms, packaging & labeling norms. The new units need to take a license called FSSAI number from Food Safety and Standards Authority of India. The registration can be done at FSSAI website. (https://fssai.gov.in/cms/registration.php)
3. **UDYAM:** This is meant for becoming eligible for any subsidy given by the government. The model project has been prepared without taking into account any subsidy. However, any such support comes from the government to reduce the risk of investment and can be availed by the entrepreneur. Accordingly the entrepreneur may consider getting himself registered in UDYAM. (https://udyamregistration.gov.in/Government-India/Ministry-MSME-registration.htm).
4. **ISO:** ISO certification is a seal of approval from a third party body that a company runs to one of the international standards developed and published by the International Organization for Standardization (ISO). It is absolutely essential if one wants to venture into exports. Even for domestic sales this certification adds value. A person feels comfortable with ISO certification mentioned in the packaging along with FSSAI registration. Various agencies are there doing this job of certification. One such site available ishttps://legalwaycertification.com/iso/. There are many other such agencies who have been authorized to issue ISO certification.
5. **AGMARK:** AGMARK, or Agriculture Mark, is the certification mark to assure the quality of agricultural products in India. AGMARK acts as a third-party guarantee for the agricultural products that are produced and consumed in India. AS the target would be initially to create a foothold in the country, it would be necessary to obtain necessary certification

All three viz., GST registration, FSSAI registration and ISO certification has to be mentioned on the packaging. It is also important that these certifications are renewed as and when required. For example, ISO certification is valid for 1 year in many cases. If so, the certification needs to be renewed every year.

In addition to the ones stated above, it would be necessary to take fire and pollution clearances. It would also be advisable choose a brand name for the product and secure the name with trademark. Having a trademark is useful for bulk sale and is necessary for direct marketing as well as exports.

Model Project Report on

Pasteurised Milk Processing

Pasteurised milk Processing

Introduction

India is leading milk producing country in the world, accounting for 19 percent of the global market share and expected to grow at compound annual growth rate (CAGR) of 14.8% between FY 2018 – 2023. During fiscal year 2019, milk production in India amounted to about 187 million metric tons. The healthy growth of the market can be attributed to numerous forces. Population growth, rising disposable incomes, easy availability, and growing awareness about the benefits/ uses of milk are some of the factors that are broadening the growth aspects of the market. It is expected that the market will exhibit strong growth during 2020-2025. This product is consumed in every household and there is always a significant demand in both rural as well as in urban sector.

Major production in the dairy industry and milk processing market comes under unorganized sector, where milk is processed in unhygienic infrastructure, which affects the overall quality of milk and milk-based products. Consumption patterns of liquid milk at the farm level and poor infrastructure for processing is the main reason for low value addition of milk.

India is the world's largest milk producer, with 22 percent of global production, followed by the United States of America, China, Pakistan and Brazil. Since the 1970s, most of the expansion in milk production has been in South Asia, which is the main driver of milk production growth in the developing world. According to USDA data, world milk consumption was approximately 190 million tons in 2020. India ranks first in world milk consumption with 81 million tons. India is expected to consume around 83 million tons in 2021.

Uttar Pradesh is the largest milk-producing state, as it has the highest buffalo population and the secondhighest cattle population in the country. Majority of the rural population in this state is engaged in livestock nurture and dairy farming. Gujarat holds several cooperative dairy unions, milk cooperative societies and private dairy plants, which play vital roles in the production of milk and milk-based products in the state. West Bengal ranks 12th in milk production based on the data of 2018-19. Milk Production data 0f 2011-12 to 2018-19 is given in Annexure 1.

Promoters - Some specific requirements

The details of the promoters will have to be obtained along with other information. The Proforma for promoter detail is given in Annexure – 2.

History of the company

The project has been prepared as if a new set up is being made for the purpose of cornflakes processing the same could be part of another company or a new company all together. The details of the existing company or the proposed company have to be obtained/presented in the project report. Proforma for company report is given in Annexure-3.

Finished product and its utility

Milk is one of the most commonly used household products used for the purpose of the minerals and and the food value in it. Cow milk for babies act as a supplement to mother's milk. For children it is a must in Indian households. Even adults consume milk mostly as a part of tea or coffee or even as normal milk or milk products like curd and paneer. Pasteurised milk helps in removing bacteria and other germs, if any, and increases the shelf life to cater to numerous households and milk processing units.

Market, Demand and Major Competitors

Finland tops the per capita as a country with a consumption of 361.19 kg per capita per year which is a Kg per day. The per capita milk consumption in the top 15 countries is given in Annexure 4. As compared to that the consumption level recorded in India stood at 394 grams per day which comes to 143.81 kg per annum. Within India among states West Bengal stands at a lowly 18th position with a consumption level of 158 grams per day equivalent to 57.67 kg per annum. There are however, two states viz., Punjab (431.07 kg) and Haryana (396.76 kg) where milk consumption per capita is higher than Finland. Given the low consumption of milk in West Bengal, it is needless to say that there is a lot of scope for setting up a pasteurized milk producing unit in the state.

Note: In addition details of localized competition, has to be mentioned while preparing the final DPR based on where the unit is going to be set up.

Raw Material Requirement

Raw material in this case is milk which is available in West Bengal. However, the unit should be set up in an area where we can have 3 or 4 milk collection routes. The requirement of the unit would be around 6000 litres of milk per day in two shifts. The material has to be collected from either certain centres or from the farmgate. Given the kind of pattern in India where 2-4 animals are kept by the farmers as a secondary source of income, it would be ideal to collect the milk from certain pre-decided locations where the farmers can come, test the milk for fat content and sell the same. It is specifically for this reason 4 milk collection van of 1 ton capacity has

been included in the project. A proper mechanism for the same has to be put in place by the entrepreneur so that farmers can receive the payment directly in their bank account through electronic mode.

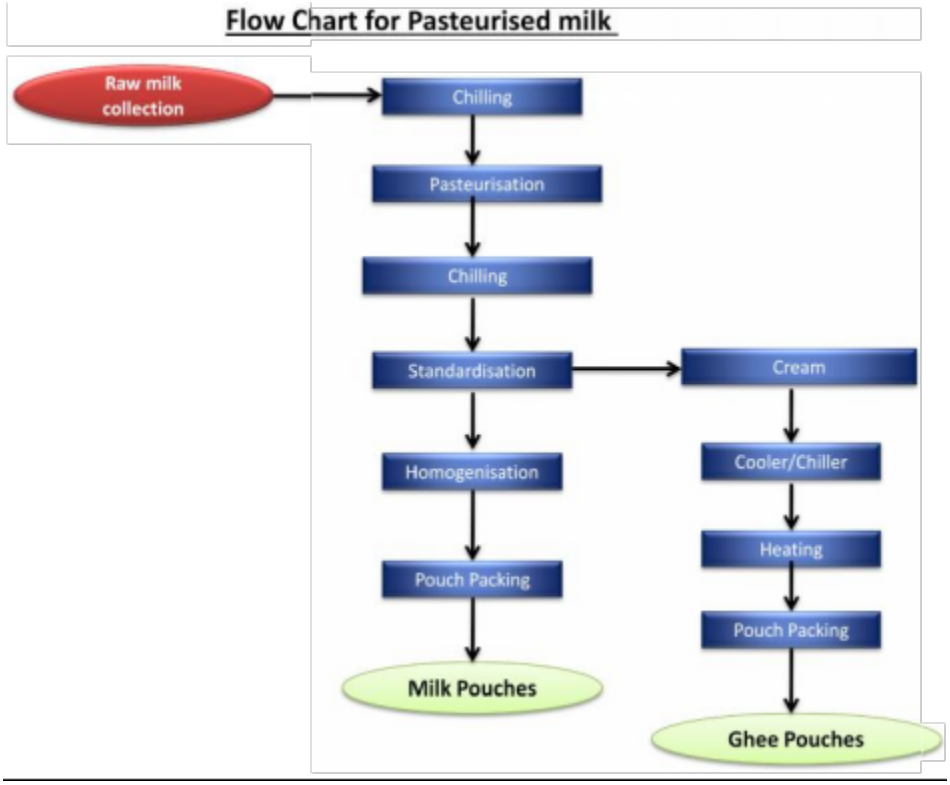
Manufacturing Process

Milk is one product where there is no scope for a holiday in pasteurization. It is in fact considered to be a part of essential services. Production of milk is not seasonal in the sense that milk is produced by the cows and buffaloes on a daily basis and if not extracted could even lead to illness. Given this scenario, milk processing has to be on a continuous basis. It may also be stated that pasteurized milk as per industry standard has a certain percentage of fat. While regular or whole milk has an average of 3.5% fat, reduced-fat milks have at least 25% less fat than regular milk. Low-fat milk must contain less than 1.5% fat and skim or 'fat-free' milk has no more than 0.15% fat. Cow milk has 3-4 percent of fat, while buffalo milk has about 7-8 percent. Buffalo milk is heavy, so it takes time to digest and keeps you fuller for a longer period of time. It thus becomes essential to remove the excess fat from the milk which in turn can serve as an input for a byproduct like ghee. Depending on what the level of fat extraction is related to the kind of milk being produced. The same has been shown in the flow chart but has not been taken as a part of the costing simply because the level of extraction in West Bengal is expected to be low. This is because the general trend in the state is to rear cows, and cow milk has lesser fat. In fact the fat extract can also be sold directly to the units who are processing the same into Ghee.

The process of producing pasteurized milk from raw milk is a standarised one. The same is detailed below:

- **Milk collection and storage**: After procurement of milk it is brought to the processing centre and stored after basic filtration in order to remove any other organic matter in a cold environment in a milk reception unit. This is done so that life span of the milk can be increased and it can be used for further processing.
- **Chilling:** The milk is then chilled in a milk chiller and kept at a temperature less than 10 degrees Celsius during the cooling process, preferably at 3 to 4 degrees Celsius. Cooling the raw milk prevents the development of microorganisms in the milk.
- **Pasteurization:** Pasteurization removes bacteria making the milk healthy to consume and extends its shelf life. During the process milk is heated to 71.7°C for at least 15 seconds and not more than 25 seconds.
- **Chilling:** The milk is then cooled to about 4 °C after pasteurisation.
- **Standardization:** The modification of milk bringing the fat content to a specifically defined or expected value is known as standardisation. Raw milk has a higher fat content and the same is reduced during this process to 3.5% or less depending on the kind of milk being produce. The fat or cream so extracted is used for producing other dairy products like ghee or butter. It can also be sold as fresh cream to other manufacturers of milk products or even to bakeries for use in their products like pastries.

- **Homogenization:** The homogenization process involves reducing the size of the fat globules (the cream that rises to the top of the glass or bottle) into minuscule portions that are dispersed evenly throughout the milk. Homogenization usually is achieved by pumping milk through small openings under very high pressure. The main goal of homogenization is to break up the large fat globules so that the cream doesn't gather on the top and create a stable emulsion that has an increased shelf life, a better uniform taste, and improved mouth feel.
- **Milk Filling & Packaging:** In a modern milk plant a pouch-filling system is a necessity for ensuring easy transportation and sale of produce. The pouches are made from plastic materials. In some cases tetra pack is also used but in general pouch packing is cheapest and most popular option.



SWOT Analysis

Strengths	Weakness
➢ Increasing demand due to increase in consumption of milk and milk products ➢ Never ending demand for milk based sweets in West Bengal ➢ Increase in demand of milk fat/cream for products like ice cream and cakes/pastries	➢ Limited shelf life of product and hence demand estimation has to be accurate ➢ Totally dependent on local production of milk and developing proper milk route

Opportunities	Threats
➢ Tie up with Hotels/ Sweet meat shop could be a great way to ensure sale of produce ➢ Can further diversify to value added products like Ghee instead of selling the cream to improve the bottom line	➢ Local as well as national competitors, biggest of them being Amul and Mother Dairy

Financial Aspects of the Project

Infrastructure required

Any project preparation is based on a set of assumptions made which are close to the market reality. In this project the land used is assumed to be own land. The major component of a pasteurized milk processing unit is land, building, plant and machinery and civil works. List of all the assumptions made is given in Annexure 5.The space required would depend on the size of the unit.

Land and its development

A plot of approximately 10000 sq.ft. would be required for setting up a pasteurized milk manufacturing unit with necessary storage space for both raw material and finished goods. The land should be free from any encumbrance and be mortgageable. The land should be classified as non-agriculture. Permission for non-agriculture use (industrial/commercial), wherever applicable, shall be obtained for the land.

Size of the unit

The plant and machinery could be such which would have flexibility of milk produced. It could be standard milk or toned milk or even skimmed milk depending on the type of demand in the market. The capacity taken in this case is 200 litres per hour which makes it 1600 litres per day and 584000 litres per annum. In the case of milk processing unit there cannot be a any off days as it is also treated as a part of essential services. A plant of this size would cost around Rs.1.86 crore excluding land but including building construction. The flexibility here is that we have taken only one shift for working out the viability. The plant can operate even for 2 shifts in a day in case the milk availability is not a problem and there is demand created by the initial sale of produce. However, increasing the shifts may necessitate increase in storage space for raw milk and finished products. It would also be necessary to store finished product in a cold room to ensure better shelf life. A unit of this size would need a space of about 7000 sq. ft which would include storage room for processed milk also

Machineries and Equipment

Various machineries and equipments will be required for setting up the plant. A broad classification of the set of equipments required along with the overall price is given below in the table. This investment in plant and machinery is required for 1600 litre per day capacity.

In addition, backup power support is a must for any power failure. Hence a 45 KVA DG set would be a necessity for production unit of this size. Effluent treatment is another area which needs to be taken care of. Dairy industries have grown in most countries because of the demand in milk and milk products. This rise has led to the growth of dairy industries. The waste waters discharged from this industry contain high concentrations of nutrients, chemical oxygen demand (COD), biological oxygen demand (BOD), total suspended solids (TSS) and organic and inorganic contents, which can cause serious environmental problems if not properly treated. The conventional biological treatment methods are suitable for dairy wastewaters due to its high biodegradability. However, long chain fatty acids formed during the hydrolysis of lipids show the inhibitory action during anaerobic treatment. Sequencing batch reactor (SBR) and up flow anaerobic sludge blanket (UASB) systems seem to be the most promising technology for the biological treatment of dairy wastewaters. Mostly the effluent in milk industry is wastewater and effluent treatment can be managed with an investment of around 7 lakh.

Processing Equipment cost					
Sl no.	**Machine**	**Unit**		**Unit Cost**	**Amount in Rs.**
1	Milk Storage system 5 HP (1000 ltrs)		1	150000	150000
2	Bulk Milk Cooler 10*2 i.e., 20 HP (800 ltrs		2	250000	500000
3	Milk Pasteuriser 10 HP		1	320000	320000
4	Milk Refrigeration system 5 HP		1	400000	400000
5	Milk Standardization machine 2 HP		1	650000	650000
6	Homogeniser 3 HP		1	300000	300000
7	Milk pouch packing machine 3 HP		1	175000	175000
8	Milk storage room for pouch storage before despatch 2 HP		1	250000	250000
9	Various valves (regulating, shut off check valve) and pumps (1 set)		1	200000	200000
10	Other small equipments like bucket, steel containers, etc (1 Set) and testing lab/equipment		1	100000	100000
10	45 KVA Genset		1	410000	410000
10	Effluent Treatment plant		1	700000	700000
	Total cost of equipment				4155000
	Addl Cost for transportation, GST, Installation and training as a percentage of the equipment cost			30%	1246500
	Total cost of equipment incl GST, etc.				**5401500**

1. Prices quoted on Indiamart or companies are generally excluding GST, Transportation charges and installation charges as well as any other taxes applicable. Accordingly, an additional 30% has been taken on the ex-factory equipment cost.
2. Most of the prices available for Ghee production are for turnkey projects wherein the firm takes up the responsibility of supplying all equipments and implementation of the project.

3. It is suggested that it would be better for an entrepreneur to buy all equipments from a single vendor because of the following reasons.

   a. There will not be any mismatch between equipments and automation would be smoother.

   b. Single point of contact would not allow any blame game between vendors in case something goes wrong.

   c. Power assessment would be better and line can be drawn accordingly

   d. A single unit set up by any of these can be visited to get a clear overview.

   e. Training would be much easier as it would from one agency

The packaging machine would depend on what kind of packaging the entrepreneur wants. As direct marketing is being targeted in this case, packaging would be for 1 litre packs and in pouch. Depending on what kind of packaging size is preferred, the same will undergo change. The equipment selected should keep the same in mind. AT least two sizes are common viz., 500 ml and 1 litre in milk and the machine should have the capacity to switch over as and when required.

Miscellaneous fixed assets				
Sl. No.	**Particulars**	**Units**	**Unit cost**	**Amount in Rs.**
1	Electrical and water Connection	1	500000	500000
2	Chairs	11	2000	22000
3	Table	2	5000	10000
4	Computer	2	50000	100000
5	Printer	1	15000	15000
	Total			**647000**

As there would be a need for transportation of bulk material both raw material (milk) and finished goods (Ghee and milk powder), it would be necessary to maintain a number of trucks and small transport vehicles. The cost of the same is given below:

Vehicles for Transportation of goods	Units	Price/unit	Total Cost
Milk collection van (1 ton capacity)	2	1000000	2000000
Small transport vehicle for distribution of pouc	3	400000	1200000
Total Cost			**4000000**

The cost of building is given below. You will need a storage space for finished goods and hence larger floor area.

Land and Building			
Particulars	**Area reqd**	**Rate/sqft in Rs.**	**Amount in Rs.**
Land cost	Own land		0
Building cost @ 1430/-- per sq ft	7000	1430	10010000
Total cost			**10010000**

The total bank loan component based on the assumptions made and unit costs taken would be as follows:

Project Summary			
Project Cost excluding land			**20058500**
Preoperative Expenses			**200585**
Total Project Cost excluding land			**20259085**
Own Contribution			**8103634**
Estimated Bank loan			**12155451**
Own Contribution in Rs. Lakh			**81.04**
Bank Loan in Rs. Lakh			**121.55**

In addition interest cost of the first year will be capitalized as the project would need a moratorium for 12 months. This would increase the outstanding at the end of the first year.

Project Timeline

The project to start off production would need around one year for implementation to be completed. The breakup for the same is given in table below:

Activity	
Arrangement of finance	3 months
Building of premises/Acquisition of premises	6 months
Procurement of equipments	2 months
Recruitment of manpower	1 month
Training	1 month

Unless the project is implemented in a very planned manner, this timeline may not be achieved and the moratorium period required may become higher. It is suggested that the planning of the project as well as supply of equipments should be planned and executed in a time bound manner. If the entrepreneur feels that this is a very tight timeline he may consider increasing the same.

Price of finished goods

The variation in milk price depends on the kind of packaging being used and the shelf life it has. Tetrapack milk having a shelf life of 180 days and are sold at a premium whereas the shelf life of pouch milk used by the majority of the people is a day and the price in Kolkata varies between Rs.26-28/- for 450-500 ml. leaving very little room to maneuver and play around with pricing. The companies play around with the volume to some extent in order to increase profitability. For example Live Life from Mother Dairy sells 450 ml at Rs.27.55. So it was felt that the best way to gain market share would be to not only ensure quality but also give the highest quantity at the lowest price. Accordingly price has been taken at Rs.55/- for a litre of milk.

Working Capital requirement

Working capital requirement has been assessed keeping in view the fact that the raw material is highly perishable and cannot be stored for more than a day or two. Own contribution has been taken at 40%. However, before calculating the working capital requirement it is necessary to find out the overall raw material requirement, production and details of stock based on the assumptions stated above from which working capital requirement is generated. In the following tables details of working capital requirement is assessed

Capacity utilisation in the second year has been kept at 75% as the market demand of the product is high. In the first year while the project is being implemented time has to be used to develop milk route, talking to local SHGs, FPOs, etc., to ensure regular supply of milk. Market linkages of sale of Ghee also have to be developed during that period. Ghee and Milk Powder production in the first five years of the project is expected to be as follows:

Pasteurized milk Production for 5 years - Raw material cost					
Production Period	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	0%	80%	85%	90%	95%
Raw milk requirement per day in litres	0	1280	1360	1440	1520
Raw milk required per annum in litres	0	467200	496400	525600	554800
Production of pasteurised milk per annum in ltrs		457856	486472	515088	543704
Rate per litre in Rs.	0	30	32	34	36
Cost of packaging material per litre of milk	0	1	1.05	1.1	1.16
Total Cost in Rs. Lakh	0	144.74	163.96	184.37	206.03
Calculation of Sales					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Production of pasteurized milk					
Opening Stock	0	0	1254	1333	1411
Production in litres	0	457856	486472	515088	543704
Closing Stock in litres	0.00	1254	1333	1411	1490
Net Sales in litres	0	456602	486394	515010	543626
Sales price per pack of 1 litre milk incl packaging	0	55	58	61	64
Sales value in Rs. Lakh	**0.00**	**251.13**	**282.11**	**314.16**	**347.92**
Sale of milk cream/fat					
Opening Stock	0	0	26	27	29
Production in kg	0	9344	9928	10512	11096
Closing Stock in kg	0	26	27	29	30
Net Sales in Kg	0	9318	9901	10483	11066
Sales price per pack of 1 kg cream/fat	0	140	147	154	162
Sales value in Rs. Lakh	**0**	**13.05**	**14.55**	**16.14**	**17.93**
Total Sales value	**0.00**	**264.18**	**296.66**	**330.30**	**365.85**

Working capital requirement has to be evaluated based on the above mentioned details. The same is given in the table below:

Working Capital Assessment					
Computation of value of closing stock and working capital requirement					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Finished goods inventory in litres	0	1254.4	1333	1411	1490
Price of finished good/kg in Rs. including packaging material	0	55	58	61	64
Total finished goods stock price in Rs.	0	68992	77302.4	86083.2	95334.4
Raw material inventory in litres	0	1280	1360	1440	1520
Price of Raw Material/Kg in Rs.	0	30	32	34	36
Packaging Material per kg	0	1	1.05	1.1	1.16
Total Raw Material Stock Price	0	39654	44919	50512	56448
Total value of stock	0	108646	122221.4	136595.2	151782.4
Amount in Lakh	0	1.09	1.22	1.37	1.52
Less Creditors in lakh	0	0.27	0.31	0.34	0.38
Paid Stock in lakh	0	0.82	0.91	1.03	1.14
Add sundry debtors in lakh	0	3.27	3.66	4.11	4.56
Total	**0**	**4.09**	**4.57**	**5.14**	**5.7**
Own contribution @ 25%	**0**	**1.02**	**1.14**	**1.29**	**1.43**
Working Capital requirement* (Rs. in lakh)	**0**	**3.07**	**3.43**	**3.85**	**4.27**
*** WC requirement has been taken based on the requirement of the second year as the first year would be treated as moratorium period for setting up the project.**					

The project is expected to generate sufficient cash and working capital limit is pegged at the requirement of the second year, first year being the moratorium for setting up the factory.

Other Expenses

There are other expenses which may be also termed as running cost. They are mainly salary, and electricity charges packaging cost, and admin & marketing expenses. The details of these expenses are given below:

Labour and Staff Salary/wages				
Particulars	**Wages/Salary per month**	**No. of employees**	**Total Salary per month**	**Annual Salary**
Manager	30000	1	30000	360000
Accountant	25000	1	25000	300000

Labour and Staff Salary/wages				
Dairy Technologist	30000	1	30000	360000
Plant equipment Operator	20000	3	60000	720000
Skilled labour	15000	2	30000	360000
Unskilled labour/helper	10000	3	30000	360000
Total Salary			**175000**	**2460000**

Projected Salary Expenses					
Salary expenses Projection	1st year	2nd year	3rd year	4th year	5th year
Annual Salary expenses	0	2460000	2706000	2976600	3274260
Salary expenses rounded off to lakhs	**0**	**24.6**	**27.06**	**29.77**	**32.74**

Electricity Charges					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Capacity Utilisation	**0%**	**80%**	**85%**	**90%**	**95%**
Consumption of power per day in units	0	400	425	450	475
Rate per unit in Rs.	9.00	9.00	9.00	9.00	9.00
Power bill per month in Rs.	0	108000	114750	121500	128250
Total power bill per year	**0**	**1296000**	**1377000**	**1458000**	**1539000**
Power bill in Rs. Lakh	**0**	**12.96**	**13.77**	**14.58**	**15.39**

Packaging Cost					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cost of Packaging per ltr	0	1	1.05	1.1	1.16
Total Production of milk in ltrs	0	457856	486472	515088	543704
Packaging cost in Rs. Lakh	**0.00**	**4.58**	**5.11**	**5.67**	**6.31**

Selling, transportation and administrative expenses					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Sales and branding expenses per annum	0	500000	500000	500000	500000
Admin Expenses	0	240000	240000	240000	240000
Transportation charges	0	480000	480000	480000	480000
Total Expenditure on Sales, Admin &Transportation	**0**	**1220000**	**1220000**	**1220000**	**1220000**
Sales and Admin cost in Rs. Lakh	**0**	**12.2**	**12.2**	**12.2**	**12.2**

All these costs will be factored in later in the report while evaluating the financial benefits of the project

Depreciation

The depreciation calculation is as follows:

Depreciation Calculation					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Total value of equipments	0	10048500	8541225	7260041	6171035
Depreciation @15%	**0**	**1507275**	**1281184**	**1089006**	**925655**
Value at the end of the year to be carried forward	0	8541225	7260041	6171035	5245380
Total Value of building	0	10010000	9009000	8108100	7297290
Depreciation of building@10%	**0**	**1001000**	**900900**	**810810**	**729729**
Value at the end of the year to be carried forward	0	9009000	8108100	7297290	6567561
Total depreciation	**0**	**2508275**	**2182084**	**1899816**	**1655384**
Total depn in Rs. Lakh	0	25.08	21.82	19	16.55

Repairs and maintenance

In case of new equipments including computers, generally they give a warranty for one year. Thus the maintenance cost would be starting from the second year onwards. The same in general is given at a service charge of 15% per annum. In case there are any major spares to be replaced the cost of that has to be borne by the customers. Given these general terms, it can be taken at 20% of the equipment cost per annum. The same would then be as follows:

Cost of Maintenance	
Particulars	**Amount**
Total fixed cost	10048500
Maintenance cost in percentage	20%
Cost of Maintenance	2009700
Maintenance cost in Rs. Lakh	20.1

Cost of Project and Means of Finance

Based on the data presented above on cost of plant and machinery, working capital requirement, etc., the cost of the project and means of finance required can be summarized as follows:

Cost of The Project	
(in Rs. Lakh)	
Particulars	**Amount**
Land & Building*	100.10
Plant & Machinery	54.01
Vehicles and Misc. Items	46.47
Working Capital	4.09

Cost of The Project	
Total	204.67
*Land is assumed as own land and hence cost taken is 0	

Means of Finance	
	(in Rs. Lakh)
Particulars	Amount
Own Contribution	81.04
Term Loan from Bank	121.55
Working Capital Own contribution	1.02
Working Capital	3.07
Total	206.68

The detailed repayment schedule of the term loan is indicated in Annexure 5. The interest for the first year is capitalized and loan outstanding accordingly increased in the end of the first year. It is assumed that the working capital limit given will be renewed every year for the next five years. Any increase in the working capital may not be necessary as the project should be able to generate sufficient profits and the internal accruals should be able to take care of additional working capital requirements. The summary of interest payment for working capital and term loan and principal repayment is given in the table below:

Year-wise Interest on Bank Loan					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Interest on Term Loan in Rs.*	0	1314069	943038	572005	200972
Interest on Term Loan in Rs. Lakh	0.00	13.14	9.43	5.72	2.01
Interest on working Capital	0	0.34	0.34	0.34	0.34
Principal Repayment in Rs.	0	3373020	3373020	3373020	3372992
Principal Repayment in Rs. Lakh	0.00	33.73	33.73	33.73	33.73
Balance outstanding - end of the year	134.92	101.19	67.46	33.73	0.00
* Interest on term loan has been capitalisedfor 12 months leading to increase in the capital outlay. This has been done to account for the 12 month moratorium.					

Financial Statements

The profitability of the project can be judged based on the financial statements generated based on the data presented above in the series of tables. Accordingly the projected Profit and loss account, Balance sheet, and cash flow statement along with breakeven analysis is presented in the tables below. During the moratorium period the interest is charged by the bank which has to be capitalized to ensure that the same is repaid over a period of time. Capitalisation thus leads to increase in the loan quantum at the end of the first year which can be seen in the balance sheet.

Projected P&L Statement					
(in Rs. Lakh)					
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Capacity Utilisation%	0%	80%	85%	90%	95%
Gross Sale of pasteurised milk	0	264.18	296.66	330.30	365.85
Total	**0**	**264.18**	**296.66**	**330.3**	**365.85**
Cost of Production					
Raw Material Consumed	0	140.16	158.85	178.7	199.73
Electricity Charges	0	12.96	13.77	14.58	15.39
Depreciation	0	25.08	21.82	19	16.55
Salary and wages	0	24.6	27.06	29.77	32.74
Repair and Maintenance	0	20.1	20.1	20.1	20.1
Packaging	0	4.58	5.11	5.67	6.31
Selling & Admn Expenses	0	12.20	12.20	12.20	12.20
Total Cost of Production	**0**	**239.68**	**258.91**	**280.02**	**303.02**
Profit before interest and taxes	**0**	**24.5**	**37.75**	**50.28**	**62.83**
Interest on Term Loan*	0.00	13.14	9.43	5.72	2.01
Interest on Working Capital	0	0.34	0.34	0.34	0.34
Total Interest Payment	**0.00**	**13.48**	**9.77**	**6.06**	**2.35**
Profit before Tax	0.00	11.02	27.98	44.22	60.48
Income Tax	0	2.76	7	11.06	15.12
Net profit after tax	**0.00**	**8.26**	**20.98**	**33.16**	**45.36**
Term loan interest for first year capitalised to account for the moratorium					

As can be seen, the unit would be in profits after tax from second year onwards.

Projected Balance Sheet					
					Rs. In Lakh
Particulars	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**
Liabilities					
Capital					
Opening Balance	0	81.04	90.32	111.3	144.46
Own Capital Contribution	81.04	1.02			
Retained Earnings	0.00	8.26	20.98	33.16	45.36
Total-Closing Balance	**81.04**	**90.32**	**111.3**	**144.46**	**189.82**
Term Loan	134.92	101.19	67.46	33.73	0.00
Working Capital Limit	0.00	3.07	3.07	3.07	3.07

Projected Balance Sheet					
Sundry Creditors	0	0.27	0.31	0.34	0.38
Total Liabilities	**215.96**	**194.85**	**182.14**	**181.6**	**193.27**
Assets					
Fixed Assets	202.59	202.59	202.59	202.59	202.59
Gross Depreciation	0	25.08	46.9	65.9	82.45
Net Fixed Assets	**202.59**	**177.51**	**155.69**	**136.69**	**120.14**
Sundry Debtors	0	3.27	3.66	4.11	4.56
Stock in Hand	0	1.09	1.22	1.37	1.52
Interest capitalised	13.37	0	0	0	0
Cash and Bank Balance	0	12.98	21.57	39.43	67.05
Total Assets	**215.96**	**194.85**	**182.14**	**181.6**	**193.27**

The project is generating healthy profit from second year with the first year being moratorium as presented above. The breakeven analysis indicates the level of operation at which the operations will breakeven and not have any loss. It becomes important to identify the fixed and the variable costs. Even within variable component there is always a part which is fixed. For example, even if the plant is not running there will be lights and fans which will be used for administrative work, people will have to be paid salary for those days as well, etc. Accordingly, a portion of the variable expenses have been taken as fixed cost to arrive at the contribution and the total fixed cost. Total fixed cost divided by the contribution (fixed cost÷Contribution) gives us the breakeven point. In this case the breakeven capacity utilization in year 2 comes at 65% capacity utilisation. In this case the capacity utilization has been taken at 80% which some may say on the higher side. However, given the kind of product which is simple processing and the fact that there is enough demand being there in the market, achieving this level of capacity utilization is a reasonable assumption. Any slippage specially below 65% would essentially mean that the unit at this price level of its output will start incurring losses and hence an eye need to be kept on the input and output price as well as the level of capacity utilized as the room for maneuvering is comparatively less.

Breakeven Point Analysis		
		Rs. In Lakh
Total Sale (Sales - opening WIP + closing WIP)	**Year 1**	**Year 2**
Net Sales	0.00	264.18
Less: Opening Stock	0.00	0.00
Add: Closing Stock	0.00	0.73
Total Production/Sales	**0.00**	**264.91**
Variable Expenses		
Raw Material and Packaging	0.00	144.74

Interest on working Capital	0.00	0.34
Repair and Maintenance	0.00	5.03
Salary expenses	0.00	2.46
Sales & Admin Expenses	0.00	1.83
Energy - Electricity	0.00	12.70
Total	**0.00**	**167.10**
Contribution	**0.00**	**97.81**
Contribution per unit (per tonne)	**NA**	**21.42**
Fixed expenses		
Interest on Term Loan	0.00	13.14
Repair and Maintenance	0.00	15.07
Salary expenses	0.00	22.14
Sales & Admin Expenses	0.00	10.37
Energy - Electricity	0.00	0.26
Depreciation	0.00	25.08
Total	**0.00**	**86.06**
Capacity utilisation	0%	80%
Operating Profit	**0.00**	**11.75**
Breakeven point in physical units	**NA**	**401750**
Breakeven point in capacity utilisation (%)	**NA**	**70%**

Cash Flow Statement

Particulars	1st year	2nd year	3rd year	4th year
Sources of Fund				
Own margin	81.04	1.02		
Profit Before Interest and Tax	0.00	24.50	37.75	50.28
Depreciation	0.00	25.08	21.82	19.00
Working Capital accretion	0.00	3.07	0.00	0.00
Term Loan accretion	121.55	13.37	0.00	0.00
Creditors	0.00	0.27	0.04	0.03
Total	**202.59**	**67.31**	**59.61**	**69.31**
Uses of Fund				
Fixed Assets	202.59	0.00	0.00	0.00
Stock in Trade - Accretion	0.00	1.09	0.13	0.15
Debtors - Accretion	0.00	3.27	0.39	0.45

Repayment of term Loan	0.00	33.73	33.73	33.73
Interest on Term Loan	0.00	13.14	9.43	5.72
Interest on working capital	0.00	0.34	0.34	0.34
Income Tax	0.00	2.76	7.00	11.06
Accretion in cash & bank balance	0.00	12.98	8.59	17.86
Total	**202.59**	**67.31**	**59.61**	**69.31**

The cash flow statement above indicates that chance of any problem with the cash is very little or so to say practically nil in the project. The project generates sufficient cash, and the entrepreneur can maintain a healthy cash balance for any eventuality or a rainy day. There are risks like equipment failure and the repair time required for the same, sudden problem with supply of raw material or shipment not arriving, etc. Now these are unforeseen risk which always cannot be factored in. It is for these kinds of problems that a healthy cash balance is necessary for running a business. This project enables the entrepreneur to have that.

Calculation of DSCR					
Particulars	1st year	2nd year	3rd year	4th year	5th year
Cash Accruals					
Depreciation	0	25.08	21.82	19	16.55
Profit before interest and taxes	0	24.5	37.75	50.28	62.83
Total	**0**	**49.58**	**59.57**	**69.28**	**79.38**
Repayments					
Interest on Term Loan	0.00	13.14	9.43	5.72	2.01
Term Loan Instalments	0.00	33.73	33.73	33.73	33.73
Total	**0.00**	**46.87**	**43.16**	**39.45**	**35.74**
Debt Service Coverage Ratio	**NA**	**1.06**	**1.38**	**1.76**	**2.22**

The debt service coverage ratio from second year is 1.22 and above indicating that the project should not have any problem in servicing the loan in the structure suggested which is a five-year loan including one year moratorium.

IRR/NPV and BC Ratio

The calculation for internal rate of return (IRR), BC Ratio and net present value (NPV) is given below. The BC ratio is 1.10 considering a discount rate of 15%. The net present value of future benefits at a discount rate of 15% comes to Rs. 110.70 lakh. And the internal rate of return comes to 33% which essentially indicates that at 33% discount rate the net present value of net benefits would be zero. This also acts as an indicator of the risk bearing capacity of the project.

BC Ratio, NPV and IRR								(Amt in Rs. Lakh
Costs and revenue items	**1st year**	**2nd year**	**3rd year**	**4th year**	**5th year**	**6th year**	**7th year**	**8th year**
Fixed Costs	202.5909							
Variable costs								
Raw material	0	144.74	163.96	184.37	206.03	228.9	240.93	252.95
Salary	0	24.6	27.06	29.77	32.74	36.02	39.62	43.58
Electricity	0	12.96	13.77	14.58	15.39	16.2	16.2	16.2
Maintenance	0	20.10	20.10	20.10	20.10	20.10	20.10	20.10
Sales and Admin exp	0	12.2	12.2	12.2	12.2	12.2	12.2	12.2
Total Costs	**202.5909**	**214.6**	**237.09**	**261.02**	**286.46**	**313.42**	**329.05**	**345.03**
Rate of discount	15%							
Present value of costs	1157.98							
Revenues								
Sale of finished goods								
1 ltr pack of milk		251.13	282.11	314.16	347.92	383.40	400.62	423.52
sale of milk cream/fat		13.05	14.55	16.14	17.93	19.80	20.85	21.90
Total	**0**	**264.18**	**296.66**	**330.30**	**365.85**	**403.20**	**421.47**	**445.42**
Rate of discount	15%							
Present value of benefits	1243.93							
BC Ratio	1.07							
Net Benefits	-202.591	49.58	59.57	69.28	79.39	89.78	92.42	100.39
Rate of discount	15%							
NPV	85.95							
IRR	28%							

The project on pasteurized milk production indicates that it is a profitable business. However, it may be stated that the project is sensitive to price of raw material and also finished good prices. Any major deviation in the same would put the project into problem in the second year. From third year onwards the capacity to face such situations would be better. Essentially, it means that the faster the unit increases its capacity utilization the better off it would be financially.

Registration/Certification

There are four registrations necessary for MSMEs which are involved in food proceesing. A brief on the same is given below:

1. **GST**: GST registration in today's environment is a necessity for anyone doing a business. The entrepreneur must get himself registered for the same first. Many of the benefits given by central government is being linked to GST registration. Necessary system should be put in place to file the GST return from time to time as per the rules laid down by GoI. (https://reg.gst.gov.in/registration/)
2. **FSSAI:** The processing units should follow the Food Safety and Standard Authority of India (FSSAI) act 2006. FSSAI Act is applicable pan India for all food products. It prescribes minimum standards

operating procedures, food safety norms, packaging & labeling norms. The new units need to take a license called FSSAI number from Food Safety and Standards Authority of India. The registration can be done at FSSAI website. (https://fssai.gov.in/cms/registration.php)

3. **UDYAM:** The entrepreneur may consider getting himself registered in UDYAM.

   (https://udyamregistration.gov.in/Government-India/Ministry-MSME-registration.htm).

4. **ISO:** ISO certification is a seal of approval from a third party body that a company runs to one of the international standards developed and published by the International Organization for Standardization (ISO). It is absolutely essential if one wants to venture into exports. Even for domestic sales this certification adds value. A person feels comfortable with ISO certification mentioned in the packaging along with FSSAI registration. Various agencies are there doing this job of certification. One such site available ishttps://legalwaycertification.com/iso/. There are many other such agencies who have been authorized to issue ISO certification.

All three viz., GST registration, FSSAI registration and ISO certification has to be mentioned on the packaging. It is also important that these certifications are renewed as and when required. For example, ISO certification is valid for 1 year in many cases. If so, the certification needs to be renewed every year.

In addition to the ones stated above, it would be necessary to take fire and pollution clearances. It would also be advisable choose a brand name for the product and secure the name with trademark. Having a trademark is useful for bulk sale and is necessary for direct marketing as well as exports.

Annexure

Annexure 1: Promoter's Profile

Sl. No.	Particulars	Details				
1	Name of the person					
2	Date of birth and Age					
3	Marital status					
4	Residential Address					
5	Educational Qualification	Item	Name of School/ college	Year of Passing	Subject	Percentage obtained
		Secondary				
		Higher secondary				
		College				
		Post- Graduation				
		Any Other (Pl. Specify)				
6	Training	Specify training programmes attended, if any				
7	Past experience	Work Experience: Business Experience:				
8	Aadhaar Number					
9	PAN Number					
10	Any police complaint against the promoter	Yes/No; If yes please give details				

Annexure 2: Company Profile

Is it an existing company? : Yes/No (If "Yes" the fill up table 1 and if "No", go to table 2)

Table 1 of Annexure 3 (for existing companies)

Sl. No.	Item	Details			
1.	Name of the company				
2.	Year of establishment				
3.	List of investors/ shareholders	Name	Pan No.	CIBIL Score (enclose CIBIL Report)	Whether filing IT return (Yes/No)
4.	Products of the company				
5.	P&L Account and Balance sheet	Please attach copy of balance sheet and P&L account for maximum of last 3 years. If company is less than 3 years old, then the same may be provided for the years of existence			
6	Profit after tax	Financial Year			
		Profit/Loss			
		Turnover			
7.	Proposed location of the new unit				
8	Connectivity and other details	1. Whether the site is connected by motorable approach road? Yes/No 2. Whether the Road is a metallic road? Yes/No 3. Whether the area is a low lying area? Yes/No 4. Any incidence of flooding in the last 5 years in the area? Yes/ No – If yes please mention the years 5. Whether power connection available? Yes/No 6. Whether drinking water supply available? Yes/No 7. Whether water supply available for industrial activity? Yes/No 8. Name of the nearest town/city 9. Distance from the nearest town/city 10. Nearest Police station - pl give name and distance 11. Any other information – please specify			

Table 2 of Annexure 3 (for newly set up/proposed to be set up companies for the project)

Sl. No.	Item	Details			
1.	Proposed Name of the company				
2.	Expected date of establishment				
3.	Proposed List of investors/ shareholders	Name	Pan No.	CIBIL Score (enclose CIBIL Report)	Whether filing IT return (Yes/No)
4.	Proposed location of the new unit				
5.	Connectivity and other details	1. Is it a non-agricultural land? Yes/No 2. Whether the site is connected by motorable approach road? Yes/No 3. Whether the Road is a metallic road? Yes/No 4. Whether the area is a low lying area? Yes/No 5. Any incidence of flooding in the last 5 years in the area? Yes/No – If yes please mention the years 6. Whether power connection available? Yes/No 7. Whether drinking water supply available? Yes/No 8. Whether water supply available for industrial activity? Yes/No 9. Name of the nearest town/city 10. Distance from the nearest town/city 11. Nearest Police station – pl give name and distance 12. Any other information – please specify			

Annexure 3: Assumptions/Basis of the project

Particulars	Value	Unit
Machine capacity for Maida per day in tonne	0.25	tonne
Capacity Utilisation in the second year	65%	
Increase in capacity utilisation per year	5%	
Working hours	8	Hours
Working days per year	300	Days
Average working days per month	25	days
Final product as a percentage of raw material	100.00%	
Raw material Stock in Days	7	Days
Finished goods stock in days	1	Days
Interest on working capital and term loan	11%	
Power Consumption in units per day @ 100% capacity utilisation	125	Units
Preoperative expenses	1%	
Increase in sale price/year	5%	
Average price per unit of cake produced	70	Rupees
Increase in raw material & packaging cost	5%	
Average price of refined wheat flour per kg	25	Rupees
Land	Own land	
Cost of additives (sugar, salt, baking powder, eggs, butter, etc) per kg	100	Rupees
Total Raw material cost per tonne	125000	Rupees
Packaging material cost per unit of cake produced	10	Rupees
Creditors in percentage of the stock Value	25%	
Debtors in percentage of the stock value	400%	
Power tariff per unit consumed in Rs.	9.00	Rupees
Depreciation of plant and Machinery and office equipments	15%	
Depreciation of building	10%	
Own contribution in Working Capital	25%	
Own contribution in Fixed Cost	40%	
Maintenance cost as Percentage of fixed cost	20%	
Increase in salary expenses every year	10%	
Repayment of term loan in months	60	months
Moratorium in months	12	months
Income Tax	25%	
Variable cost under Repair and maintenance in percentage	25%	
Variable component in salary in percentage	10%	
Variable component in sale & Admin expenses	15%	
Variable component of electricity in percentage	98%	
Sales and branding expenses per annum in Rs.	1000000	Rupees
Misc Admin Expenses per annum @ 10000/- per month in Rs.	120000	Rupees
Transportation expenses per annum @ 20000/- per week in Rs.	480000	Rupees
Number of Units produced per day	2413	units

Annexure 4: Interest on Bank Loan and Repayment Schedule

Principal Repayment per month			254977				
Year	Particulars	Amount in Rs.	Interest	Repayment of principal	Closing Balance	Annual Interest payment	Projected Principal Repayment
1	1st Month	11026000	101072	0	11026000		
	2nd Month	11026000	101072	0	11026000		
	3rd Month	11026000	101072	0	11026000		
	4th Month	11026000	101072	0	11026000		
	5th Month	11026000	101072	0	11026000		
	6th Month	11026000	101072	0	11026000		
	7th Month	11026000	101072	0	11026000		
	8th Month	11026000	101072	0	11026000		
	9th Month	11026000	101072	0	11026000		
	10th Month	11026000	101072	0	11026000		
	11th Month	11026000	101072	0	11026000		
	12th Month	11026000	101072	0	11026000	1212864	0
2	1st Month	12238864	112190	254977	11983887		
	2nd Month	11983887	109852	254977	11728910		
	3rd Month	11728910	107515	254977	11473933		
	4th Month	11473933	105178	254977	11218956		
	5th Month	11218956	102840	254977	10963979		
	6th Month	10963979	100503	254977	10709002		
	7th Month	10709002	98166	254977	10454025		
	8th Month	10454025	95829	254977	10199048		
	9th Month	10199048	93491	254977	9944071		
	10th Month	9944071	91154	254977	9689094		
	11th Month	9689094	88817	254977	9434117		
	12th Month	9434117	86479	254977	9179140	1192014	3059724
3	1st Month	9179140	84142	254977	8924163		
	2nd Month	8924163	81805	254977	8669186		
	3rd Month	8669186	79468	254977	8414209		
	4th Month	8414209	77130	254977	8159232		
	5th Month	8159232	74793	254977	7904255		
	6th Month	7904255	72456	254977	7649278		
	7th Month	7649278	70118	254977	7394301		
	8th Month	7394301	67781	254977	7139324		
	9th Month	7139324	65444	254977	6884347		
	10th Month	6884347	63107	254977	6629370		
	11th Month	6629370	60769	254977	6374393		
	12th Month	6374393	58432	254977	6119416	855445	3059724

4	1st Month	6119416	56095	254977	5864439		
	2nd Month	5864439	53757	254977	5609462		
	3rd Month	5609462	51420	254977	5354485		
	4th Month	5354485	49083	254977	5099508		
	5th Month	5099508	46745	254977	4844531		
	6th Month	4844531	44408	254977	4589554		
	7th Month	4589554	42071	254977	4334577		
	8th Month	4334577	39734	254977	4079600		
	9th Month	4079600	37396	254977	3824623		
	10th Month	3824623	35059	254977	3569646		
	11th Month	3569646	32722	254977	3314669		
	12th Month	3314669	30384	254977	3059692	518874	3059724
5	1st Month	3059692	28047	254977	2804715		
	2nd Month	2804715	25710	254977	2549738		
	3rd Month	2549738	23373	254977	2294761		
	4th Month	2294761	21035	254977	2039784		
	5th Month	2039784	18698	254977	1784807		
	6th Month	1784807	16361	254977	1529830		
	7th Month	1529830	14023	254977	1274853		
	8th Month	1274853	11686	254977	1019876		
	9th Month	1019876	9349	254977	764899		
	10th Month	764899	7012	254977	509922		
	11th Month	509922	4674	254977	254945		
	12th Month	254945	2337	254945	0	182305	3059692

Annexure 5: List of Equipment Manufacturers

Orange Multi Ventures: Address: C-106, Sanghmitra CHS, Behind Garden Hotel, Panvel-410 206, Maharashtra. Contact Person: S Mukherjee (+919930962898/8879117666);
Website: www.orangemultiventures.com

P.S. Hospitality Services: 185 Bidhan Park, Nawpara, Kolkata - 700090 (Calcutta Public School); Website: Website: www.pshospitalityservices.com; Email: soumiksarkar06@gmail.com; Phone: +91 6290917969; +91 9903730643

M R Enterprise: 111, 1st Floor, Kabiguru Sarani (A G Road), Behala, Kolkata - 700034 (Near Nadana Park); Website: bakeryequipment.co.in; Telephones: 91 - 98308 18359 / 98363 29229 / 98746 77472; E-mail: support@mrenterprise.in

Advance Engineering: Mathpara Chandigarh, Ganganagar, Kolkata - 700132 (Near Priya Biscuit Factory)
Genset Manufacturers: Kirloskar; TMTL (TAFE Motors and Tractors Limited), Greaves, Mahindra

Annexure 6: Assumptions/Basis of the project

Particulars	Value	Unit
Machine capacity for Maida per day in tonne	1.5	tonne
Capacity Utilisation in the second year	80%	
Increase in capacity utilisation per year	5%	
Working hours	8	Hours
Working days per year	300	Days
Average working days per month	25	days
Final product as a percentage of raw material	99.00%	
Raw material Stock in Days	7	Days
Finished goods stock in days	2	Days
Interest on working capital and term loan	11%	
Power Consumption in units per day @ 100% capacity utilisation	300	Units
Pre-operative Expenses	1%	
Increase in sale price/year	5%	
Rate per 400 gram pack of sliced bread	26	Rupees
Increase in raw material & packaging cost	5%	
Average price of refined wheat flour per kg	25	Rupees
Land	Own land	
Cost of additives (sugar, salt, gluten, yeast, oil)	7	Rupees
Raw material cost per tonne @ Rs.25/- +Rs 9/-- per kg for additives	32000	Rupees
Packaging material cost per 400 grams including printing cost	1.5	Rupees
Creditors in percentage of the stock Value	25%	
Debtors in percentage of the stock value	200%	
Power tariff per unit consumed in Rs.	9.00	Rupees
Depreciation of plant and Machinery and office equipments	15%	
Depreciation of building	10%	
Own contribution in Working Capital	25%	
Own contribution in Fixed Cost	50%	
Maintenance cost as Percentage of fixed cost	20%	
Increase in salary expenses every year	10%	
Repayment of term loan in months	60	months
Moratorium in months	12	months
Income Tax	25%	
Variable cost under Repair and maintenance in percentage	25%	
Variable component in salary in percentage	10%	
Variable component in sale & Admin expenses	15%	
Variable component of electricity in percentage	98%	
Sales and branding expenses per annum in Rs.	500000	Rupees
Misc Admin Expenses per annum @ 10000/- per month in Rs.	120000	Rupees
Transportation expenses per annum @ 10000/- per week in Rs.	480000	Rupees
Packaging Size	400	grams

Annexure 7: Interest on Bank Loan and Repayment Schedule

Principal Repayment per month			184284				
Year	Particulars	Amount in Rs.	Interest	Repayment of principal	Closing Balance	Annual Interest payment	Projected Principal Repayment
1	1st Month	7969000	73049	0	7969000		
	2nd Month	7969000	73049	0	7969000		
	3rd Month	7969000	73049	0	7969000		
	4th Month	7969000	73049	0	7969000		
	5th Month	7969000	73049	0	7969000		
	6th Month	7969000	73049	0	7969000		
	7th Month	7969000	73049	0	7969000		
	8th Month	7969000	73049	0	7969000		
	9th Month	7969000	73049	0	7969000		
	10th Month	7969000	73049	0	7969000		
	11th Month	7969000	73049	0	7969000		
	12th Month	7969000	73049	0	7969000	876588	0
2	1st Month	8845588	81085	184284	8661304		
	2nd Month	8661304	79395	184284	8477020		
	3rd Month	8477020	77706	184284	8292736		
	4th Month	8292736	76017	184284	8108452		
	5th Month	8108452	74327	184284	7924168		
	6th Month	7924168	72638	184284	7739884		
	7th Month	7739884	70949	184284	7555600		
	8th Month	7555600	69260	184284	7371316		
	9th Month	7371316	67570	184284	7187032		
	10th Month	7187032	65881	184284	7002748		
	11th Month	7002748	64192	184284	6818464		
	12th Month	6818464	62503	184284	6634180	861523	2211408
3	1st Month	6634180	60813	184284	6449896		
	2nd Month	6449896	59124	184284	6265612		
	3rd Month	6265612	57435	184284	6081328		
	4th Month	6081328	55746	184284	5897044		
	5th Month	5897044	54056	184284	5712760		
	6th Month	5712760	52367	184284	5528476		
	7th Month	5528476	50678	184284	5344192		
	8th Month	5344192	48988	184284	5159908		
	9th Month	5159908	47299	184284	4975624		
	10th Month	4975624	45610	184284	4791340		
	11th Month	4791340	43921	184284	4607056		
	12th Month	4607056	42231	184284	4422772	618268	2211408

4	1st Month	4422772	40542	184284	4238488		
	2nd Month	4238488	38853	184284	4054204		
	3rd Month	4054204	37164	184284	3869920		
	4th Month	3869920	35474	184284	3685636		
	5th Month	3685636	33785	184284	3501352		
	6th Month	3501352	32096	184284	3317068		
	7th Month	3317068	30406	184284	3132784		
	8th Month	3132784	28717	184284	2948500		
	9th Month	2948500	27028	184284	2764216		
	10th Month	2764216	25339	184284	2579932		
	11th Month	2579932	23649	184284	2395648		
	12th Month	2395648	21960	184284	2211364	375013	2211408
5	1st Month	2211364	20271	184284	2027080		
	2nd Month	2027080	18582	184284	1842796		
	3rd Month	1842796	16892	184284	1658512		
	4th Month	1658512	15203	184284	1474228		
	5th Month	1474228	13514	184284	1289944		
	6th Month	1289944	11824	184284	1105660		
	7th Month	1105660	10135	184284	921376		
	8th Month	921376	8446	184284	737092		
	9th Month	737092	6757	184284	552808		
	10th Month	552808	5067	184284	368524		
	11th Month	368524	3378	184284	184240		
	12th Month	184240	1689	184240	0	131758	2211364

Annexure 8: List of Equipment Manufacturers

Orange Multi Ventures: Address: C-106, Sanghmitra CHS, Behind Garden Hotel, Panvel-410 206, Maharashtra. Contact Person: S Mukherjee (+919930962898/8879117666);
Website: www.orangemultiventures.com

P.S. Hospitality Services: 185 Bidhan Park, Nawpara, Kolkata - 700090 (Calcutta Public School); Website: Website: www.pshospitalityservices.com; Email: soumiksarkar06@gmail.com; Phone: +91 6290917969; +91 9903730643

M R Enterprise: 111, 1st Floor, Kabiguru Sarani (A G Road), Behala, Kolkata - 700034 (Near Nadana Park); Website: bakeryequipment.co.in; Telephones: 91 - 98308 18359 / 98363 29229 / 98746 77472; E-mail: support@mrenterprise.in

Advance Engineering: Mathpara Chandigarh, Ganganagar, Kolkata - 700132 (Near Priya Biscuit Factory)

Genset Manufacturers: Kirloskar; TMTL (TAFE Motors and Tractors Limited), Greaves, Mahindra

Annexure 9: STATE-WISE MILK PRODUCTION

(Thousand tonnes)

State/Union Territory	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Andaman and Nicobar Islands	26	21	14	16	15	16	17	18
Andhra Pradesh#	12088	12762	13007	9656	10817	12178	13725	15044
Arunachal Pradesh	22	23	43	46	50	53	54	55
Assam	796	800	815	829	843	861	872	882
Bihar	6643	6845	7197	7775	8288	8711	9242	9818
Chandigarh	45	44	44	44	43	36	42	45
Chhattisgarh	1119	1164	1209	1232	1277	1374	1469	1567
Dadra & Nagar Haveli	11	11	11	9	9	8	8	-
Daman & Diu	1	1	1	1	1	1	1	1
Delhi	502	287	284	280	281	279	279	-
Goa	60	61	68	67	54	51	55	57
Gujarat	9817	10315	11112	11691	12262	12784	13569	14493
Haryana	6661	7040	7442	7901	8381	8975	9809	10726
Himachal Pradesh	1120	1139	1151	1172	1283	1329	1392	1460
Jammu and Kashmir	1614	1631	1615	1951	2273	2376	2460	2540
Jharkhand	1745	1679	1700	1734	1812	1894	2016	2183
Karnataka	5447	5718	5997	6121	6344	6562	7137	7901
Kerala	2716	2791	2655	2711	2650	2520	2576	2548
Lakshadweep	2	2	6	4	3	3	4	4
Madhya Pradesh	8149	8838	9599	10779	12148	13445	14713	15911
Maharashtra	8469	8734	9089	9542	10153	10402	11102	11655
Manipur	79	80	82	82	79	79	82	86
Meghalaya	80	81	82	83	84	84	85	87
Mizoram	14	14	15	20	22	24	25	26
Nagaland	78	79	81	76	77	79	74	73

Odisha	1721	1724	1861	1903	1930	2003	2088	2311
Puducherry	45	47	47	48	48	48	49	49
Punjab	9551	9724	10011	10351	10774	11282	11855	12599
Rajasthan	13512	13946	14573	16934	18500	20850	22427	23668
Sikkim	45	42	46	50	67	54	59	61
Tamil Nadu	6968	7005	7049	7132	7244	7556	7742	8362
Telangana	-	-	-	4207	4442	4681	4965	5416
Tripura	111	118	130	141	152	160	174	185
Uttar Pradesh	22556	23330	24194	25198	26387	27770	29052	30519
Uttarakhand	1417	1478	1550	1565	1656	1692	1742	1792
West Bengal	4672	4859	4906	4961	5038	5183	5389	5607
ALL INDIA	127904	132431	137686	146314	155491	165404	176347	187749

Annexure 10: Assumptions/Basis of the project

Particulars	Value	Unit
Machine capacity for milk per day in litres	3200	litres
Capacity Utilisation in the second year	75%	
Increase in capacity utilisation per year	5%	
Working hours	8	Hours
Working days per year	300	Days
Average working days per month	25	days
Final product as a percentage of raw material	6.75%	
Litres iof milk required for 1 Kg Milk Protien Concentrate	15	litres
Raw material Stock in Days	1	Days
Finished goods stock in days	7	Days
Interest on working capital and term loan	11%	
Power Consumption in units per day @ 100% capacity utilisation	350	Units
Increase in sale price/year	5%	
Rate per 0.5 kg pack of Ghee	290	Rupees
Increase in raw material & packaging cost	5.00%	
Average price of milk per tonne	30000	
Price of powder milk per kg	210	
Land	Own land	
Packaging material cost per 1 kg of Ghee - Pouch packing	2	Rupees
Creditors in percentage of the stock Value	25%	
Debtors in percentage of the stock value	15%	
Power tariff per unit consumed in Rs.	9.00	Rupees
Depreciation of plant and Machinery and office equipments	15%	
Depreciation of building	10%	
Own contribution in Working Capital	25%	
Own contribution in Fixed Cost	40%	
Maintenance cost as Percentage of fixed cost	20%	
Increase in salary expenses every year	10%	
Repayment of term loan in months	60	months
Moratorium in months	12	months
Income Tax	25%	
Variable cost under Repair and maintenance in percentage	25%	
Variable component in salary in percentage	10%	
Variable component in sale & Admin expenses	15%	
Variable component of electricity in percentage	98%	
Sales and branding expenses per annum in Rs.	1000000	Rupees
Misc Admin Expenses per annum @ 20000/- per month in Rs.	240000	Rupees
Transportation expenses per annum @ 20000/- per week in Rs.	960000	Rupees
Pre-operative Expenses as percentage of Project Cost	1%	
Packaging Size	0.5	kg

Annexure 11: Interest on Bank Loan and Repayment Schedule

Principal Repayment per month			307632				
Year	Particulars	Amount in Rs.	Interest	Repayment of principal	Closing Balance	Annual Interest payment	Projected Principal Repayment
1	1st Month	13303000	121944	0	13303000		
	2nd Month	13303000	121944	0	13303000		
	3rd Month	13303000	121944	0	13303000		
	4th Month	13303000	121944	0	13303000		
	5th Month	13303000	121944	0	13303000		
	6th Month	13303000	121944	0	13303000		
	7th Month	13303000	121944	0	13303000		
	8th Month	13303000	121944	0	13303000		
	9th Month	13303000	121944	0	13303000		
	10th Month	13303000	121944	0	13303000		
	11th Month	13303000	121944	0	13303000		
	12th Month	13303000	121944	0	13303000	1463328	0
2	1st Month	14766328	135358	307632	14458696		
	2nd Month	14458696	132538	307632	14151064		
	3rd Month	14151064	129718	307632	13843432		
	4th Month	13843432	126898	307632	13535800		
	5th Month	13535800	124078	307632	13228168		
	6th Month	13228168	121258	307632	12920536		
	7th Month	12920536	118438	307632	12612904		
	8th Month	12612904	115618	307632	12305272		
	9th Month	12305272	112798	307632	11997640		
	10th Month	11997640	109978	307632	11690008		
	11th Month	11690008	107158	307632	11382376		
	12th Month	11382376	104338	307632	11074744	1438176	3691584
3	1st Month	11074744	101518	307632	10767112		
	2nd Month	10767112	98699	307632	10459480		
	3rd Month	10459480	95879	307632	10151848		
	4th Month	10151848	93059	307632	9844216		
	5th Month	9844216	90239	307632	9536584		
	6th Month	9536584	87419	307632	9228952		
	7th Month	9228952	84599	307632	8921320		
	8th Month	8921320	81779	307632	8613688		
	9th Month	8613688	78959	307632	8306056		
	10th Month	8306056	76139	307632	7998424		
	11th Month	7998424	73319	307632	7690792		
	12th Month	7690792	70499	307632	7383160	1032107	3691584

4	1st Month	7383160	67679	307632	7075528		
	2nd Month	7075528	64859	307632	6767896		
	3rd Month	6767896	62039	307632	6460264		
	4th Month	6460264	59219	307632	6152632		
	5th Month	6152632	56399	307632	5845000		
	6th Month	5845000	53579	307632	5537368		
	7th Month	5537368	50759	307632	5229736		
	8th Month	5229736	47939	307632	4922104		
	9th Month	4922104	45119	307632	4614472		
	10th Month	4614472	42299	307632	4306840		
	11th Month	4306840	39479	307632	3999208		
	12th Month	3999208	36659	307632	3691576	626028	3691584
5	1st Month	3691576	33839	307632	3383944		
	2nd Month	3383944	31019	307632	3076312		
	3rd Month	3076312	28200	307632	2768680		
	4th Month	2768680	25380	307632	2461048		
	5th Month	2461048	22560	307632	2153416		
	6th Month	2153416	19740	307632	1845784		
	7th Month	1845784	16920	307632	1538152		
	8th Month	1538152	14100	307632	1230520		
	9th Month	1230520	11280	307632	922888		
	10th Month	922888	8460	307632	615256		
	11th Month	615256	5640	307632	307624		
	12th Month	307624	2820	307624	0	219958	3691576

Annexure 12: Illustrative List of Equipment Manufacturers

Varsha Dairy & Food Engineers

Address:
J-3/1, MIDC Gokul Shirgaon,
Kolhapur,
Maharashtra

Phone: 9923047474
Email: sales@varshakop.com
Website: https://www.varshaengineers.com

Tempcon (for Milk Chillers)

F.R.S. 4/5 & 6,Kasba Industrial Estate (PH-1),
E.M. Bye Pass (East),Kolkata - 700107, India

Phone : +91 2442 6216/2359. | +91 2443 0249.
Email : info@tempcon.co.in

Mahesh Engineering Works

Address
G-10, Ravi Estate Rustam Mill Compound,
Near Torrent Power Ltd, Dudheswer Road,
Ahmedabad – 380004
Gujarat, India.

Mobile No. +91-82389 37250
Phone & Fax No: +91-79-2562 6688
Email: sales@maheshengworks.com; info@maheshengworks.com
Website: www.dairyequipments.net; www.maheshengworks.com

Annexure 13: Assumptions/Basis of the project

Particulars	Value	Unit
Machine capacity in litres (for 2 cycles @100 litres per cycle)	200	litres
Capacity Utilisation in the second year	65%	
Increase in capacity utilisation per year	5%	
Working hours 2 cycles of 8 hrs	8	Hours
Working days per year	300	Days
Average working days per month	30	days
Final product as a percentage of raw material	200.00%	
Raw material Stock in Days	10	Days
Finished goods stock in days	10	Days
Interest on working capital and term loan	11%	
Power Consumption in units per day @ 100% capacity utilisation	1500	Units
Increase in sale price/year	5%	
Increase in raw material & packaging cost	5.00%	
Preoperative expenses as a percentage of project cost	1.00%	
Price of raw material per litre taking all components	138.27	
Land	Own land	
Rental charges for 4 outlets per month	60000	Rupees
Packaging material cost per unit of ice cream	5	Rupees
sale price per unit of ice cream	27.25	Rupees
Creditors in percentage of the stock Value	25%	
Debtors in percentage of the stock value	300%	
Power tariff per unit consumed in Rs.	9.00	Rupees
Depreciation of plant and Machinery and office equipments	15%	
Depreciation of building	10%	
Own contribution in Working Capital	25%	
Own contribution in Fixed Cost	40%	
Maintenance cost as Percentage of fixed cost	20%	
Increase in salary expenses every year	10%	
Repayment of term loan in months	60	months
Moratorium in months	12	months
Income Tax	25%	
Variable cost under Repair and maintenance in percentage	25%	
Variable component in salary in percentage	10%	
Variable component in sale & Admin expenses	15%	
Variable component of electricity in percentage	98%	
Sales and branding expenses per annum in Rs.	2000000	Rupees
Misc Admin Expenses per annum @ 10000/- per month in Rs.	240000	Rupees
Transportation expenses per annum @ 10000- per week in Rs.	480000	Rupees

Annexure 14: Interest on Bank Loan and Repayment Schedule

Principal Repayment per month			259001				
Year	Particulars	Amount in Rs.	Interest	Repayment of principal	Closing Balance	Annual Interest payment	Projected Principal Repayment
1	1st Month	11200000	102667	0	11200000		
	2nd Month	11200000	102667	0	11200000		
	3rd Month	11200000	102667	0	11200000		
	4th Month	11200000	102667	0	11200000		
	5th Month	11200000	102667	0	11200000		
	6th Month	11200000	102667	0	11200000		
	7th Month	11200000	102667	0	11200000		
	8th Month	11200000	102667	0	11200000		
	9th Month	11200000	102667	0	11200000		
	10th Month	11200000	102667	0	11200000		
	11th Month	11200000	102667	0	11200000		
	12th Month	11200000	102667	0	11200000	1232004	0
2	1st Month	12432004	113960	259001	12173003		
	2nd Month	12173003	111586	259001	11914002		
	3rd Month	11914002	109212	259001	11655001		
	4th Month	11655001	106838	259001	11396000		
	5th Month	11396000	104463	259001	11136999		
	6th Month	11136999	102089	259001	10877998		
	7th Month	10877998	99715	259001	10618997		
	8th Month	10618997	97341	259001	10359996		
	9th Month	10359996	94967	259001	10100995		
	10th Month	10100995	92592	259001	9841994		
	11th Month	9841994	90218	259001	9582993		
	12th Month	9582993	87844	259001	9323992	1210825	3108012
3	1st Month	9323992	85470	259001	9064991		
	2nd Month	9064991	83096	259001	8805990		
	3rd Month	8805990	80722	259001	8546989		
	4th Month	8546989	78347	259001	8287988		
	5th Month	8287988	75973	259001	8028987		
	6th Month	8028987	73599	259001	7769986		
	7th Month	7769986	71225	259001	7510985		
	8th Month	7510985	68851	259001	7251984		
	9th Month	7251984	66477	259001	6992983		
	10th Month	6992983	64102	259001	6733982		
	11th Month	6733982	61728	259001	6474981		
	12th Month	6474981	59354	259001	6215980	868944	3108012

4	1st Month	6215980	56980	259001	5956979		
	2nd Month	5956979	54606	259001	5697978		
	3rd Month	5697978	52231	259001	5438977		
	4th Month	5438977	49857	259001	5179976		
	5th Month	5179976	47483	259001	4920975		
	6th Month	4920975	45109	259001	4661974		
	7th Month	4661974	42735	259001	4402973		
	8th Month	4402973	40361	259001	4143972		
	9th Month	4143972	37986	259001	3884971		
	10th Month	3884971	35612	259001	3625970		
	11th Month	3625970	33238	259001	3366969		
	12th Month	3366969	30864	259001	3107968	527062	3108012
5	1st Month	3107968	28490	259001	2848967		
	2nd Month	2848967	26116	259001	2589966		
	3rd Month	2589966	23741	259001	2330965		
	4th Month	2330965	21367	259001	2071964		
	5th Month	2071964	18993	259001	1812963		
	6th Month	1812963	16619	259001	1553962		
	7th Month	1553962	14245	259001	1294961		
	8th Month	1294961	11870	259001	1035960		
	9th Month	1035960	9496	259001	776959		
	10th Month	776959	7122	259001	517958		
	11th Month	517958	4748	259001	258957		
	12th Month	258957	2374	258957	0	185181	3107968

Annexure 15: Illustrative list of equipment manufacturer

Shanti Engineers

Address:
4TH FLOOR a block, 11, Armenian St, Bara Bazar, Kolkata, West Bengal 700001

Phone: 099037 73471

MYRA Industries

HEAD OFFICE:
Con box, NH no 8-A, Opp Hotel Shivarth, Near changodag over bridge, Sarkhej Blava Road, Changodar Ahmedabad- 392213

BRANCH OFFICE:
P4, New Howrah Bridge Approach Road, Nandram market, Brabourne Road, 13th Floor, Room No. 1305, Kolkata-700001 (West Bengal)

Phone:+91 62911 93411
Email: info@myraindustries.com
Website: http://www.myraindustries.com/

Cold Star Solutions

156A, Picnic Garden Road, Kolkata - 700039, W.B, India

Phone : +91-33-2344 2956
Mobile: +91-8334917073
Email: info@coldstar.in
Website: http://coldstar.in

Annexure 16: STATE-WISE MILK PRODUCTION

(Thousand tonnes)

State/Union Territory	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
Andaman and Nicobar Islands	26	21	14	16	15	16	17	18
Andhra Pradesh#	12088	12762	13007	9656	10817	12178	13725	15044
Arunachal Pradesh	22	23	43	46	50	53	54	55
Assam	796	800	815	829	843	861	872	882
Bihar	6643	6845	7197	7775	8288	8711	9242	9818
Chandigarh	45	44	44	44	43	36	42	45
Chhattisgarh	1119	1164	1209	1232	1277	1374	1469	1567
Dadra & Nagar Haveli	11	11	11	9	9	8	8	-
Daman & Diu	1	1	1	1	1	1	1	1
Delhi	502	287	284	280	281	279	279	-
Goa	60	61	68	67	54	51	55	57
Gujarat	9817	10315	11112	11691	12262	12784	13569	14493
Haryana	6661	7040	7442	7901	8381	8975	9809	10726
Himachal Pradesh	1120	1139	1151	1172	1283	1329	1392	1460
Jammu and Kashmir	1614	1631	1615	1951	2273	2376	2460	2540
Jharkhand	1745	1679	1700	1734	1812	1894	2016	2183
Karnataka	5447	5718	5997	6121	6344	6562	7137	7901
Kerala	2716	2791	2655	2711	2650	2520	2576	2548
Lakshadweep	2	2	6	4	3	3	4	4
Madhya Pradesh	8149	8838	9599	10779	12148	13445	14713	15911
Maharashtra	8469	8734	9089	9542	10153	10402	11102	11655
Manipur	79	80	82	82	79	79	82	86
Meghalaya	80	81	82	83	84	84	85	87
Mizoram	14	14	15	20	22	24	25	26
Nagaland	78	79	81	76	77	79	74	73
Odisha	1721	1724	1861	1903	1930	2003	2088	2311
Puducherry	45	47	47	48	48	48	49	49
Punjab	9551	9724	10011	10351	10774	11282	11855	12599
Rajasthan	13512	13946	14573	16934	18500	20850	22427	23668
Sikkim	45	42	46	50	67	54	59	61
Tamil Nadu	6968	7005	7049	7132	7244	7556	7742	8362
Telangana	-	-	-	4207	4442	4681	4965	5416
Tripura	111	118	130	141	152	160	174	185
Uttar Pradesh	22556	23330	24194	25198	26387	27770	29052	30519
Uttarakhand	1417	1478	1550	1565	1656	1692	1742	1792
West Bengal	4672	4859	4906	4961	5038	5183	5389	5607
ALL INDIA	127904	132431	137686	146314	155491	165404	176347	187749

Annexure 17: Consumption of Milk in the world- The top 15 countries

Rank	Country	Per Capita Milk Consumption (Kg)
1	Finland	361.19
2	Sweden	355.86
3	Netherlands	320.15
4	Switzerland	315.78
5	Greece	314.69
6	Montenegro	305.87
7	Lithuania	303
8	Denmark	295.62
9	Albania	281.17
10	Romania	266.19
11	Luxembourg	265.9
12	Kazakhstan	262.61
13	Norway	261.52
14	France	260.48
15	Italy	256.1

Annexure 18: Assumptions/Basis of the project

Particulars	Value	Unit
Machine capacity for milk per day in litres	1600	litres
Capacity Utilisation in the second year	80%	
Increase in capacity utilisation per year	5%	
Working hours	8	Hours
Working days per year	365	Days
Average working days per month	30	days
Final product as a percentage of raw material	98.00%	
Raw material Stock in Days	1	Days
Finished goods stock in days	1	Days
Interest on working capital and term loan	11%	
Power Consumption in units per day @ 100% capacity utilisation	500	Units
Increase in sale price/year	5%	
Increase in raw material & packaging cost	5.00%	
Price of raw milk per litre	30	
Price of milk fat in local market	140	
milk fat production in percentage	2%	
Land	Own land	
Packaging material cost per 1 litre of milk - Pouch packing	1	Rupees
sale price per litre of pasteurised milk	54	
Creditors in percentage of the stock Value	25%	
Debtors in percentage of the stock value	300%	
Power tariff per unit consumed in Rs.	9.00	Rupees
Depreciation of plant and Machinery and office equipments	15%	
Depreciation of building	10%	
Own contribution in Working Capital	25%	
Own contribution in Fixed Cost	40%	
Maintenance cost as Percentage of fixed cost	20%	
Increase in salary expenses every year	10%	
Repayment of term loan in months	60	months
Moratorium in months	12	months
Income Tax	25%	
Variable cost under Repair and maintenance in percentage	25%	
Variable component in salary in percentage	10%	
Variable component in sale & Admin expenses	15%	
Variable component of electricity in percentage	98%	
Sales and branding expenses per annum in Rs.	500000	Rupees
Misc Admin Expenses per annum @ 10000/- per month in Rs.	240000	Rupees
Transportation expenses per annum @ 10000- per week in Rs.	480000	Rupees
Pre-operative Expenses as percentage of project cost	1%	
Packaging Size	1	litres

Annexure 19: Interest on Bank Loan and Repayment Schedule

Principal Repayment per month			281085				
Year	Particulars	Amount in Rs.	Interest	Repayment of principal	Closing Balance	Annual Interest payment	Projected Principal Repayment
1	1st Month	12155000	111421	0	12155000		
	2nd Month	12155000	111421	0	12155000		
	3rd Month	12155000	111421	0	12155000		
	4th Month	12155000	111421	0	12155000		
	5th Month	12155000	111421	0	12155000		
	6th Month	12155000	111421	0	12155000		
	7th Month	12155000	111421	0	12155000		
	8th Month	12155000	111421	0	12155000		
	9th Month	12155000	111421	0	12155000		
	10th Month	12155000	111421	0	12155000		
	11th Month	12155000	111421	0	12155000		
	12th Month	12155000	111421	0	12155000	1337052	0
2	1st Month	13492052	123677	281085	13210967		
	2nd Month	13210967	121101	281085	12929882		
	3rd Month	12929882	118524	281085	12648797		
	4th Month	12648797	115947	281085	12367712		
	5th Month	12367712	113371	281085	12086627		
	6th Month	12086627	110794	281085	11805542		
	7th Month	11805542	108217	281085	11524457		
	8th Month	11524457	105641	281085	11243372		
	9th Month	11243372	103064	281085	10962287		
	10th Month	10962287	100488	281085	10681202		
	11th Month	10681202	97911	281085	10400117		
	12th Month	10400117	95334	281085	10119032	1314069	3373020
3	1st Month	10119032	92758	281085	9837947		
	2nd Month	9837947	90181	281085	9556862		
	3rd Month	9556862	87605	281085	9275777		
	4th Month	9275777	85028	281085	8994692		
	5th Month	8994692	82451	281085	8713607		
	6th Month	8713607	79875	281085	8432522		
	7th Month	8432522	77298	281085	8151437		
	8th Month	8151437	74722	281085	7870352		
	9th Month	7870352	72145	281085	7589267		
	10th Month	7589267	69568	281085	7308182		
	11th Month	7308182	66992	281085	7027097		
	12th Month	7027097	64415	281085	6746012	943038	3373020

4	1st Month	6746012	61838	281085	6464927		
	2nd Month	6464927	59262	281085	6183842		
	3rd Month	6183842	56685	281085	5902757		
	4th Month	5902757	54109	281085	5621672		
	5th Month	5621672	51532	281085	5340587		
	6th Month	5340587	48955	281085	5059502		
	7th Month	5059502	46379	281085	4778417		
	8th Month	4778417	43802	281085	4497332		
	9th Month	4497332	41226	281085	4216247		
	10th Month	4216247	38649	281085	3935162		
	11th Month	3935162	36072	281085	3654077		
	12th Month	3654077	33496	281085	3372992	572005	3373020
5	1st Month	3372992	30919	281085	3091907		
	2nd Month	3091907	28342	281085	2810822		
	3rd Month	2810822	25766	281085	2529737		
	4th Month	2529737	23189	281085	2248652		
	5th Month	2248652	20613	281085	1967567		
	6th Month	1967567	18036	281085	1686482		
	7th Month	1686482	15459	281085	1405397		
	8th Month	1405397	12883	281085	1124312		
	9th Month	1124312	10306	281085	843227		
	10th Month	843227	7730	281085	562142		
	11th Month	562142	5153	281085	281057		
	12th Month	281057	2576	281057	0	200972	3372992

Annexure 20: Illustrative list of equipment manufacturers

3I Tech Engineers

Ecotech 3, Greater Noida, Gautam Budh Nagar,

Uttar Pradesh

Website: www.3itechengineer.com Phone: 08048699584

Goma Engineering Pvt Ltd.

LBS Marg, Majiwada,

Thane west - 400601, Maharashtra, India.

Phone: +91-22-41614121 / +91-22-41614100

Email: info@goma.co.in

Website: https://www.goma.co.in

Panda Machines Private Limited

Plot No. 784/2647, 3rd Floor,

Jagamara, Khandagiri, Behind HDFC Bank,

Bhubaneswar, Khorda-751030,

Odisha, India

Website: https://www.indiamart.com/pandamachines/

Phone: 08048119531

SB Solution

SB Solution

No.352/2a-1, Peedampalli Road,

Kannampalayam,

Coimbatore - 641402, Tamil Nadu, India

Phone: 08048994788

Website: https://www.sbsolution.co.in/

IDMC Limited

C/O National Dairy Development Board

Block-DK, Sector-II, Salt Lake, Kolkata-700 091,Ph: 033 6529 0898, 033 2359 1884

Jaya Industries

543, Jessore Road, Kolkata – 700028, Ph: 033 2551-3568