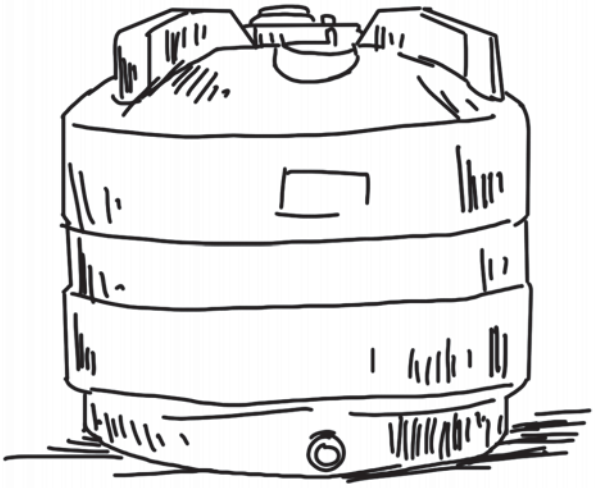
PLASTIC WATER STORAGE TANK



1.0 INTRODUCTION

Plastic water Storage Tanks are made from Linear Low Density Polyethylene/Low Density Polyethylene/ High Density Polyethylene. These tanks are light in weight, for which can be installed them at the place of choice. Plastic Water Storage Tanks are the most cost effective way to store water for residential and commercial installations. These Water tanks are available in various shapes and sizes.

This project profile is for production of Plastic Water Storage Tanks, based on 300 working days per annum and 8 working hours per day. The installed production capacity of the unit per annum is as follows;

Water Tanks of 500 Litrs Size - 2000 Nos.

Water Tanks of 1000 Litres Size -1000 Nos.

2.0 MARKET POTENTIAL

The demand of plastic water storage tanks is increasing day by day. They are not only installed in the individual houses and flats but are fitted in factories, group housing colonies and multi-story buildings as well. In the North-Eastern region of India, people face several problems due to scarcity of fresh drinking water. For drinking water, neither ground water supply nor any water supply scheme is adequate and the people of the region mostly depend on harvesting rain water, which can be stored. Moreover, stream water which is not perennial can also be stored. Thus cheap means of storing water is essential and for which this plastic water tank market is growing throughout entire north-east by leaps and bound. Besides, due to increase in the house building activities the demand for plastic water storage tanks is likely to increase in the coming years. Hence there is good scope for establishing a few units for the manufacture of water storage tanks by Roto Moulding process.

3.0 PROCESS DETAILS

In rotational moulding process a mould tool is produced from sheet steel or cast aluminium to the shape and dimensions of the finished product, plus a shrinkage allowance. The actual moulding process is as follows:

LOADING
↓
BALANCING/FILLING
↓
HEATING
↓
SINTERING
↓
WATER COOLING
↓
UNLOADING

Loading: The metal mould is filled with a predetermined quantity of polymer powder, closed, clamped and then passed into an oven chamber. A two part mould consisting of two hemispheres and is charged with predetermined weight of the material. The mould is claimed in pieces, the entire mould is made of conducive metals. When one or both the ends of the pieces are open, heat insulating. The mould tool is mounted on the arm which is then rotated to the next position.

Balancing/Filling: Where a mould has been newly mounted, it now needs to be balanced. Weights are added to ensure that the mould is spun smoothly during the heating and cooling phases. Once balanced, a carefully predetermined weight of resin powder is loaded into the mould, which is then closed. The arm is rotated into the next position.

Heating: The mould is spun slowly around two axes while being heated inside a large oven where they are heated and simultaneously rotated around two axis in planes normal to each other. The material is allowed to fuse into a homogeneous layer on the walls of the cavities. The slow rate of spin means that the powder tends to sit in a pool at the lowest point of the mould. As the powder begins to melt it adheres to the hot walls of the mould, coating it as it passes through the pool of powder. When all the powder has adhered to the inner surface of the mould, the arm is rotated to the next position.

Sintering: Still being spun around two axes, the mould is air-cooled to allow the part to form sufficiently to enable it to withstand the more aggressive cooling of the next phase without warping. The arm is moved to the next position.

Water Cooling: Still being spun, the mould is sprayed with water to provide rapid cooling while keeping the mould in rotation. This also encourages a slight shrinkage of the part, making it easier to remove from the mould. The raw material solidifies into the shapes of the mould. Once gets cold, the spinning stops and the arm is moved to the next position.

Unloading: The still-warm part is removed from the mould. A jig may be inserted to minimise shrinkage, if necessary. Another mould can be loaded onto the arm if required or the existing one reused. The arm moves to the balancing / filling position and the cycle begins again.

4.0.COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
Land & Site development	**Own Land/ On Lease**
Building & Civil works	**16.50**
Plant & Machinery	**36.53**
Misc. Fixed assets	**6.16**
Preliminary & pre-operative expenses	**2.48**
Contingencies & escalation @ 3%	**1.78**
Working capital	**1.55**
TOTAL	**65.00**

4.1 Land & Site Development: Total Land: 10,000 Sq. Ft. ; Covered Area: 5,000 Sq. Ft.

4.2 Building & Civil Works: Details of building & civil works are given below.

Particulars	Area (Sq. Ft.)	Rate (Rs)	Amount (Rs)
Factory Shed, Storage Go-down and Office	5000	275	1375000
		Sub total	**1375000**
Add: Electrification, water supply and sanitation @ 20%			275000
		TOTAL	**1650000**
		Say (Rs. in lacs)	**16.50**

4.3 Plant & Machinery: Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Roto Moulding Machine Size 13" X 7" complete with 15 HP, 5 HP and 2 nos. of 3 HP Motors, 19 nos. of burners, two reduction gear boxes, Rotary Shaft and Connecting Rulers.	1	3216000
Thermoforming Machine	1	
80 Kg/hour Pulveriser Machine for Reprocessing	1	
80 Kg/hr Extruder Machine for Reprocessing	1	
Hoist Chain Pully Stand	1	
Scrap Grinder Machine with Motor	1	
Scrap Cutter	1	
Spray Compressor	1	
Gas Fired Heating System	1	
Inert Gas System	1	
Mould of Various Shapes/Sizes	12	
Weighing Machine	1	
DG Set 40 KVA	1	
Workshop Equipment	LS	55000
	Sub total	**3271000**
Add: Installation, transportation, etc @ 10%		327100
	TOTAL	**3653100**
	Say (Rs. in lacs)	**36.53**

4.4 Misc. Fixed assets: Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Foundation for Rotational Moulding Machine	1	45000	45000
Commercial Gas Cylinders	10	3000	30000
Electric Transformer	1	350000	350000
Furniture & fixtures including Cutting Tables etc	LS	--	100000
Miscellaneous items	LS	--	35000
		Sub total	**560000**
Add: Installation, transportation, etc @ 10%			56000
		TOTAL	**616000**
		Say (Rs. in lacs)	**6.16**

4.5 Contingencies & escalation: Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

4.6 Preliminary & pre-operative expenses: Details of preliminary & pre-operative expenses are given below.

(Rs. In lacs)

Particulars	Amount (Rs)
Travelling expenses	17000
Professional & other fees	50000
Interest during implementation	151382
Miscellaneous expenses	30000
TOTAL	248382
Say (Rs. in lacs)	**2.48**

4.7 Working capital: Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	15	0.49	0.57	0.65
Power & Utility	30	0.22	0.26	0.29
Salary	30	0.70	0.70	0.71
Finished Goods	15	1.02	1.12	1.23
Receivables	15	1.44	1.68	1.92
Total		**3.86**	**4.33**	**4.80**
Working capital margin in Year 1 (40%)	**1.55**			

5.0 MEANS OF FINANCE

The means of finance for the project is estimated as below.

(Rs. in lacs)

Particulars	Percent	Amount
EQUITY		
A. Equity from Promoters	**40%**	**26.00**
B. Subsidy from Central/State Govt.	**-**	
DEBT		
Term Loan from Banks/Financial Institutions	**60%**	**39.00**
TOTAL	**100%**	**65.00**

6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
A. INCOME							
Production capacity (Nos/annum)	3000	3000	3000	3000	3000	3000	3000
Capacity utilisation	60%	70%	80%	80%	80%	80%	80%
Production/ annum at capacity utilisation	**1800**	**2100**	**2400**	**2400**	**2400**	**2400**	**2400**
Total income/annum	**35.10**	**40.95**	**46.80**	**46.80**	**46.80**	**46.80**	**46.80**
B. OPERATING EXPENSES							
Raw materials	11.82	13.79	15.76	15.76	15.76	15.76	15.76
Power & Utility	2.68	3.13	3.58	3.58	3.58	3.58	3.58
Salary	8.52	8.56	8.61	8.65	8.69	8.74	8.78
Repair & Maintenance	0.99	1.01	1.03	1.05	1.07	1.09	1.11
Other Expenses	0.70	0.82	0.94	0.94	0.94	0.94	0.94
Total Operating Expenses	**24.71**	**27.31**	**29.91**	**29.97**	**30.04**	**30.10**	**30.17**
Operating profit	**10.39**	**13.64**	**16.89**	**16.83**	**16.76**	**16.70**	**16.63**
C. FINANCIAL EXPENSES							
Depreciation	2.87	2.87	2.87	2.87	2.87	2.87	2.87
Interest on Term Loan	3.12	2.88	2.36	1.84	1.32	0.80	0.28
Interest on Working Capital Loan	0.19	0.21	0.23	0.23	0.23	0.23	0.23
Net Profit	**4.21**	**7.68**	**11.43**	**11.89**	**12.34**	**12.80**	**13.25**
Net cash accruals	**7.08**	**10.55**	**14.30**	**14.76**	**15.21**	**15.67**	**16.12**
Principal Repayment	0.00	6.50	6.50	6.50	6.50	6.50	6.50

6.1 Production capacity and Sales Realisation: Total production of **Plastic Water Storage Tanks** at 100% capacity utilization is estimated as below.

Products	Quantity
500 Litres Water Tanks	2000 Nos.
1000 Litres Water Tanks	1000 Nos.
Total production per annum at 100% capacity (In Nos.)	**3000 Nos.**

Particulars	Quantity	Average Rate per Unit	Amount
500 Litres Water Tanks	2000 Nos.	1450	2900000
1000 Litres Water Tanks	1000 Nos.	2950	2950000
Total Sale Turnover per annum at 100% capacity (In Rs.)			5850000

6.2 Raw materials: Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Quantity	Average Rate per Unit	Amount
LLDPE	170 MT	10000	1700000
LPG Gas	6 MT	45000	270000
Expenses on raw material at 100% capacity (Rs)			1970000

6.3 Power & Utility: Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total HP of 40)	--	29.84	29.84
General Lighting	20	0.10	2.00
Total power requirement/ day (Kw)			31.84

No. of hrs/day	8
No. of days/annum	300
Annual power requirement (kwh)	76416
Rate per unit (Rs)	3.50
Expenses on power (Rs)	267456

Estimate of Diesel required for Generator

No of working hours per day	2
Diesel consumption (litres per hours)	6
No. of days/annum	300
Annual requirement (in litres)	3600
Diesel Price per litre	50
Expenses on diesel (Rs)	180000
Expenses on power & utility at 100% capacity (Rs)	**447456**

6.4 Salary: Total expenses on salary in the 1st year are estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/ Month (Rs)	Cost/ annum (Rs)
Production Manager	1	10000	120000
Accountant cum Store Keeper	1	7000	84000
Sales Persons	2	7000	168000
Technicians/Machine Operators/Skilled Workers	3	5000	180000
Semi skilled workers	4	4000	192000
Unskilled workers	3	3000	108000
Expenses on salary in the 1st year (Rs)			**852000**

6.5 Repair & Maintenance: Total expenses on repair & maintenance in the 1st year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)

Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & Civil works	16.50	1.00%	0.17
Plant & Machinery	36.53	2.00%	0.73
Misc. Fixed assets	6.16	1.50%	0.09
Expenses on repair & maintenance in year 1			**0.99**

6.6 Other Expenses: Other expenses have been assumed at 2% of sales realisation.

6.7 Depreciation: Depreciation has been calculated by straight line method. The details of calculation are given below.

(Rs in lacs)

Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & Civil works	16.50	3.34%	0.55
Plant & Machinery	36.53	5.28%	1.93
Misc. Fixed assets	6.16	6.33%	0.39
TOTAL			**2.87**

6.8 Interest on term loan & principal repayment: Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 1 year with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	39.00	39.00	32.50	26.00	19.50	13.00	6.50
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest (8%)	0.26	0.26	0.22	0.17	0.13	0.09	0.04
	Closing balance	**39.00**	**38.46**	**31.96**	**25.46**	**18.96**	**12.46**	**5.96**
Month 2	Opening balance	39.00	38.46	31.96	25.46	18.96	12.46	5.96
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.26	0.21	0.17	0.13	0.08	0.04
	Closing balance	**39.00**	**37.91**	**31.41**	**24.91**	**18.42**	**11.92**	**5.42**
Month 3	Opening balance	39.00	37.91	31.41	24.91	18.42	11.92	5.42
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.25	0.21	0.17	0.12	0.08	0.04
	Closing balance	**39.00**	**37.37**	**30.87**	**24.37**	**17.87**	**11.37**	**4.87**
Month 4	Opening balance	39.00	37.37	30.87	24.37	17.87	11.37	4.87
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54

	Interest	0.26	0.25	0.21	0.16	0.12	0.08	0.03
	Closing balance	**39.00**	**36.83**	**30.33**	**23.83**	**17.33**	**10.83**	**4.33**
Month 5	Opening balance	39.00	36.83	30.33	23.83	17.33	10.83	4.33
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.25	0.20	0.16	0.12	0.07	0.03
	Closing balance	**39.00**	**36.29**	**29.79**	**23.29**	**16.79**	**10.29**	**3.79**
Month 6	Opening balance	39.00	36.29	29.79	23.29	16.79	10.29	3.79
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.24	0.20	0.16	0.11	0.07	0.03
	Closing balance	**39.00**	**35.75**	**29.25**	**22.75**	**16.25**	**9.75**	**3.25**
Month 7	Opening balance	39.00	35.75	29.25	22.75	16.25	9.75	3.25
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.24	0.19	0.15	0.11	0.06	0.02
	Closing balance	**39.00**	**35.21**	**28.71**	**22.21**	**15.71**	**9.21**	**2.71**
Month 8	Opening balance	39.00	35.21	28.71	22.21	15.71	9.21	2.71
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.23	0.19	0.15	0.10	0.06	0.02
	Closing balance	**39.00**	**34.66**	**28.16**	**21.67**	**15.17**	**8.67**	**2.17**
Month 9	Opening balance	39.00	34.66	28.16	21.67	15.17	8.67	2.17
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.23	0.19	0.14	0.10	0.06	0.01
	Closing balance	**39.00**	**34.12**	**27.62**	**21.12**	**14.62**	**8.12**	**1.62**
Month 10	Opening balance	39.00	34.12	27.62	21.12	14.62	8.12	1.62
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.23	0.18	0.14	0.10	0.05	0.01
	Closing balance	**39.00**	**33.58**	**27.08**	**20.58**	**14.08**	**7.58**	**1.08**
Month 11	Opening balance	39.00	33.58	27.08	20.58	14.08	7.58	1.08
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.22	0.18	0.14	0.09	0.05	0.01
	Closing balance	**39.00**	**33.04**	**26.54**	**20.04**	**13.54**	**7.04**	**0.54**
Month 12	Opening balance	39.00	33.04	26.54	20.04	13.54	7.04	0.54
	Repayment	0.00	0.54	0.54	0.54	0.54	0.54	0.54
	Interest	0.26	0.22	0.18	0.13	0.09	0.05	0.00
	Closing balance	**39.00**	**32.50**	**26.00**	**19.50**	**13.00**	**6.50**	**0.00**
Principal Repayment		**0.00**	**6.50**	**6.50**	**6.50**	**6.50**	**6.50**	**6.50**
Interest		**3.12**	**2.88**	**2.36**	**1.84**	**1.32**	**0.80**	**0.28**

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7
Profit After Tax (Net Profit)	4.21	7.68	11.43	11.89	12.34	12.80	13.25
Depreciation	2.87	2.87	2.87	2.87	2.87	2.87	2.87
Interest	3.12	2.88	2.36	1.84	1.32	0.80	0.28
Total	**10.20**	**13.43**	**16.66**	**16.60**	**16.53**	**16.47**	**16.40**
Interest	3.12	2.88	2.36	1.84	1.32	0.80	0.28
Loan repayment	0.00	6.50	6.50	6.50	6.50	6.50	6.50
Total	**3.12**	**9.38**	**8.86**	**8.34**	**7.82**	**7.30**	**6.78**
DSCR	**3.27**	**1.43**	**1.88**	**1.99**	**2.11**	**2.26**	**2.42**

Average DSCR = 2.06

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	**35.10**	**40.95**	**46.80**
B. Variable cost			
Raw materials	11.82	13.79	15.76
Power & Utility	2.68	3.13	3.58
Other expenses	0.70	0.82	0.94
Interest on Working Capital Loan	0.19	0.21	0.23
Total variable cost	**15.39**	**17.95**	**20.51**
C. Contribution (A-B)	**19.71**	**23.00**	**26.29**
D. Fixed & Semi-fixed Costs			
Salary	8.52	8.56	8.61
Repair & maintenance	0.99	1.01	1.03
Interest on Term Loan	3.12	2.88	2.36
Depreciation	2.87	2.87	2.87
Total fixed cost	**15.50**	**15.32**	**14.86**
E. BREAK EVEN POINT	**78.64%**	**66.61%**	**56.53%**
F. BEP at operating capacity	**47.18%**	**46.63%**	**45.23%**
G. Cash BEP	**38.45%**	**37.90%**	**36.49%**

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

Year	0	1	2	3	4	5	6	7
CASH OUTFLOW								
Capital Expenditure	60.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.86	0.47	0.47	0.00	0.00	0.00	0.00
Total (A)	**60.97**	**3.86**	**0.47**	**0.47**	**0.00**	**0.00**	**0.00**	**0.00**
CASH INFLOW								
Profit After Tax		4.21	7.68	11.43	11.89	12.34	12.80	13.25
Add: Depreciation		2.87	2.87	2.87	2.87	2.87	2.87	2.87
Add: Interest		3.12	2.88	2.36	1.84	1.32	0.80	0.28
Add: Salvage Value								
Total (B)	**0.00**	**10.20**	**13.43**	**16.66**	**16.60**	**16.53**	**16.47**	**16.40**
NET FLOW (B-A)	**-60.97**	**6.33**	**12.96**	**16.19**	**16.60**	**16.53**	**16.47**	**16.40**

IRR = 19%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s National Plastics	Plot No. 84, G I D C, Odhav, Ahmedabad, Gujarat, Pin - 382 415
2.	M/s Jai Industrial Works	22-26 A, Industrial Estate, 22, Godam, Jaipur.
3.	M/s Batliboi and Co. Ltd	P.B. No. 479, V.B. Gandhi Road, Fort, Mumbai, Maharashtra, Pin-400 023
4.	M/s Fixopan Machine Pvt. Ltd.	71, Nehru Place, New Delhi, Pin-110019.