

COST BENEFIT ANALYSIS

CAPITAL INVESTMENT

1.1 EXISTING CAPITAL AND ADDITIONAL CAPITAL WITH PHASING

Total capital requirement upto target year has been estimated as Rs.613.87 crs.. out of which Rs.134.71 crs. is approved capital for 7 Mty existing Basundhara expansion project and Rs. 479.15 crs. is the balance capital requirement for approval.

1.2 BASIS OF PRICE OF P&M, CIVIL WORKS & HIRING RATE

The investment on P&M is based on the price of P&M as in March,2013 as per the P&M price list of CMPDI published in June.2013 (cost base October 2013) after giving due escalation. Investment for civil constructions is based on civil cost index of 3360 as prevalent in Ib-valley coalfield.

1.3 Total capital upto target year, capital requirement beyond target year, specific investment Rs /tonne, specific investment for P&M Rs /tonne

Initial Capital Investment

Sl. No.	Particulars	Amount (upto target year)
1	Total capital investment (Rs.crores)	613.87
2	Specific Investment (Rs /annual)	876.96
3	Additional capital investment (Rs.crores)	479.15
4	Specific investment (Rs /annual)	684.51
3	Additional capital Investment on P&M (Rs.crores)	32.90
4	Specific investment on P&M (Rs/annual t)	47.00
5	Additional capital Investment on HEMM (Rs.crores)	149.11
6	Specific investment on HEMM(Rs./annual t)	213.02

Capital Investment beyond target year

Sl. No.	Particulars	Amount (Beyond target year)
1	Total investment (Rs.Crores)	141.26
2	Investment on P&M (Rs.crores)	14.89
3	Investment on HEMM (Rs.crs.)	72.49

2 OPENING OF REVENUE ACCOUNT

Revenue expenditure has been capitalized up to Year-3 (third year). Mine has been taken into Revenue Account from Year-4 (fourth year).

3 SOURCES OF FINANCE: INTERNAL RESOURCES OR LOAN

It has been proposed that funding for this project will be done from the internal resources of the company and as such there will be no loan capital and hence interest on loan capital has not been considered in this case.

5 COMPLETION COST

As per the latest guidelines, the completion cost qualifies all the following conditions:

- Achievement of coal production capacity of 80% of the rated output.
- Completion of all major facilities and initial mine development work.
- Procurement of major and essential plant & machinery.

6 METHOD OF ESTIMATION OF CAPITAL COST:

a) LAND

The rates of land has been taken as Rs.5.00 lakhs/ha for Govt, non-forest land. Rs.42.00 lakhs /ha for tenancy land and NPV for forest land has been taken as Rs.7.50 lakhs/ha.

b) CIVIL CONSTRUCTION

Investment for civil construction is based on civil cost index of 3360 as prevalent in Ib valley coalfield.

c) P&M

The investment on P&M is based on the price of P&M as in May.2013 as per the P&M price list of CMPDI published in June.2013 (cost base October.2013) after giving due escalation.

7 COST OF PRODUCTION AT DIFFERENT LEVELS OF PRODUCTION

a) Salaries & Wages Cost

Estimated salaries & wages cost is worked out as Rs.83.88/t for mining and related activities.

b) Stores Cost

Stores Cost has been estimated taking into account provision for Repair & Maintenance, POL, Explosives and miscellaneous stores cost. The estimated Stores Cost has been worked out as Rs.114.79/t.

c) Power Cost

Estimated Energy Consumption is given in the relevant chapter for Power Supply. The power cost has been taken as Rs.4.20/unit. The average power cost per tonne of coal production works out to Rs.7.14/t at 100% level of production.

d) **Misc. Expenditure**

This cost has been estimated to cover expenditure on Printing & Stationery. Postage, Telephone, repair & Maintenance of assets other than P&M. Workshop Debit. Insurance & Taxes for vehicles and other repairs Rs.15.28 / t.

c) **Administrative Charges**

A provision has been made in total revenue cost estimate for Administrative charges based on the Adm. Cost per tonne of coal production as was appearing in the last Annual Report of MCL. Total Adm. Cost has been calculated at 100% level and treated as fixed cost. As such for all other estimated level of operation the absolute Adm. Cost has been taken as it worked out for 100% level of operation. The Adm. Cost comes to Rs.47.83/t

g) **Interest on Working Capital**

Interest on Working Capital has been calculated on the basis of 4 months operating expenditure. Rate of interest is taken as 14.50%.

h) **Depreciation**

Straight line method of depreciation has been considered to arrive at Depreciation cost per tonne of coal production.

i) **Interest on Loan Capital**

No loan capital has been considered.

j) **Mine Closure Cost**

Rs.5.74./t has been provided in the project against average Mine Closure Cost.

k) Cost of production for different level of production, 100%, 85%.

Sl. No.	Particulars	Amount (Rs./t)
1	Cost of production at 100%	352.60
2	Cost of production at 85%	401.83

8 GRADE OF COAL & WEIGHTED AVERAGE SELLING PRICE

Run of mine coal for the mine is considered to be of grade F. Project is selling coal with respect of gross calorific value. It has been considered average grade in respect of calorific value is G12. For the purpose of computing the economics, average sale price of Rs. 688.00/t has been considered. Rs 61.00 /te has been considered for 100mm size coal which has been included is sale price. Transport cost up to Kanika siding has not been considered in sale price, Actual cost to be recovered from customer.

9 PROFITABILITY (PROFIT/LOSS) AT 100% AND 85% LEVEL OF PRODUCTION
 (for washed coal)

Sl. No.	Particulars	Amount
1	Profit at 100% level (RsVt)	335.40
2	Profit at 85% level (Rs /t)	286.17
3	BEP	
a)	(%)	45.41
b)	(Mty)	3.18
4	FIRR (%)	
a)	At 100% production level	55.42
b)	At 85% production level	38.87

10 MANPOWER & OMS

Manpower requirement has been estimated as 649 upto target year and 205 beyond target year. The overall OMS has been computed as 44.84 t. A norm of 264 manshifts worked by each employee in a year has been taken into consideration for the computations. For calculation of wages and benefits, mid-points of scales have been considered. The scale/category of employees has been adopted as per National Coal Wage Agreement-IX for the coal mining industry and current pay scales for executives.

11 EMS

EMS has been has been worked out as Rs.3760.92.

12 FINANCIAL IRR& ECONOMIC IRR

Sl. No.	Particulars	Amount
1	FIRR (%)	
a)	At 100% production level	55.42
b)	At 85% production level	38.87
2	EIRR at 100% production level	89 05
3	NPV (at 12%)	
a)	At 100% production level	848.82 crores
b)	At 85% production level	513.64 crores

17/07/16
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