
Detailed Project Report
On
Ice Plant with Pre-Primary Processing
Unit (40 MT)

Under MKUY

Name of the Entrepreneur/Entity:

Address:

Mob No.

Contents

1. Project Summary	2
2. Project Profile	3
2.1 Entrepreneur/Entity Profile	3
2.2. Project Consultant Details	4
2.3. Concept and Scope of the Project	5
3. Techno-commercial Assumptions	7
4. Financial Details	7
4.1. Project Fixed Capital	8
4.2. Project Variable Expenses	9
4.3. Details of Sales	10
4.4. Project Balance Sheet	11
4.5. Calculation of Depreciation	12
4.6. Projected P&L	12
4.7. Projected Cash Flow	13
4.8. Calculation of BEP and IRR	14
4.9. Summary of Project Cost	15

1. Project Summary

1	Name of the Enterprise (as per the Illustrative List of Enterprises)	Ice Plant with pre-primary Fish Processing Unit
2	Sector (as per the Illustrative List of Enterprises)	Fisheries
3	Project Capacity ¹	40 MT/day
4	Key components of the project	
5	Project Address (Village/Ward, Gram Panchayat/Municipality, Block, District)	
6	Products/Output from the project	Block Ice
7	Total Project Cost	Rs. 1,22,95,600
8	Fixed Capital Cost	Rs. 1,17,35,600
9	Working/Recurring capital (for 15 days)	Rs. 5,60,000
10	Bank Finance/ Self Finance	Self-Finance
11	Bank Loan Amount	
12	Promoter Contribution (min 10% of the project cost in case of bank loan)	
13	Assumed Rate of Interest	
14	Subsidy Eligibility (40%, 50%)	
15	Repayment Terms (Tenure, Moratorium, Frequency, Mode of Repayment: equal principal/equal instalment)	
16	Key Financial Indicators: 1. Average Annual Net Profit 2. Debt Service Coverage Ratio (DSCR) 3. Internal Rate of Return 4. Break Even Year	Rs. 63,15,649
		48.15%
		2 Years and 2 Months
17	Estimated employment to be generated (nos.)	18

Note:

1. Customized DPR is to prepared as per the information given by the beneficiary.
2. Customized DPR is to prepared as per the requirement of the beneficiary
3. The CIS will be calculated as per the cost norm of MKUY guideline.
4. All the prices quoted here are indicative in nature.
5. The particulars under each component of the Capital Investment may be changed as per the requirement of the project.

¹ Capacity can be in terms of area or quantity

2. Project Profile

2.1 Entrepreneur/Entity Profile

1	Name of the Entrepreneur/Entity	
2	Legal status (Individual/ Group/ FPO/ FPC/ Proprietorship/ Partnership firm/ Company/ Cooperative/ Federation/ Society/ Trust)	
3	Name of Representative ² in Ease of entity	
4	Gender (Male/ Female/ Third Gender/ Not Applicable)	
5	Date of Birth of Individual/Representative of Entity	
6	Date of Incorporation/Registration of Entity	
7	Category opted for (Women/ ST/ SC/ Differently Abled/ Third gender/ Agri & Allied Graduate)	
8	Educational Qualification of Individual/Representative of Entity	
9	Passport size photograph of the Individual/ Representative of entity	
10	Local Address for Correspondence of the Individual/ Representative of entity	
11	Registered Address of Entity	
12	Main Office/Branch Address of Entity	
13	Phone no. of Individual/Representative of Entity	
14	Email Id of Individual/Representative of Entity	
15	AADHAR No. of Individual/Representative	
16	PAN of Individual/Representative of Entity, if available	
17	Farmer Id of Individual, if available	
18	Details of other Partner/Director/ President/Secretary	
19	Registration No./ CIN of the Entity ³	
20	PAN/TAN of Entity	
21	GSTIN of Entity, if available	
22	Details of experience and exposure relevant to the proposed enterprise/project (family business, work experience, e- learning/certificate courses, trainings undertaken etc.)	

² Representative should be authorized by the board/governing body of the entity.

³ Registration document:

Groups (SHG/PG/: FPO: Proprietorship firm: Registration Certificate under Shops & Establishment Act, Partnership firm: Registration Certificate from IGR of state, Company (Pvt. Ltd., Public Ltd., LLP, OPC, FPC): Certification of Incorporation, Cooperative/ Federation: Certificate of Registration from Registrar of Cooperative Societies, Society/Trust: Darpan Unique Id

2.2. Project Consultant Details

DPR prepared by: APICOL, Baramunda



2.3. Concept and Scope of the Project

The term ice plant is a unit that converts water into ice. Ice plants are usually classified by the type of ice they produce; hence there are block ice plants, flake ice plants, tube, slice or plate ice plants and so on. Ice plants may be further subdivided into those that make dry or wet ice. Dry ice here means ice at a temperature low enough to prevent the particles becoming moist; the term does not refer in this note to solid carbon dioxide. In general, dry sub cooled ice is made in plants that mechanically remove the ice from the cooling surface; most flake ice plants are of this type. When the cooling surface of an icemaker is warmed by a defrost mechanism to release the ice, the surface of the ice is wet and, unless the ice is then subcooled below 0°C, remains wet in storage; tube ice and plate ice plants are of this type.

Type of ice maker

Block ice

Tapered rectangular metal cans filled with water are immersed in a tank containing refrigerated sodium chloride brine. The dimensions of the can and the temperature of the brine are usually selected to give a 24 hour production time, and batches of cans are emptied and refilled in sequence during that period. Ice block weight can range from 12 to 150 kg depending on requirements; 150 kg is regarded as the largest size of block one man can conveniently handle. A block ice plant requires continuous attention and is labour intensive. The icemaker and the store require a good deal of floor space and impose heavy loads on the building structure. For these reasons block ice plants are going out of use, and more modern automatic plants are replacing them.

Rapid block ice

It is possible to reduce the freezing time for blocks considerably, and thus reduce the space required for the icemaker. This is done by reducing the thickness of ice to be frozen; in one type of rapid icemaker this is achieved by passing refrigerant through tubes around which the ice forms and fuses into a block. The blocks can be released by defrosting and harvested automatically, thus markedly reducing the labour requirement, but the storage space required is slightly larger than for the same weight of conventional block ice because the blocks have hollow centres after the tubes are removed.

Flake ice

A sheet of ice 2-3 mm thick is formed by spraying water on the surface of a refrigerated drum, and scraping it off to form dry sub cooled flakes, usually 100-1000 mm² in area. In some models the drum rotates against a stationary scraper on its outer surface; in others the scraper rotates and removes ice from the inner wall of a double walled stationary drum. In some models the drum is horizontal, but more usually it is mounted vertically. No water is sprayed on that part of the drum immediately before the scraper, so that the ice becomes dry and sub cooled prior to removal.

Refrigerant temperature, drum or scraper speed, and degree of sub cooling are all variable within designed limits so that the capacity of the icemaker and the thickness of the ice can be

altered. Typical refrigerant temperature in a flake ice machine is - 20 to - 25°C, lower than in most other types of icemaker, to give rapid cooling and thus make the machine compact. The low operating temperature requires more power, but this is to some extent compensated for by the absence of a need to defrost.

The refrigeration system

Most modern icemakers are designed to work unattended 24 hours a day with only routine inspection and maintenance. The system is therefore designed for reliability, with safeguards against failure or malfunction. Most manufacturers recommend the refrigeration system best suited to their icemakers, but where local installation engineers propose a system, the purchaser should ensure that the contractor is aware of the need for continuous automatic running and for rapid repair after breakdown.

The refrigeration system for an icemaker should be independent of any other refrigeration requirement; it should not be shared for example with a freezer or a cold store. The only exception to this rule is when a complex system is installed and a competent engineer is in fulltime attendance. Manufacturers often recommend a separate system for each icemaking unit, so that in a multiple unit installation there is considerable flexibility, and a reasonable guarantee that at least some of the units are always in production. Choice of refrigeration machinery and of refrigerant is a job for the refrigeration expert, and the advice of the ice plant manufacturer or competent consultant should be sought before making any decision.

Storage of ice

Manufacture of ice can seldom be matched to meet immediate demand; therefore, storage is necessary to cater for peak demand and to allow the icemaker to be operated continuously. Storage also acts as a buffer against interruption of production due to breakdown or routine maintenance.

The size of store required will depend on the pattern of operation, but it is never advisable to store less than 2 days' production, and in most installations, it is useful to be able to store 4-5 times the daily production.

3. Techno-commercial Assumptions

Sl. No.	Parameter	Value	Unit
1	Increase in Rate of Product	5	%
2	Increase in Electricity consumption	5	%
3	Collection from Debtors (First Year)	10	Days
4	Collection from Debtors	15	Days
5	Payable to Creditors	20	Days
6	Drawing By Promoter	40	%
7	Increase in Staff Salary	5	%
8	Rate of Interest on TL	-	-
9	Rate of Interest on WC	-	-
10	Loan Repayment (in year)	-	-
11	Raw Material in Stock (on sales)	5	Days
12	Finished Goods in stock (on sales)	15	Days
13	Promoter's Contribution (Term Loan)	100	%
14	Promoter's Contribution (Working Capital)	100	%
15	Working Capital Requirement	15	Days
17	Working Capital Utilisation	100	%
18	Ice Plant capacity	54000	Kg
19	Cans	360	Cans
20	1 Can	150	Kg
21	Daily production capacity (60%)	216	Cans

4. Financial Details

Sl. No.	Item	Amount	Amount
1	Promoter's equity	1,22,95,600	1,22,95,600
2	Bank Finance	-	-
2A	Term Loan	-	-
2B	CC Limit	-	-
	Total	1,22,95,600	1,22,95,600

4.1. Project Fixed Capital

Details of Fixed Assets					
Sl. No.	Particulars	Unit	Qty.	Cost per unit	Total
A	Land				
1	Land Development	Sq. ft	3000	0.60	1,800
2	Fencing (Barbed wire/Green Fencing)	ft	300	70.00	21,000
	Sub Total				22,800
B	Civil Construction				
1	Shed Construction (GI & MS material heavy duty profile sheet)	Sq. ft	2300	600.00	13,80,000
2	Overhead Tank	LS			30,000
3	Office Room	Sq. ft	200	850.00	1,70,000
4	Store Room	Sq. ft	200	300.00	60,000
	Sub Total				16,40,000
C	Water Supply				
1	Water Supply with Borewell, pump and pipe line				2,50,000
D	Electrification				
1	Electrical Installation (with 100 KVA transformer/ DG Set)			6,50,000.00	6,50,000
2	Electric Panel Board with all appliances, cable connection from panel to motor points with earthing points			3,36,300.00	3,36,300
	Sub Total				9,86,300
E	Plant & Machinery				
Sl. No.	Particulars	Specification	Qty	Unit Price	Total
1	Harmatic compressor unit	no.	4	4,72,000.00	18,88,000
2	Sealed compressor unit with shell and tube condenser unit	no.	4	1,88,800.00	7,55,200
3	Cooling Tower capacity	no.	2	2,12,400.00	4,24,800
4	Copper cooling coil	no.	8	1,59,300.00	12,74,400
5	Compressor fitting accessories	LS		2,83,200.00	2,83,200
6	Ice Can 360 nos 150 kg block	LS		9,55,800.00	9,55,800
7	Open well pump motor	no.	2	20,060.00	40,120
8	UPVC pipe (12 mtr with elbow)	LS		70,800.00	70,800
9	Agitator with 3 HP motor	no.	2	41,300.00	82,600
10	Copper pipe elbow coupler	kg	160	1,88,800.00	1,88,800

Details of Fixed Assets					
Sl. No.	Particulars	Unit	Qty.	Cost per unit	Total
11	Hoist 500 kg capacity with 1 HP motor 3 phase	no.	1	61,950.00	61,950
12	Freezing Tank 30 T storage capacity	no.	1	12,39,000.00	12,39,000
13	Compressor fitting MS structure	no.	1	94,400.00	94,400
14	Ice removing stand	no.	1	17,700.00	17,700
15	Ice removing platform and damping tank	no.	1	35,400.00	35,400
16	Puff chemical (Tank Insulation)	litre	490	1,41,600.00	1,41,600
17	Ply water proof size 4 x 8	no.	32	3,776.00	1,20,832
18	Manufacturing work and installation charges	no.	1	8,15,498.00	8,15,498
19	Effluent Treatment System (ETS)	no.	1	1,18,000.00	1,18,000
20	Ice Box	LS		50,000.00	50,000
21	Crates	LS		15,000.00	15,000
22	SS working table	no.	1	1,00,000.00	1,00,000
	Total Plant and Machinery Cost				87,73,100
F	Miscellaneous Expenditure				
1	Insurance premium of assets				35,000
2	Cost of DPR Preparation				14,510
3	Miscellaneous Expenditure				13,890
	Total Miscellaneous Expenditure				63,400

4.2. Project Variable Expenses

Details of Recurring Expenditure						
A	Details of raw material (per annum @ 100%)					
Sl. No.	Items	Unit	Rate/Unit (Rs)	Qty/day	Qty/annum (kg)	Total Cost (Rs)
1	Salt	Kg	10.00	3,000	7,50,000	75,00,000
2	Water	Lit	0.25	35,640	89,10,000	22,27,500
	Total			38,640	96,60,000	97,27,500

Details of salary and other benefits				
Sl. No.	Type of Workers	No. of Worker	Salary Per Month/head (Rs)	Total Salary per Annum (Rs)
1	Unskilled	10	8,000	960000
2	Skilled	7	10,000	840000
3	Manager	1	20,000	240,000
	Grand Total	18		2,040,000

4.3. Details of Sales

Details of sales (Per annum @100% capacity)						
Sl. No.	Type of products	Unit	Rate/Unit (Rs)	Quantity Per day	Quantity Per annum	Total (Rs)
1	Ice Block	Kg	3.20	32,400	81,00,000	2,59,20,000
Total				32,400	81,00,000	2,59,20,000

4.4. Project Balance Sheet

Liabilities	I	II	III	IV	V	VI	VII
Opening Capital	-	1,45,87,657	1,12,52,782	98,03,256	95,11,434	99,44,480	1,12,52,688
Add: Introduced	1,22,95,600						
Add: Profit	38,21,057	41,68,125	50,86,475	60,49,178	70,64,046	88,11,208	92,09,454
Less: Drawing	15,29,000	75,03,000	65,36,000	63,41,000	66,31,000	75,03,000	81,85,000
Closing Capital	1,45,87,657	1,12,52,782	98,03,256	95,11,434	99,44,480	1,12,52,688	1,22,77,142
Term Loan from Bank	-	-	-	-	-	-	-
Current Liabilities							
Cash Credit from Bank	-	-	-	-	-	-	-
Sundry Creditors	3,89,100	4,42,667	5,00,600	5,63,200	6,30,800	7,45,133	7,82,400
Expenses Payable	3,12,300	3,39,200	3,68,100	3,99,100	4,32,100	4,81,300	5,06,000
Current Provisions	13,69,739	15,18,482	19,12,061	23,24,648	27,59,591	35,08,375	36,79,052
Total Current Liabilities	20,71,139	23,00,349	27,80,761	32,86,948	38,22,491	47,34,808	49,67,452
Total Liabilities	1,66,58,796	1,35,53,130	1,25,84,017	1,27,98,382	1,37,66,971	1,59,87,496	1,72,44,593
Assets							
Fixed Assets	1,16,72,200	1,16,72,200	1,16,72,200	1,16,72,200	1,16,72,200	1,16,72,200	1,16,72,200
Less Depreciation	16,52,910	30,67,334	42,78,098	53,14,903	62,03,076	69,64,224	76,16,779
Net Fixed Assets	1,00,19,290	86,04,867	73,94,102	63,57,297	54,69,124	47,07,976	40,55,421
Current Assets							
Sundry Debtors	5,18,400	8,84,600	10,00,300	11,25,300	12,60,400	14,88,800	15,63,300
Inventories	8,74,900	8,88,300	10,09,750	11,41,050	12,83,000	14,46,650	16,84,400
Cash and Bank Balance	1,03,700	1,77,000	2,00,100	2,25,100	2,52,100	2,97,800	3,12,700
Other Current Assets	51,42,506	29,98,364	29,79,765	39,49,635	55,02,347	80,46,269	96,28,772
Total Current Assets	66,39,506	49,48,264	51,89,915	64,41,085	82,97,847	1,12,79,519	1,31,89,172
Total Assets	1,66,58,796	1,35,53,130	1,25,84,017	1,27,98,382	1,37,66,971	1,59,87,496	1,72,44,593
Current Ratio	3.21	2.15	1.87	1.96	2.17	2.38	2.66

4.5. Calculation of Depreciation

Rates of Depreciation		10%	15%	10%	Total depreciation for the year
Year	1	1,89,000.00	14,63,910	-	16,52,910
	2	1,70,100.00	12,44,324	-	14,14,424
	3	1,53,090.00	10,57,675	-	12,10,765
	4	1,37,781.00	8,99,024	-	10,36,805
	5	1,24,002.90	7,64,170	-	8,88,173
	6	1,11,602.61	6,49,545	-	7,61,147
	7	1,00,442.35	5,52,113	-	6,52,555

4.6. Projected P&L

Description	Year ending March 31st						
	I	II	III	IV	V	VI	VII
No of Working months	12	12	12	12	12	12	12
Capacity Utilisation	60	65	70	75	80	90	90
Revenue							
Sales	1,55,52,000	1,76,91,000	2,00,05,000	2,25,06,000	2,52,07,000	2,97,76,000	3,12,65,000
Opening Stock of Finished Goods	-	(7,77,600)	(8,84,550)	(10,00,250)	(11,25,300)	(12,60,350)	(14,88,800)
Closing Stock of Finished Goods	7,77,600	8,84,550	10,00,250	11,25,300	12,60,350	14,88,800	15,63,250
Total Income (A)	1,63,29,600	1,77,97,950	2,01,20,700	2,26,31,050	2,53,42,050	3,00,04,450	3,13,39,450
Expenditure							
Opening stock of Raw Material	-	97,300	1,10,700	1,25,200	1,40,800	1,57,700	1,86,300
Purchase (Net) of Material	58,36,500	66,40,000	75,09,000	84,48,000	94,62,000	1,11,77,000	1,17,36,000
Closing Stock of Raw material	97,300	1,10,700	1,25,200	1,40,800	1,57,700	1,86,300	1,95,600
Raw Material Consumption	57,39,200	66,26,600	74,94,500	84,32,400	94,45,100	1,11,48,400	1,17,26,700
Repair & Maintenance- Machinery (@1% of Cost)	1,16,494	1,22,400	1,28,600	1,35,100	1,41,900	1,49,000	1,56,500
Electricity expense	12,44,160	14,15,300	16,00,400	18,00,500	20,16,600	23,82,100	25,07,200
Insurance cost	35,000	36,800	38,700	40,700	42,800	45,000	47,300

Description	Year ending March 31st						
	I	II	III	IV	V	VI	VII
No of Working months	12	12	12	12	12	12	12
Administrative salaries and wages	20,40,000	21,42,000	22,49,100	23,61,600	24,79,700	26,03,700	27,33,900
Other Misc Expenses [@1% of sales]	3,11,040	3,53,820	4,00,100	4,50,120	5,04,140	5,95,520	6,26,789
Total Cost	94,85,894	1,06,96,920	1,19,11,400	1,32,20,420	1,46,30,240	1,69,23,720	1,77,98,389
Profit Before Depreciation, Interest and Tax	68,43,706	71,01,030	82,09,300	94,10,630	1,07,11,810	1,30,80,730	1,35,41,061
Depreciation	16,52,910	14,14,424	12,10,765	10,36,805	8,88,173	7,61,147	6,52,555
Profit Before Interest and Tax	51,90,796	56,86,607	69,98,535	83,73,825	98,23,637	1,23,19,583	1,28,88,506
Interest on Term Loan	-	-	-	-	-	-	-
Interest on Working Capital Loan	-	-	-	-	-	-	-
Total Interest Paid	-	-	-	-	-	-	-
Profit Before Tax	51,90,796	56,86,607	69,98,535	83,73,825	98,23,637	1,23,19,583	1,28,88,506
Income Tax	13,69,739	15,18,482	19,12,061	23,24,648	27,59,591	35,08,375	36,79,052
Profit after Tax	38,21,057	41,68,125	50,86,475	60,49,178	70,64,046	88,11,208	92,09,454

4.7. Projected Cash Flow

Period Ending:	I	II	III	IV	V	VI	VII
Cash & Bank Balance at Beginning	-	1,03,700	1,77,000	2,00,100	2,25,100	2,52,100	2,97,800
Cash Inflow during the Period	1,64,32,278	51,33,443	61,99,147	71,24,900	81,44,788	1,02,80,240	1,00,44,770
Cash Outflow during the Period	1,63,28,578	50,60,143	61,76,047	70,99,900	81,17,788	1,02,34,540	1,00,29,870
Closing Cash & Bank Balance	1,03,700	1,77,000	2,00,100	2,25,100	2,52,100	2,97,800	3,12,700

4.8. Calculation of BEP and IRR

Calculation of Break-Even Point (BEP)							
Sales	1,63,29,600	1,77,97,950	2,01,20,700	2,26,31,050	2,53,42,050	3,00,04,450	3,13,39,450
Variable Cost	60,50,240	69,80,420	78,94,600	88,82,520	99,49,240	1,17,43,920	1,23,53,489
Contribution	1,02,79,360	1,08,17,530	1,22,26,100	1,37,48,530	1,53,92,810	1,82,60,530	1,89,85,961
Fixed Cost	50,88,564	51,30,924	52,27,565	53,74,705	55,69,173	59,40,947	60,97,455
BEP Sales	80,83,598	84,41,846	86,03,092	88,47,143	91,68,843	97,61,757	1,00,64,852
Average BEP sales	89,95,876						

Calculation of Internal Rate of Return (IRR)				
Sl. No.	Year	PAT	Depreciation	Cash Accrual
	Cash outflow at beginning			-1,22,95,600
1	31-03-2024	38,21,057	16,52,910	54,73,967
2	31-03-2025	41,68,125	14,14,424	55,82,548
3	31-03-2026	50,86,475	12,10,765	62,97,239
4	31-03-2027	60,49,178	10,36,805	70,85,982
5	31-03-2028	70,64,046	8,88,173	79,52,219
6	31-03-2029	88,11,208	7,61,147	95,72,355
7	31-03-2030	92,09,454	6,52,555	98,62,009
IRR	48.15%			
Payback Period	2 Years 2 months			

4.9. Summary of Project Cost

Sl. No.	Name of Assets	Amount (Rs)
1	Land Development	22,800
2	Civil Construction	16,40,000
3	Irrigation/Water Supply	2,50,000
4	Electrification	9,86,300
5	Plant & Machinery	87,73,100
6	Insurance	35,000
7	DPR Cost	14,510
8	Miscellaneous Expenditure	13,890
	Total Fixed Cost	1,17,35,600
	Recurring	5,60,000
	Cost of Project	1,22,95,600

2 Working Capital Requirement

	Heads of Expenses	Amount/year
A	Raw Material	97,27,500
B	Salary	20,40,000
C	Utilities	12,44,160
D	Other Expenses	3,11,040
	Sub total per year	1,33,22,700

Working capital requirement (for 15 days) **5,60,000**