

CONCRETE PRODUCTS (POSTS, KITCHEN SINKS AND WELL RINGS)



1.0 INTRODUCTION

Concrete is considered to be one of the most durable building materials under favourable conditions. There is no substitute for well-compact, dense concrete of adequate strength in order to ensure durable structures with long service life. The concrete product is a kind of artificial rock made by cementing crushed stones or gravel stone together. It has the great advantage that it can be made in whatever shape or size required. Some of the major concrete products include concrete posts, concrete kitchen sinks and concrete rings etc. The concrete posts are used mainly in fencing purposes and for erecting pillars for new constructions. Some posts are also used as electricity, telephone posts. The flower tubs, sanitary toilet plates, are an integral part of most urban homes. In view of its convenience, these items are fast entering rural homes also.

This project profile is for setting up of Concrete Based Products Making Unit, 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;

Well Rings	-	300 Nos.
Kitchen Sinks	-	1500 Nos.
No. of Posts	-	3000 Nos.

2.0 MARKET POTENTIAL

Cement based products are used in construction of houses, schools and other public buildings and also in housing for weaker sections. They are also used by Municipalities for plantation of trees. There are one or two units in every town, but they are required in many development block areas also. A cement concrete can be made as per local requirement. Considering the vast borders of the North-eastern region and regular requirement of posts at Forest department, Electricity department, in Paddy fields, or tea gardens its demand is increasing rapidly. Besides there is demand for concrete sinks or ceramic sinks in every household due to rapid urbanization and awareness of the products. Again there are good numbers of demand for sanitary toilet plates, flower tubs in the rural areas in a large scale. Therefore it does have a vast potential.

3.0 PROCESS DETAILS

All the three materials- Cement, Sand, Stone-chips are mixed in concrete mixture in ratio of 1:3:6 or 1:2:4 depending on the type of construction and required strength. The water, cement ratio is approximately 0.44:1. For reinforcement, wire mesh or rods are placed between successive layers of concrete mix and the size of the material required is 12 mm and below. The mixture is fed into the mould of the hydraulic tempting machine and vibrated for few seconds with intervals to give complete compactness. The blocks are then placed on the floor for 24 hours for initial setting. Then they are cured in water tank for 5-10 days for complete curing.

When making concrete posts or other products the various proportions of various ingredients (i.e. the quantities of different substances in the mixture) should be carefully measured. It is important not to use too much water in the mixing because this will make the concrete weak. To produce concrete products of a good quality there is requirement of highly skilled personnel's. The strength of the concrete products arrives from chemical action between the cement and the water, which produces a hard substance that binds the whole mass of material together. The concrete cemented product must not be allowed to dry during the first weeks after it has been prepared. Warm damp weather is therefore very much suitable for making concrete products.

The process steps are as follows.

1. Preparation of suitable mould depending on product shape and size.
2. Preparation of concrete mixture.
3. Pouring of cement concrete into the moulds and stirring to avoid gaps. Suitable reinforcement is to be provided while pouring cement mixture.
4. Curing the product for 4/5 days. During this period water is to be poured. After opening from moulds water is to put for about a week time.

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	1.65	
Plant & Machinery	1.10	
Misc. Fixed assets	0.28	
Preliminary & pre-operative expenses	0.53	
Contingencies & escalation @ 3%	0.09	
Working capital	0.46	
TOTAL	4.10	

4.1 Land & Site Development: Nil.

Total Land: 2000 Sq. Ft.; Covered Area: 500 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Material Store House cum Office	500	275	137500
Sub total			137500
Add: Electrification, water supply and sanitation @ 20%			27500
TOTAL			165000
Say (Rs. in lacs)			1.65

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Moulds	1	25000	25000
Tools and Equipment	LS	—	75000
Sub total			100000
Add: Installation, transportation, etc @ 10%			10000
TOTAL			110000
Say (Rs. in lacs)			1.10

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture	LS	—	15000
Miscellaneous items	LS	—	10000
Sub total			25000
Add: Installation, transportation, etc @ 10%			2500
TOTAL			27500
Say (Rs. in lacs)			0.28

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	10000	
Professional & other fees	16000	
Interest during implementation	11550	
Miscellaneous expenses	15000	
TOTAL	52550	
Say (Rs. in lacs)	0.53	

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	30	0.28	0.32	0.37
Power & utility	30	0.02	0.02	0.02
Salary	30	0.26	0.26	0.26
Finished Goods	15	0.28	0.31	0.33
Receivables	15	0.31	0.37	0.42
Total		1.14	1.27	1.40
Working capital margin in Year 1 (40%)	0.46			

5.0 MEANS OF FINANCE

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

		(Rs. in lacs)
Particulars	Percent	Amount
<u>EQUITY</u>		
A. Equity from Promoters	40%	1.64
B. Subsidy from Central/State Govt.	-	
<u>DEBT</u>		
Term Loan from Banks/Financial Institutions	60%	2.46
TOTAL	100%	4.10

6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<u>A. INCOME</u>					
Production capacity (Nos./annum)	4800	4800	4800	4800	4800
Capacity utilisation	60%	70%	80%	80%	80%
Production/annum at capacity utilisation	2880	3360	3840	3840	3840
Total income/annum	7.65	8.93	10.20	10.20	10.20
<u>B. OPERATING EXPENSES</u>					
Raw materials	3.35	3.91	4.46	4.46	4.46
Power & Utility	0.19	0.23	0.26	0.26	0.26
Salary	3.12	3.14	3.15	3.17	3.18
Repair & Maintenance	0.04	0.04	0.04	0.05	0.05
Other Expenses	0.15	0.18	0.20	0.20	0.20
Total Operating Expenses	6.86	7.49	8.12	8.14	8.16
Operating profit	0.79	1.43	2.08	2.06	2.04

C. FINANCIAL EXPENSES					
Depreciation	0.13	0.13	0.13	0.13	0.13
Interest on Term Loan	0.19	0.15	0.11	0.07	0.02
Interest on Working Capital Loan	0.05	0.06	0.07	0.07	0.07
Net Profit	0.41	1.09	1.77	1.80	1.82
Net cash accruals	0.54	1.22	1.90	1.93	1.95
Principal Repayment	0.27	0.55	0.55	0.55	0.55

6.1 Production capacity and Sales Realisation: Total production of Concrete Products at 100% capacity utilization is estimated as below.

Posts	3000 Nos.
Kitchen Sinks	1500 Nos.
Well Rings	300 Nos.
Total production per annum at 100% capacity	4800 Nos.

Particulars	Qty	Price Per Unit (In Rs.)	Amount (Rs.)
Posts	3000 Nos.	200	600000
Kitchen Sinks	1500 Nos.	250	375000
Well Rings	300 Nos.	1000	300000
Total Sale Turnover at 100% capacity (Rs)			1275000

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

Particulars	Qty Reqd	Price Per Unit (In Rs.)	Amount (Rs.)
Cement	60 Ton	7500	450000
Sand	65 C M	600	39000
Stone Chips	92 C M	750	69000
Iron Strips	7 Ton	3000	21000
Expenses on raw material at 100% capacity (Rs)			558000

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	—	0.00	0.00
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			1.00
No. of hrs/day	8		
Nos. of days/annum	300		
Annual power requirement (kwh)	2400		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	8400		
Estimate of Utility			
Expenses on other Utility (Rs)	24000		
Expenses on power & Utility at 100% capacity (Rs)	32400		

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)
Manager	1	6000	72000
Skilled workers	2	4000	96000
Unskilled workers	4	3000	144000
Expenses on salary in the 1st year (Rs)			312000

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	1.65	1.00%	0.02
Plant & Machinery	1.1	2.00%	0.02
Misc. Fixed assets	0.28	1.50%	0.00
Expenses on repair & maintenance in year 1			0.04

6.6 Other Expenses: Other expenses have been assumed at 1% 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	1.65	3.34%	0.06
Plant & Machinery	1.10	5.28%	0.06
Misc. Fixed assets	0.28	6.33%	0.02
TOTAL			0.13

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 5 years including moratorium period of 6 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)						
Month	Year	1	2	3	4	5
Month 1	Opening balance	2.46	2.19	1.64	1.09	0.55
	Repayment	0.00	0.05	0.05	0.05	0.05
	Interest (8%)	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.46	2.14	1.59	1.05	0.50
Month 2	Opening balance	2.46	2.14	1.59	1.05	0.50
	Repayment	0.00	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.46	2.09	1.55	1.00	0.46
Month 3	Opening balance	2.46	2.09	1.55	1.00	0.46
	Repayment	0.00	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.46	2.05	1.50	0.96	0.41
Month 4	Opening balance	2.46	2.05	1.50	0.96	0.41
	Repayment	0.00	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00

	Closing balance	2.46	2.00	1.46	0.91	0.36
Month 5	Opening balance	2.46	2.00	1.46	0.91	0.36
	Repayment	0.00	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.46	1.96	1.41	0.87	0.32
Month 6	Opening balance	2.46	1.96	1.41	0.87	0.32
	Repayment	0.00	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.46	1.91	1.37	0.82	0.27
Month 7	Opening balance	2.46	1.91	1.37	0.82	0.27
	Repayment	0.05	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.41	1.87	1.32	0.77	0.23
Month 8	Opening balance	2.41	1.87	1.32	0.77	0.23
	Repayment	0.05	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.01	0.00
	Closing balance	2.37	1.82	1.28	0.73	0.18
Month 9	Opening balance	2.37	1.82	1.28	0.73	0.18
	Repayment	0.05	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.00	0.00
	Closing balance	2.32	1.78	1.23	0.68	0.14
Month 10	Opening balance	2.32	1.78	1.23	0.68	0.14
	Repayment	0.05	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.00	0.00
	Closing balance	2.28	1.73	1.18	0.64	0.09
Month 11	Opening balance	2.28	1.73	1.18	0.64	0.09
	Repayment	0.05	0.05	0.05	0.05	0.05
	Interest	0.02	0.01	0.01	0.00	0.00
	Closing balance	2.23	1.69	1.14	0.59	0.05
Month 12	Opening balance	2.23	1.69	1.14	0.59	0.05
	Repayment	0.05	0.05	0.05	0.05	0.05
	Interest	0.01	0.01	0.01	0.00	0.00
	Closing balance	2.19	1.64	1.09	0.55	0.00
Principal Repayment		0.27	0.55	0.55	0.55	0.55
Interest		0.19	0.15	0.11	0.07	0.02

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	0.41	1.09	1.77	1.80	1.82
Depreciation	0.13	0.13	0.13	0.13	0.13
Interest	0.19	0.15	0.11	0.07	0.02
Total	0.74	1.37	2.01	1.99	1.98
Interest	0.19	0.15	0.11	0.07	0.02
Loan repayment	0.27	0.55	0.55	0.55	0.55
Total	0.47	0.70	0.66	0.61	0.57
DSCR	1.58	1.96	3.06	3.25	3.47

Average DSCR = 2.69

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	7.65	8.93	10.20
B. Variable cost			
Raw materials	3.35	3.91	4.46
Power & Utility	0.19	0.23	0.26
Other expenses	0.15	0.18	0.20
Interest on Working Capital Loan	0.05	0.06	0.07
Total variable cost	3.75	4.37	4.99
C. Contribution (A-B)	3.90	4.55	5.21
D. Fixed & Semi-fixed Costs			
Salary	3.12	3.14	3.15
Repair & maintenance	0.04	0.04	0.04
Interest on Term Loan	0.19	0.15	0.11
Depreciation	0.13	0.13	0.13
Total fixed cost	3.49	3.46	3.44
E. BREAK EVEN POINT	89.38%	76.10%	66.03%
F. BEP at operating capacity	53.63%	53.27%	52.83%
G. Cash BEP	51.62%	51.26%	50.82%

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	3.12	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	1.14	0.13	0.13	0.00	0.00
Total (A)	3.12	1.14	0.13	0.13	0.00	0.00
CASH INFLOW						
Profit After Tax		0.41	1.09	1.77	1.80	1.82
Add: Depreciation		0.13	0.13	0.13	0.13	0.13
Add: Interest		0.19	0.15	0.11	0.07	0.02
Add: Salvage Value						
Total (B)	0.00	0.74	1.37	2.01	1.99	1.98
NET FLOW (B-A)	-3.12	-0.41	1.25	1.88	1.99	1.98

IRR = 35%