



COST BENEFIT ANALYSIS REPORT

[as per MoEFCC Guideline 7-69/2011-FC(Pt.) dtd. 01 August, 2017]



Bharat Coking Coal Limited
(A Miniratna Company)

Muraidih Colliery (133.69Ha)


Project Officer
Muraidih Colliery

Muraidih Colliery (133.69Ha)

Introduction:

Muraidih Colliery is an existing mine. The Muraidih project is confined within latitudes 23°48'49" & 23°47'30" and longitudes 86°15'20" & 86°13'30" leasehold area of the mine is 717.71 ha of which 46.17 ha forest land and 87.52 Ha Jungle Jharifalls in quarriable zone. The area is covered under the toposheet no. F45C1& F45C5. The Environmental clearance of Muraidih colliery granted vide letter no J-11015/35/2011-1A.11(M) dated 6 February, 2013 in Cluster II. Exploration for the reserve of coal in the said project was conducted by CMPDI, a subsidiary of Coal India Ltd. Total extractable coal reserve is found 44.564 MT as per approved Mining Plan of Muraidih Colliery. To achieve the CIL target of producing 1 BT Coal to meet the energy requirement, Muraidih Colliery has pivotal role in it.

Communication:

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Details of Household Shifting: Nil

The nature of forest land for which application for diversion of forest land to be applied at Muraidih Colliery (133.69 Ha) falls in Class III LDF forest. As such Rate of NPV comes out as Rs 12,28,590 /Ha for 133.69 Ha of the proposed forest land for diversion.

Calculation rate for NPV in respect of Muraidih Colliery		
Description	Amount in Rs.	Amount in Rs. Lakhs
Total NPV @Rs.12,28,590 per Ha for 133.69Ha of the forest land proposed for diversion	12,28,590*133.69= 16,42,50,197.1/-	1642.50
10% NPV Value	16,42,50,197.1/-	164.25
30% NPV Value	4,92,75,059.13	492.75
50% NPV Value	8,21,25,098.5	821.25

Rate of land as per circle rate			
Name of Village	Forest Land (in Ha)	Circle rate per Hectare (in Rs)	Total Cost (in Rs.)
Barora	23.69	1,83,94,124	43,57,56,797.56
Barmassia	110	38,89,601.10	42,78,56,121

Total circle rate of 133.69Ha= Rs. 8636.129Lakhs

Other conversion factor 100 decimal = 1 acre; 1 Ha = 2.471 Acre = 247.1 Decimal


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CALCULATION AS PER MOEFCC CIRCULAR NO. 7-69/2011-FC(Pt.) Ddt. 01 AUGUST, 2017.

Estimation of cost of forest diversion (as per table B of guidelines)

Sl No	Parameter	Remarks	Annexure/Reference
1	Ecosystem services losses due to proposed forest diversion	Rs 1280.45 Lakhs Total NPV @ Rs. 12,28,590 per Ha for 133.69 Ha of the forest land proposed for diversion Economic value of loss of ecosystem services due to diversion of forest = Net present Value(NPV) of the forest land being diverted = Rs 1280.45 Lakhs	As per Cost Benefit Analysis Guidelines for forest land diversion published Vide of MoEFCC 7- 69/2011-FC(Pt.) Dtd 01.08. 2017
2	Loss of animal husbandry productivity, including loss of fodder	Rs 128.045 Lakhs 10 % of NPV is to be taken which is Rs. 128.045 Lakhs	As per Cost Benefit Analysis Guidelines for forest land diversion published Vide of MoEFCC 7- 69/2011-FC(Pt.) Dtd 01.08. 2017
3	Cost of human resettlement	Nil	
4	Loss of public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric line, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project	Nil	
5	Circle rate of adjoining area, land cost paid to Govt of Jharkhand for obtaining NOC of GMJJ Land or Possession value of forest land diverted	Rs 8636.129 Lakhs As per the circle rate the possession value = Rs 8636.129 Lakhs As per MoEFCC Guideline 30 % of Environmental Cost (NPV) due to loss of forest = Rs 492.75 Lakhs As per the MoEF&CC guideline the higher cost is to be considered as such Possession value of Forest Land = Rs. 8636.129 Lakhs	Circle rate as per records of District registry office. Project Officer Muraidih Colliery
6	Cost of suffering of oustees	Nil	As per Cost Benefit

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7	Habitat Fragmentation cost	Rs 640.22 Lakhs Cost due to fragmentation has been pegged at 50 % of NPV applicable as thumb rule.	As per Cost Benefit Analysis Guidelines for forest land diversion published Vide of MoEFCC 7- 69/2011-FC(Pt.) Dtd 01.08. 2017
8	Cost of Compensatory afforestation, soil & moisture conservation cost and Wildlife management Cost	Rs 4809.511 Lakhs Compensatory Afforestation = Rs 3522.87424 Lakhs Soil Conservation Cost = 0.5% of the project Cost = 0.005×51465.50 Lakhs = Rs 257.3275 Cost of Wildlife Management Plan = 2% of project cost = 0.02×51465.50 = Rs 1029.31 Lakhs	Rate of CA as per demand note issued in recent years by state Forest Department. WLMP Cost & SMC Cost is as per the MoEF&CC guideline dated 07.06.2022.
Estimated cost of Forest Diversion in lakhs		Rs 15494.355 Lakhs	

Estimation of benefits of Forest Diversion

Sl No	Parameters	Remarks	Annexure/ References
1	Increase in productivity attribute to the specific project	Rs. 90531.76 lakhs = Profit per tonne (Rs. 203.15/tonne)*mineable reserve = Rs. 203.15/tonne*44.564 Million Tonne*10 = Rs 90531.76 lakhs	As per Mining plan of Muraidih Colliery
2	Benefits to economy due to specific project	Rs. 705759.49 Lakhs a. Royalty Charges (14% of Sales Value) = Rs 2610 x 44.564 MT x 0.14 = Rs.1,62,836.85 Lakh b. National Mineral Exploration Trust(NMET) = 3 % of Royalty = Rs. 4,885.10 Lakh c. District Mining Fund (DMF) = 30 % of Royalty = Rs. 48,851.05 Lakh d. Forest Transit fee(Rs 57 per tonne)= Rs.25,401.48 Lakh e. Cess (Rs 400/tonne)= Rs. 1,78,256 Lakh f. Management Fee(Rs 1/tonne) = Rs. 445.64 Lakh g. GST [18 % of (Selling price @ Rs. 2610 +a+b+c+d+e+f)] = Rs. 2,85,083.37 Lakh	

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		Total = Rs 705759.49 Lakhs	
3	No of population benefitted due to specific project	770	
4	Economic benefits due to of direct and indirect employment due to project	Rs 1,52,270.36 Lakh Economic benefits due to direct employment = Mineable reserve x Salary & wages Rate Cost/Te = 44,564 x 203.15 x10 =Rs. 90531.76 Lakh Economic benefits due to indirect employment due to project= 5 times of direct employment x per day x Wages x No. of working day in year x Life of Mine = 5 x 770 x 422 x 200 x 19 = Rs. 61738.60 Lakhs	
5	Economic benefits due to compensatory afforestation	Rs 732.38 Lakh Area of CA Land x (NPV Value of Moderately dense Forest – NPV value of Open Forest) = 270.44 x Rs (12,28,590 – 9,57,780) lakhs/ha= = Rs 732.38 Lakh	NPV Value of the CA land so identified will increase from that of an open project to that of Moderately dense Forest
Estimated Benefit of Forest Diversion(Lakhs)		Rs. 928172.89	

Cost to benefit ratio for this forest proposal comes out as under :

Total estimated cost due to diversion of Forest in Rs. Lakhs	Total estimated benefits due to project in Rs. Lakhs	Cost to Benefit Ratio
Rs 15494.355 Lakhs	Rs. 949293.99	1:61.27


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