

DPR for setting up Bulk Milk Cooling Unit of 1000 LPD

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Basic Data Sheet

S. No.	Particulars	
1	Name of Society	
2	Address of location	
3	Name of contact person (Secretary)	
4	Mobile Number	
5	No of milk producer associated	
6	Average milk collection (QT in Ltr)	
7	Proposed BMC Capacity (QT in Ltr)	
8	Project Cost (Rs. In Lakh)	
9	Means of Finance (Rs. In Lakh)	
10	Bank Details	

Executive Summary

India, with its large cattle population is the biggest milk producer in the world. Milk production has remained a regular secondary occupational activity of farmers in India. As a result, dairy farming has remained an important contributor to the village economy. However, the milk production as well as milk distribution in India has remained dominated by the unorganized sector. This provides an investment opportunity to the organized sector to cater to the demands of urban consumers, who seek good quality and standardized milk.

1 Industry Background

India is the largest milk producing country in the world Milk processing in India is around 35%, of which the organized dairy industry account for 13% of the milk produced, while the rest of the milk is either consumed at farm level, or sold as fresh, non-pasteurized milk through unorganized channels.

Dairy Cooperatives account for the major share of processed liquid milk marketed in the India. Milk is processed and marketed by 170 Milk Producers' Cooperative Unions, which federate into 15 State Cooperative Milk Marketing Federations. Over the years, several brands have been created by cooperatives like Amul (GCMMF), Vijaya (AP), Verka (Punjab), Saras (Rajasthan). Nandini (Karnataka), Milma (Kerala) and Gokul (Kolhapur).

1.1 Milk Product Market

Despite having the largest milk production, India is a still a minor player in the world market. India is ranked at 18th position in world exports with a 1.6% share in total world exports. India's exports are highly concentrated in SMP, Casein and Ghee contributing close to 45%, 30% and 15% of our total exports respectively followed by butter and whole milk powder.

The major export destinations for the Indian dairy products are Bangladesh, Mid East, US and Egypt. Export figures clearly demonstrate that the Indian dairy export is still in its infancy and the surpluses are occasional. There has been exports of Indigenous milk products and desserts also, particularly Paneer and Chenna based sweets like Rosogolla. Paneer is being exported in both frozen and ready-to-eat formats in long shelf life packaging. These products get a large demand from ethnic population in other parts of the world.

1.2 Future Outlook: Dairy Industry in India in 2030

During next few years till 2030 the demand of dairy products is expected to grow at a rate of 9%-12% and industry at a rate of 4-5%. Clearly Indian industry will struggle to maintain 100% self-sufficiency due to huge local demand, of about 160 to 170 Million Tonnes of milk by 2030. The industry will have to overhaul to meet ends. With the potential to accommodate imports with home produced dairy products Indian industry will present to be a very lucrative market.

1.3 Rajasthan Scenario

In 2019, the milk production in Rajasthan reached a volume of 30 Billion Litres. The state currently represents the sixth largest dairy market in India. Rajasthan dairy market grew at a CAGR of 9.3% during 2014-2019.

1.4 Scope of milk production in Rajasthan

Milk production activity is emerging as an important avenue for income generation and employment opportunity in rural areas in the State. Argo climatic condition in the state is suitable to support cross bred animals.

Also, most of the population in the state being small and marginal farmers or landless laborers practicing subsistence agriculture, animal husbandry done in the scientific way could substantially add to economic activity of rural area/ segment.

Availability of milk in the city as well as in rural area is insufficient. Milk production per animal is low, consumption per head is low and habit of milk consumption by certain class in the community has been totally neglected. There is acute need of proper education, communication and awareness generation to maintain their good health and improved working.

2 Proposed BMC Model

A Bulk Milk Cooler (BMC) Operator is responsible for operating a large storage tank used for cooling and holding milk at a certain temperature (4*c) until it can be picked up by a milk hauler.

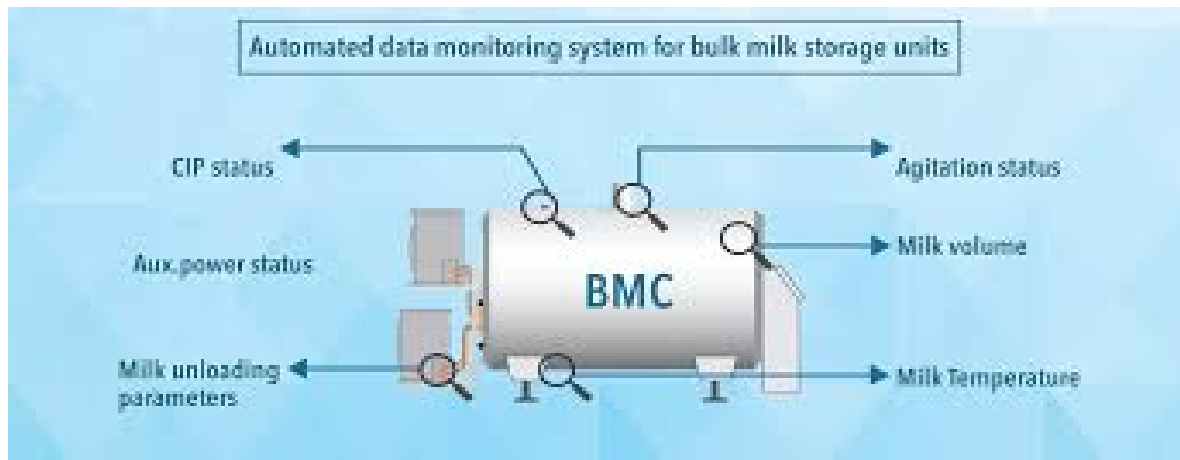
The bulk milk cooling tank is an important piece of dairy farm equipment. It is usually made of stainless steel and used every day to store the raw milk on the farm in good condition. It must be cleaned after each milk collection. The milk cooling tank can be the property of the farmer or be rented from a dairy plan.

Typically, a refrigeration system does this by using a special refrigerant fluid to remove heat from the milk and “reject” the heat (usually) into the outside air. The basic refrigeration system is made up of a refrigerated bulk tank, a refrigeration compressor unit and an air-cooled condenser unit.

Having made a significant stride in production and processing, efforts must be directed to provide hygienically safe milk and milk products to the consumers. In addition to fat and SNF, the bacteriological quality has also been considered for determining quality of the milk. Therefore, emphasis must be on veterinary support infrastructure and strengthening cold chain for quality milk production.

As per Codex Alimentarius, immediately after milking, the milk must be cooled preferably to 4° C. This requires mechanical refrigeration or milk cooling tanks. It is important to remember that under a hot environment milk will spoil within 3-4 hours. So, cooling will lower the temperature of milk to prevent

multiplication of bacteria. Further, when milk for further processing is not used within 2 hours after milking, it shall be cooled to a temperature cooled to or below 4° C.



The best alternative to the present collection system of milk is cooling of milk immediately after milking by Bulk Cooling Tanks. The usage of such tanks has become popular and is on the rise as it helps in increasing the shelf life of milk, facilitates systematic and simple way of milk procurement and ensures procurement of more milk by covering untapped farther areas for Milk Collection. Further the efforts are aimed at setting up of collection centers along milk routes to increase procurement in the organized sector and to facilitate scientific handling of milk as per quality norms.

2.1 Need for Bulk Milk Cooler

The members are facing the problem of hygienic and timely supply of milk to the society and the society in turn to the Milk Union. It was also observed that the transportation cost of the collected milk and the cans used, and its maintenance is a drain on the profits of the society. These factors are hampering the growth of the society and its capacity to produce more milk and reach the 1000 liter per day capacity. The members are mainly women who must take care of household coarse and can devout only part time for the work of growing cows for milk production. They are dependent on professional milking man for extraction of milk and for taking it to the society in the morning and afternoon.

2.2 Objectives of Bulk Milk Cooler

- To arrest bacterial growth, retain freshness and enhance the keeping quality of milk
- To avoid economic losses to the producers due to spillage/ curdling of milk.
- To make available quality milk for production of quality products for export as well as to meet the domestic requirements.

- To reduce the transportation cost by regulating transportation of the milk on alternative days or once in day for two collections and through reduction in expenditure on purchase and maintenance of cans.
- To ensure clean milk production.

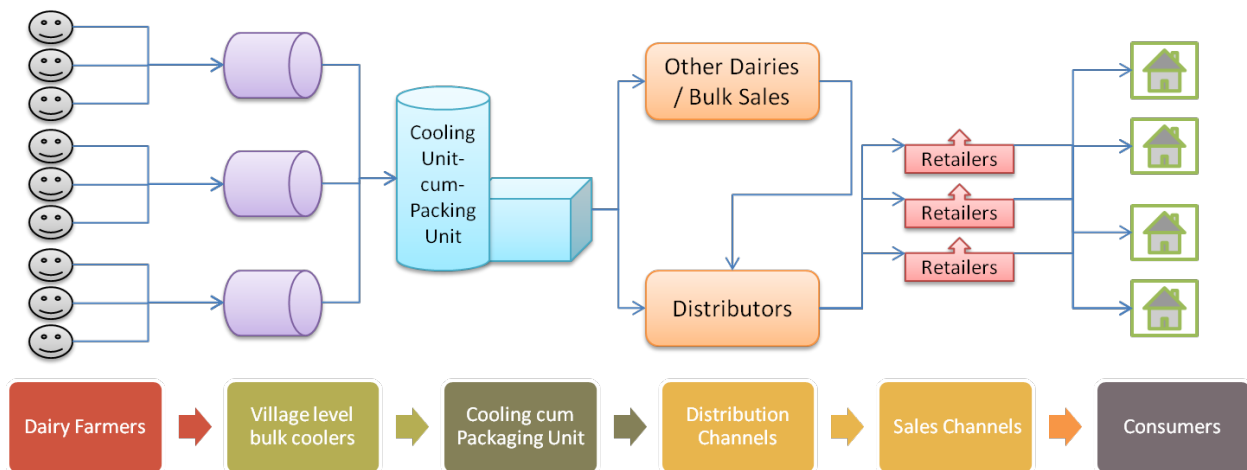
3 Project Brief

3.1 Components

- Comprises of bulk cooling tank with accessories
- Weighing machine
- Weighing bowl
- Roller conveyor
- Can wash tub
- Automatic Milk Collection Unit (AMCU)

3.2 Process and Business Unit

The operations involve milking, collection and chilling of milk to a temperature of 4 o C within 2 hours of milking.



The most important component of bulk milk cooling facility is its raw material procurement, which is milk. In India, the dairy farmers act as primary producers and have small holdings of 2-5 cattles.

The dairy unit would procure milk through establishment of a procurement chain from dairy farmers spread across villages in the target district. Each village will require a bulk milk tank which can store milk in refrigerated condition having capacity up to 1000 liters. .

The milk will be procured from villages in target and neighboring districts.

To establish a supply chain, backward linkage with farmers is necessary. This will ensure the uninterrupted supply of raw material to the unit

3.3 Advantages of Bulk Milk Cooler

- i. Elimination of souring/curdling of milk due to cooling at the collection center itself.
- ii. Adulteration of milk and spillage from cans can be eliminated during transport.
- iii. Transportation cost of milk can be brought down by regulating transportation to the main dairy either on alternative days or once in a day.
- iv. Saving of initial investment on purchase of cans and subsequent maintenance cost (Repairs, cleaning etc.).
- v. Improved quality of milk can be supplied to the main dairy to manufacture quality products for domestic as well as export markets.
- vi. Flexibility in milk collection time results in increase in volume of milk collected at the centers.
- vii. Farmers will get better returns for the quality of milk.
- viii. Chilling at the Main dairy can be avoided.

4 Financial Projections

4.1 Summary of cost of project and means of finance:

Project Cost and Means of Finance			
			Rs. Lakhs
S. No.	Cost of project	Year 1	
		Rs. Lakhs	
1	Land	-	0%
2	Civil Work Cost	-	0%
3	Plant & Machinery	6.07	100%
4	Miscellaneous	-	
		6.07	
S. No.	Means of Finance		
		Rs. Lakhs	
1	Promoter Equity	0.61	10%
2	Bank Loan	5.46	90%
		6.07	

4.2 Details of Capital investment:

Details of Civil Work			
Particulars	Area (Sq.ft)	Unit Cost (INR)	Total Cost (Lakh)
BMC Room (Existing)	400	0	0.00
Total Cost of Civil Work (Rs. Lakhs)			0.00

Details of Plant & Machinery			
Particulars	No. of Units	Unit Cost (Lakh)	Total Cost (Lakh)
Cost of Bulk Milk Cooler including accessories	1	6,07,000	6.07
Total Cost of P&M (Rs. Lakhs)			6.07

4.3 Key Assumptions

Assumptions Related to Revenue					
Capacity & Utilization		Unit	Revenue per Liter (Rs.)		Unit
Capacity of the Unit	1,000	LPD	Cost of Milk	40.00	Rs. / Liter
Year 1	60%		Service Charges Rate	3%	% of milk price
Year 2	70%		Service Charges Amount	1.2	Rs. / Liter
Year 3	80%				
Year 4	90%		No. of working days	360	
Year 5	95%		Debtor days	10	
Year 6 onwards	95%		Creditor Days	10	

Assumptions Related to Opex				
Salary Cost				
Function	No. of Staff	Salary/Month	Salary/Year	
Secretary	1	4,500	0.54	

Power and Fuel Cost	
Cost of Electricity Rs./Month	
Total Electricity Bill/ Month	3,000
Cost of Fuel Rs./Month	
Cost of Fuel Rs./Month	500
Cost of Water Rs./Month	
Cost of Water Rs./Month	200
Other Costs	
Repair & Maintenance of Machines/Equipment	3.00%
Cost of Consumables Rs./Month	200

4.4 Profit and Loss Statement

Profit & Loss <i>INR Lakhs</i>	Financial Projection									
	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31
Revenue										
Total Sales										
Expenses										
Total Cost of Raw Material										
Cost of Power & Fuel										
Cost of Water										
Consumables										
Repair & Maintenance										
Change in WIP										
Change in Finished Stock										
Selling, general & adm. expenses										
EBITDA										
Depreciation										
Interest										
Pre. Expenses (w.off)										
PBT										
Tax										
PAT										

EBITDA margin	60.9%	65.3%	68.6%	71.2%	72.3%	72.5%	72.7%	72.8%	73.0%	73.1%
PAT margin	27.9%	43.9%	54.1%	60.7%	64.3%	65.7%	66.8%	67.8%	68.7%	69.4%

4.5 Balance Sheet

Balance Sheet										
INR Lakhs	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31
Shareholder Equity										
Share Capital	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61	0.61
Reserves & Surplus	0.72	2.12	4.18	6.91	10.12	13.56	17.23	21.15	25.31	29.73
Net Worth	1.33	2.72	4.78	7.52	10.73	14.17	17.84	21.76	25.92	30.34
Subsidy	0.00	0.00	0.00	3.04	3.04	3.04	3.04	3.04	3.04	3.04
Liabilities										
Bank Loan	4.92	4.10	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Security Deposit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Current Liabilities	0.01	0.01	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Total Liabilities	6.26	6.83	5.04	10.57	13.78	17.22	20.90	24.81	28.98	33.40
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fixed Assets										
Gross Block Including CWIP	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07	6.07
Accumulated Depreciation	0.61	1.15	1.64	2.09	2.49	2.84	3.17	3.46	3.72	3.95
Net Block	5.46	4.92	4.43	3.98	3.58	3.23	2.90	2.61	2.35	2.12
Current Assets										
Cash & Bank Balances	0.73	1.83	0.51	6.47	10.06	13.85	17.84	22.04	26.46	31.11
Other Current Assets	0.07	0.09	0.10	0.12	0.14	0.14	0.15	0.16	0.17	0.17
Total Assets	6.26	6.83	5.04	10.57	13.78	17.22	20.90	24.81	28.98	33.40

4.6 Cash Flow

Cash Flow Statement										
<i>INR Lakhs</i>	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31
Cash From Operating Activities										
Profit Before Tax (PBT)	0.72	1.39	2.06	2.73	3.21	3.44	3.67	3.92	4.16	4.42
Adjustments:										
Pre-op write off	-	-	-	-	-	-	-	-	-	-
Depreciation	0.61	0.55	0.49	0.44	0.40	0.36	0.32	0.29	0.26	0.24
Operating Profit Before Working Capital changes	1.33	1.94	2.55	3.18	3.61	3.80	4.00	4.21	4.42	4.66
Working capital changes	(0.06)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Less: Tax paid	-	-	-	-	-	-	-	-	-	-
Cash generated / (used) in Operating activities	1.27	1.92	2.54	3.16	3.60	3.79	3.99	4.20	4.42	4.65
Cash From Investing Activities										
Purchase Of Property, Plant And Equipment	(6.07)	-	0.00	(0.00)	-	-	-	-	-	-
Cash generated / (used) In Investing activities	(6.07)	-	0.00	(0.00)	-	-	-	-	-	-
Cash From Financing Activities										
Equity	0.61	-	-	-	-	-	-	-	-	-
Grants	-	-	-	3.04	-	-	-	-	-	-
Bank Loan - Availed / (Repayments)	4.92	(0.82)	(3.85)	(0.24)	-	-	-	-	-	-
Cash generated / (used) In Financing activities	5.52	(0.82)	(3.85)	2.79	-	-	-	-	-	-
Net Increase / (Decrease) / In Cash and cash equivalents	0.73	1.11	(1.32)	5.95	3.60	3.79	3.99	4.20	4.42	4.65
Cash and Cash equivalents at beginning of the year	-	0.73	1.83	0.51	6.47	10.06	13.85	17.84	22.04	26.46
Cash and Cash equivalents at end of the year	0.73	1.83	0.51	6.47	10.06	13.85	17.84	22.04	26.46	31.11

4.7 Ratio Analysis

IRR calculation - Project	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27	FY 27-28	FY 28-29	FY 29-30	FY 30-31
EBITDA	1.58	2.07	2.61	3.20	3.61	3.80	4.00	4.21	4.42	4.66
(-)Tax	-	-	-	-	-	-	-	-	-	-
Less - Change in WC	(0.06)	(0.01)	(0.02)	(0.02)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Less - Capex	-	-	-	-	-	-	-	-	-	-
FCFF	1.52	2.06	2.60	3.19	3.60	3.79	3.99	4.20	4.42	4.65
CO										
Loan	(4.92)	-	-	-	-	-	-	-	-	-
Grant	-	-	-	-	-	-	-	-	-	-
Capital	(0.61)	-	-	-	-	-	-	-	-	2.12
Total CO	(5.52)	-	-	-	-	-	-	-	-	2.12
Net CI	(4.00)	2.06	2.60	3.19	3.60	3.79	3.99	4.20	4.42	6.76
Project IRR	67.61%									
Payback period	1.75 years									
NPV for Project	₹ 18.41	Lakhs								

Debt / Equity	8.1x	6.8x	0.4x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x	0.0x
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DSCR - Computation

EBITDA	1.58	2.07	2.61	3.20	3.61	3.80	4.00	4.21	4.42	4.66
Interest Payment	0.25	0.14	0.06	0.03	0.00	0.00	0.00	0.00	0.00	0.00
Loan Repayments	0.00	0.82	0.82	0.24	0.00	0.00	0.00	0.00	0.00	0.00
DSCR	6.3x	2.2x	3.0x	11.9x						
Average DSCR	5.8x									

4.8 Term Loan Schedule

EMI CALCULATION	
Term Loan Principal	5,46,300
Annual Interest	9.00%
Monthly Interest	0.75%
Term (months)	80
EMI	6,829
Subsidy Amount	3,03,500
Total Debt Service Cost	2,90,203
Interest Charge	47,403

REPAYMENT SCHEDULE					
Period	Opening Balance	Interest	Instalment Amt	Towards Principal	Closing Bal
1	5,46,300	4,097	4,097		5,46,300
2	5,46,300	4,097	4,097		5,46,300
3	5,46,300	1,821	1,821		5,46,300
4	5,46,300	1,821	1,821		5,46,300
5	5,46,300	1,821	8,650	6,829	5,39,471
6	5,39,471	1,770	8,599	6,829	5,32,643
7	5,32,643	1,719	8,547	6,829	5,25,814
8	5,25,814	1,667	8,496	6,829	5,18,985
9	5,18,985	1,616	8,445	6,829	5,12,156
10	5,12,156	1,565	8,394	6,829	5,05,328
11	5,05,328	1,514	8,342	6,829	4,98,499
12	4,98,499	1,462	8,291	6,829	4,91,670
13	4,91,670	1,411	8,240	6,829	4,84,841
14	4,84,841	1,360	8,189	6,829	4,78,013
15	4,78,013	1,309	8,138	6,829	4,71,184
16	4,71,184	1,258	8,086	6,829	4,64,355
17	4,64,355	1,206	8,035	6,829	4,57,526
18	4,57,526	1,155	7,984	6,829	4,50,698
19	4,50,698	1,104	7,933	6,829	4,43,869
20	4,43,869	1,053	7,882	6,829	4,37,040
21	4,37,040	1,002	7,830	6,829	4,30,211
22	4,30,211	950	7,779	6,829	4,23,383
23	4,23,383	899	7,728	6,829	4,16,554
24	4,16,554	848	7,677	6,829	4,09,725
25	4,09,725	797	7,625	6,829	4,02,896
26	4,02,896	745	7,574	6,829	3,96,068
27	3,96,068	694	7,523	6,829	3,89,239
28	3,89,239	643	7,472	6,829	3,82,410
29	3,82,410	592	7,421	6,829	3,75,581
30	3,75,581	541	7,369	6,829	3,68,753
31	3,68,753	489	7,318	6,829	3,61,924
32	3,61,924	438	7,267	6,829	3,55,095
33	3,55,095	387	7,216	6,829	3,48,266

34	3,48,266	336	7,164	6,829	3,41,438
35	3,41,438	285	7,113	6,829	3,34,609
36	3,34,609	233	7,062	6,829	3,27,780
37	3,27,780	182	7,011	6,829	3,20,951
38	3,20,951	131	6,960	6,829	3,14,123
39	3,14,123	2,356	9,185	6,829	3,794
40	3,794	28	3,822	3,794	-

Note: the amount of subsidy will get adjusted into the term loan account after a lock-in period of 36 months, however the interest on term loan will be calculated on the basis of net amount after deducting the subsidy amount received by the bank.