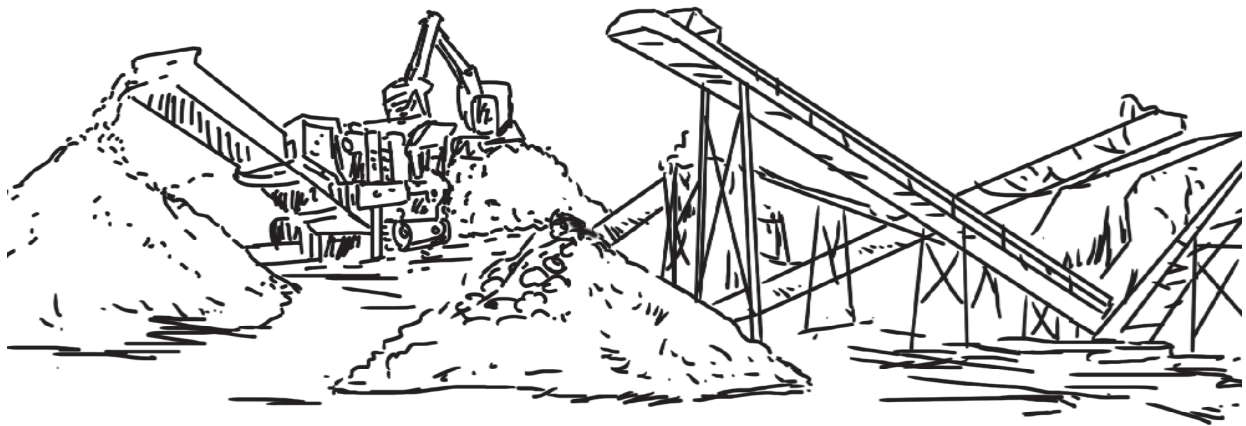


STONE CRUSHER



1.0 INTRODUCTION

Stone crushing industry is an important industrial sector in the country engaged in producing crushed stone which acts as raw material for various construction activities such as the construction of roads, bridges, buildings, canals, etc. The stone crusher is one such industry that exists in the vicinity of almost all major cities/towns throughout the country in all the states because the construction activities go on throughout the country. Crushed stone is segregated into various sizes like 35mm, 20mm, 12mm, etc for different uses. Crushed stone aggregates are used for construction of roads, bridges, housing, industrial building construction and other cement based products like RCC pipes, PSC poles, pre-moulded slabs, frames and beams, etc for fabrication. It is advantageous if the crushed stone unit is set up near the quarries where the boulders of various sizes are available for the crushing unit.

As the transportation of stone over long distances adds on to the cost of the crushed stone products, the crushers need to be necessarily located nearer to the demand centers such as cities, bridges, canals, etc. Stone crusher also needs electricity supply and a large number manpower for its operation. It also needs access roads for the movement of mined stone as well as crushed stone products. It is for these reasons that most stone crusher units are located along the periphery of cities or in the vicinity of major construction projects. In most cases the stone crushers come up in clusters of numbers of units ranging from five to fifty in one cluster. The crushers are located nearer to the source of raw materials such as stone mines, river beds etc.

This project profile is for setting up of a Stone Crusher unit with installed capacity of crushing 15000 MT per annum, based on 300 working days per annum and 8 working hours per day.

2.0 MARKET POTENTIAL

The demand for stone chips is directly linked with the volume of construction activity. Stone chips termed as "Metal" in construction parlance constitute one of the main construction materials along with bricks, sand, cement and steel. Housing is a basic need of the society. Hence, it is receiving increased focus. All the building constructions whether it is housing or industrial construction activities requires crushed stone. Crushed stone is also required for cement based products like RCC pipes, PSC poles, cement concrete hollow blocks, precast cement concrete slabs, well rings, window & door frames and road lading. The demand for crushed stone will continue to grow with the growth of its user industry. The unit can be set up depending availability of raw material and major commercial centre. In the north-eastern region, where places are widely dispersed and there are communication bottlenecks, availability of construction materials is not adequate at all the places. In many areas, stone chips have to be brought over long distances, resulting in high construction costs. Dispersed stone crushing units are therefore a necessity in all the north-eastern states.

3.0 PROCESS DETAILS

The production process comprises of the following different process.

The Big stone boulders of various sizes are fed into the jaw crushers for size reduction. Depending on the desired output size of the crushed stone, the raw material may be fed to one or two jaw crushers in a sequence. Then these crushed stones are passed on to the rotary screen for size gradation. Material is handled through a belt conveyor to the different places of operation i.e from jaw crusher to the rotary screen.

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	5.48
Plant & Machinery	8.39
Misc. Fixed assets	2.20
Preliminary & pre-operative expenses	1.70
Contingencies & escalation @ 3%	0.48
Working capital	1.12
TOTAL	19.37

4.1 Land & Site Development: Nil.

Total Land: ½ Acres; Covered Area: 750 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Civil Work for Ramp etc.	LS	LS	250000
Material Store House cum Office	750	275	206250
Sub total			456250
Add: Electrification, water supply and sanitation @ 20%			91250
TOTAL			547500
Say (Rs. in lacs)			5.48

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Toggle Jaw Crusher (16X10)	1	250000	250000
Vibratory Screen with complete accessories	8	4000	32000
Belt Conveyor	1	25000	25000
Cyclonic Dust Collector with Motor	1	265000	265000
Tools and equipment	LS	—	100000
Sub total			672000
Add: Installation, transportation, etc @ 10%			67200
TOTAL			839200
Say (Rs. in lacs)			8.39

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Transformer	1	175000	175000
Furniture	LS	--	15000
Miscellaneous items	LS	--	10000
Sub total			200000
Add: Installation, transportation, etc @ 10%			20000
TOTAL			220000
Say (Rs. in lacs)			2.20

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	50000	
Interest during implementation	59868	
Miscellaneous expenses	50000	
TOTAL	169868	
Say (Rs. in lacs)	1.70	

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	0.47	0.55	0.63
Power & Utility	30	0.07	0.08	0.10
Salary	30	0.51	0.51	0.51
Finished Goods	15	0.82	0.91	1.01
Receivables	15	0.92	1.08	1.23
Total		2.80	3.14	3.48
Working capital margin in Year 1 (40%)	1.12			

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%	7.75
B. Subsidy from Central/State Govt.	-	
<u>DEBT</u>		
Term Loan from Banks/Financial Institutions	60%	11.62
TOTAL	100%	19.37

6.0 PROFITABILITY STATEMENT

		(Rs. in lacs)						
Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7	
<u>A. INCOME</u>								
Production capacity (Ton/annum)	15000	15000	15000	15000	15000	15000	15000	
Capacity utilisation	60%	70%	80%	80%	80%	80%	80%	
Production/annum at capacity utilisation	9000	10500	12000	12000	12000	12000	12000	
Price of Stone Chips(Rs/MT)	250	250	250	250	250	250	250	
Total income/annum	22.50	26.25	30.00	30.00	30.00	30.00	30.00	
<u>B. OPERATING EXPENSES</u>								
Raw materials	11.52	13.44	15.36	15.36	15.36	15.36	15.36	
Power & utility	0.87	1.02	1.17	1.17	1.17	1.17	1.17	
Salary	6.20	6.23	6.26	6.29	6.32	6.36	6.39	

Repair & Maintenance	0.26	0.26	0.27	0.27	0.28	0.28	0.29
Other Expenses	1.13	1.31	1.50	1.50	1.50	1.50	1.50
Total Operating Expenses	19.97	22.26	24.55	24.59	24.63	24.66	24.70
Operating profit	2.53	3.99	5.45	5.41	5.37	5.34	5.30
C. FINANCIAL EXPENSES							
Depreciation	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Interest on Term Loan	0.93	0.86	0.70	0.55	0.39	0.24	0.08
Interest on Working Capital Loan	0.13	0.15	0.17	0.17	0.17	0.17	0.17
Net Profit	0.83	2.36	3.98	4.10	4.21	4.33	4.45
Net cash accruals	1.60	3.13	4.74	4.86	4.98	5.10	5.21
Principal Repayment	0.00	1.94	1.94	1.94	1.94	1.94	1.94

6.1 Production capacity: Total production of **Stone Chips** at 100% capacity utilization is estimated as below.

Stone Chips/annum	15000 Tons
Total production per annum at 100% capacity	15000 Tons

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

Particulars	Qty	Price per Unit (In Rs.)	Amount (Rs.)
Stone Boulders	16000 Tons	120	1920000
Expenses on raw material at 100% capacity (Rs)			1920000

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 20)	--	14.92	14.92
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			15.92
No. of hrs/day	8		
Nos. of days/annum	300		
Annual power requirement (kwh)	38208		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	133728		
B: Estimate of Utility			
Expenses on other Utility (Rs)	12000		
Expenses on power & Utility at 100% capacity (Rs)	145728		

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	10000	120000
Machine Operator	2	5000	120000
Skilled workers	5	4000	240000
Unskilled workers	8	2500	140000
Expenses on salary in the 1st year (Rs)			620000

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	5.48	1.00%	0.05
Plant & Machinery	8.39	2.00%	0.17
Misc. Fixed assets	2.20	1.50%	0.03
Expenses on repair & maintenance in year 1			0.26

6.6 Other Expenses: Other expenses have been assumed at 5% 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	5.48	3.34%	0.18
Plant & Machinery	8.39	5.28%	0.44
Misc. Fixed assets	2.20	6.33%	0.14
TOTAL			0.77

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	11.62	11.62	9.68	7.75	5.81	3.87	1.94
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest (8%)	0.08	0.08	0.06	0.05	0.04	0.03	0.01
	Closing balance	11.62	11.46	9.52	7.58	5.65	3.71	1.78
Month 2	Opening balance	11.62	11.46	9.52	7.58	5.65	3.71	1.78
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.08	0.06	0.05	0.04	0.02	0.01
	Closing balance	11.62	11.30	9.36	7.42	5.49	3.55	1.61
Month 3	Opening balance	11.62	11.30	9.36	7.42	5.49	3.55	1.61
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.08	0.06	0.05	0.04	0.02	0.01
	Closing balance	11.62	11.14	9.20	7.26	5.33	3.39	1.45
Month 4	Opening balance	11.62	11.14	9.20	7.26	5.33	3.39	1.45
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.06	0.05	0.04	0.02	0.01

	Closing balance	11.62	10.97	9.04	7.10	5.16	3.23	1.29
Month 5	Opening balance	11.62	10.97	9.04	7.10	5.16	3.23	1.29
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.06	0.05	0.03	0.02	0.01
	Closing balance	11.62	10.81	8.88	6.94	5.00	3.07	1.13
Month 6	Opening balance	11.62	10.81	8.88	6.94	5.00	3.07	1.13
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.06	0.05	0.03	0.02	0.01
	Closing balance	11.62	10.65	8.71	6.78	4.84	2.90	0.97
Month 7	Opening balance	11.62	10.65	8.71	6.78	4.84	2.90	0.97
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.06	0.05	0.03	0.02	0.01
	Closing balance	11.62	10.49	8.55	6.62	4.68	2.74	0.81
Month 8	Opening balance	11.62	10.49	8.55	6.62	4.68	2.74	0.81
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.06	0.04	0.03	0.02	0.01
	Closing balance	11.62	10.33	8.39	6.46	4.52	2.58	0.65
Month 9	Opening balance	11.62	10.33	8.39	6.46	4.52	2.58	0.65
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.06	0.04	0.03	0.02	0.00
	Closing balance	11.62	10.17	8.23	6.29	4.36	2.42	0.48
Month 10	Opening balance	11.62	10.17	8.23	6.29	4.36	2.42	0.48
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.05	0.04	0.03	0.02	0.00
	Closing balance	11.62	10.01	8.07	6.13	4.20	2.26	0.32
Month 11	Opening balance	11.62	10.01	8.07	6.13	4.20	2.26	0.32
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.05	0.04	0.03	0.02	0.00
	Closing balance	11.62	9.84	7.91	5.97	4.03	2.10	0.16
Month 12	Opening balance	11.62	9.84	7.91	5.97	4.03	2.10	0.16
	Repayment	0.00	0.16	0.16	0.16	0.16	0.16	0.16
	Interest	0.08	0.07	0.05	0.04	0.03	0.01	0.00
	Closing balance	11.62	9.68	7.75	5.81	3.87	1.94	0.00
Principal Repayment		0.00	1.94	1.94	1.94	1.94	1.94	1.94
Interest		0.93	0.86	0.70	0.55	0.39	0.24	0.08

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7
Profit After Tax (Net Profit)	0.83	2.36	3.98	4.10	4.21	4.33	4.45
Depreciation	0.77	0.77	0.77	0.77	0.77	0.77	0.77
Interest	0.93	0.86	0.70	0.55	0.39	0.24	0.08
Total	2.53	3.99	5.45	5.41	5.37	5.34	5.30
Interest	0.93	0.86	0.70	0.55	0.39	0.24	0.08
Loan repayment	0.00	1.94	1.94	1.94	1.94	1.94	1.94
Total	0.93	2.80	2.64	2.49	2.33	2.18	2.02
DSCR	2.72	1.43	2.06	2.18	2.31	2.45	2.62

Average DSCR = 2.17

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)			
Year	1	2	3
A. Net sales	22.50	26.25	30.00
B. Variable cost			
Raw materials	11.52	13.44	15.36
Power & fuel	0.87	1.02	1.17
Other expenses	1.13	1.31	1.50
Interest on Working Capital Loan	0.13	0.15	0.17
Total variable cost	13.65	15.92	18.19
C. Contribution (A-B)	8.85	10.33	11.81
D. Fixed & Semi-fixed Costs			
Salary	6.20	6.23	6.26
Repair & maintenance	0.26	0.26	0.27
Interest on Term Loan	0.93	0.86	0.70
Depreciation	0.77	0.77	0.77
Total fixed cost	8.15	8.12	8.00
E. BREAK EVEN POINT	92.13%	78.59%	67.73%
F. BEP at operating capacity	55.28%	55.01%	54.18%
G. Cash BEP	50.09%	49.82%	49.00%

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)								
Year	0	1	2	3	4	5	6	7
CASH OUTFLOW								
Capital Expenditure	16.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.80	0.34	0.34	0.00	0.00	0.00	0.00
Total (A)	16.55	2.80	0.34	0.34	0.00	0.00	0.00	0.00
CASH INFLOW								
Profit After Tax		0.83	2.36	3.98	4.10	4.21	4.33	4.45
Add: Depreciation		0.77	0.77	0.77	0.77	0.77	0.77	0.77
Add: Interest		0.93	0.86	0.70	0.55	0.39	0.24	0.08
Add: Salvage Value								
Total (B)	0.00	2.53	3.99	5.45	5.41	5.37	5.34	5.30
NET FLOW (B-A)	-16.55	-0.28	3.64	5.10	5.41	5.37	5.34	5.30

IRR = 20%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s Heena Engineers	15, Sy No.112/2, 12th Cross, Doddanna Industrial Estate Peenya 2nd Stage, Bangalore, Karnataka
2.	M/s Y.B.C.C. Pvt. Ltd.	F-24, Level-i, Agarwal Chambers, King Koti Road, Hyderabad, Andhra Pradesh
3.	M/s Miester Mining & Agro Industries	M- 48, Ambad M. I. D. C., Nashik, Maharashtra