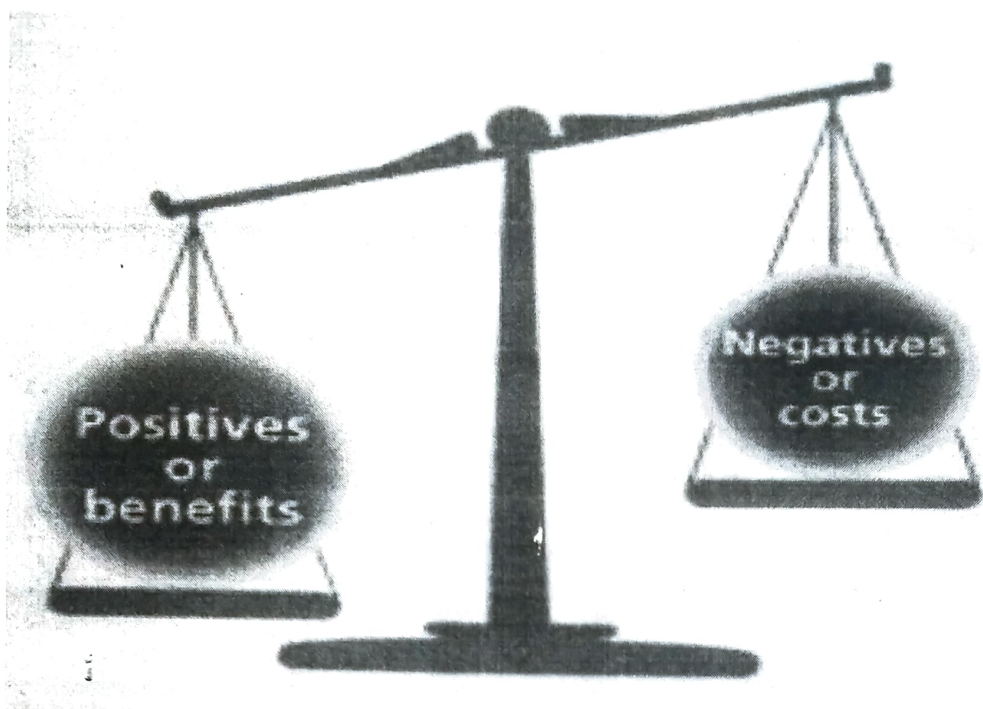




COST BENEFIT ANALYSIS REPORT

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



Central Coalfields Limited
(A Miniratna Company)

Amrapali Railway Siding (120.61Ha)

Amrapali Railway Siding (120.61 Ha)

Introduction:

Amrapali coal block of CCL is located at Chandawa district of Jharkhand and has a coal production capacity of 20.16 MTPA as per project report. The railway siding proposed for off take of coal requires forestry clearance of 120.61ha of the forest land for non-mining purposes.

Communication:

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Detail of Household shifting: Nil

The nature of forest land for which application for diversion of forest land to be applied at Amrapali Railway siding (120.61Ha) falls in Class III MDF forest. As such Rate of NPV comes out as Rs 12,28,590 per ha for 120.61 Ha of the proposed forest land for diversion.

Table 3: Calculation rate for NPV in respect of Amrapali railway siding		
Description	Amount in Rs.	Amount in Rs. Lakhs
Total NPV @Rs.1228590/Ha for 120.61Ha of the forest land proposed for diversion	1228590*120.61 = 14,81,80,240	1481.8
10% NPV Value	1,48,18,024	148.18
30% NPV Value	4,44,54,072	444.54
50% NPV Value	7,40,90,119	740.90

Table 4:**Rate of land as per circle rate:**

Total value of forest land as per circle rate: Rs 976.99Lakhs

Name of Village	Circle rate per decimal(in Rs)	Forest Land (in Ha)	Circle rate per Hectare(in Rs)	Circle Rate of the villages (in Rs)
Soparam	3400	19.45	840140	16340723
Naudiha	2000	3.21	494200	1586382
Koed	3000	8.53	741300	6323289
Honhe	3000	30.89	741300	22898757
Pokla	2000	17.21	494200	8505182
Binglat	3400	30.01	840140	25212601.4
Serendhag	2000	11.31	494200	5589402
Total		120.61		86456336.4

Other conversion factor

100 decimal = 1 acre

1 Ha = 2.471 Acre = 247.1 Decimal

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

Amrapali Railway Siding (120.61 Ha)

I. Estimation of cost of forest diversion

1. Ecosystem services losses due to proposed forest diversion

Economic value of loss of ecosystem services due to diversion of forest = Net present value (NPV) of the forest land being diverted as per prescribed by the Central Government (MoEF&CC).

As the Forest land proposed does not fall in National park & Wild life sanctuary

Ecosystem services losses due to proposed forest diversion for 120.61 Ha = **Rs. 1481.80 lakh**(Ref Table 3)

2. Loss of animal husbandry productivity, including loss of fodder

No. Of PAFs = 0

Assuming no. Of animal husbandry as 4

Factor = 60

Loss of Loss of animal husbandry productivity, including loss of fodder = $0 \times 4 \times 365 \times 60 = \text{Rs. } 0$
10% of NPV = **Rs. 148.18 lakhs** (ref Table 3)

Since 10% of NPV is more

Thus, as per guideline

Loss of animal husbandry productivity, including loss of fodder = **Rs. 148.18 lakhs**

3. Cost of human resettlement as per R&R Plan =Rs 0

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 = Rs. 0.00

5. Amount as per Circle rate of adjoining area= Rs 864.56Lakhs(Ref Table 4)

30% NPV = **Rs. 444.54Lakhs** (Ref Table 3)

Since circle rate of adjoining area is more than NPV paid therefore as per guideline,

Possession value of forest land diverted= **Rs 864.56Lakhs**

6. Cost of suffering of oustees is Nil as:

No. Of Outsees = No. Of PAFs = Nil

7. Habitat Fragmentation cost

Cost due to fragmentation has been pegged at 50% of NPV applicable as a thumb rule (Ref Circular MoEF)

50 % of NPV = **Rs. 740.90 Lakhs** (Ref table 3)

8. Compensatory afforestation and soil & moisture conservation cost

Rate of Compensatory afforestation = Rs. 176009/ Ha

Forest land = 120.61Ha, Therefore CA land= 241.22Ha

Cost of Compensatory Afforestation = **Rs. 424.56 Lakhs**

II. Estimating benefits of forest – diversion in CBA

1. Increase in productivity attribute due to railway siding assuming the freight difference from rail to road (freight charge for road is about 50% more than rail for about 1000kms distance. Freight charges for rail is Rs 1900 per tonne per 1000 kms (approx), while for road it is about Rs 2600 per tonne per 1000 kms(approx).)

Amount of coal to be dispatched and transported from Amrapali Railway siding to Northern and Western India is around 20.16 MTPA. Life of the rail project=30years

= Rs.1,14,91,200 lakhs

2. Benefits to economy due to specific project

A. CSR cost for the life of the project = 2 % of Profit= Rs 37980 Lakhs

B. Consultancy charge to RITES (@8% approx.) = Rs. 202.56Lakhs

C. GST on Cost of Works (@ 18%) = Rs 36.36 Lakhs

Total Benefits to the economy= **Rs 38218.92 Lakhs**

3. No. of population benefitted due to specific project

Direct employment = 60

Indirect Employment = 480

Considering avg. family size 5, then no. of Population benefitted = $540 \times 5 = 2700$

4. Economic benefits due to direct and indirect employment due to project

A. For indirect employment generated for= 480 people

Avg. days of Working (as in Jharkhand) = 230 days

Rate of unskilled manpower = Rs. 229/- day

Life of siding = 30 yrs

Economic benefits due to indirect employment = **Rs. 7584.48 Lakhs**

B. For direct employment

Minimum Wage for Skilled labour= Rs 604/day

Assumed working Days = 330

Economic benefits due to direct employment = **Rs. 3587.76 Lakhs**

Economic benefits due to of direct and indirect employment due to project

=A+B=**Rs. 11,172.24 lakhs**

5. Economic benefits due to compensatory afforestation

CA Land = $120.61 \times 2 = 241.22$ Ha

Class of degraded forest land supposed to change from LDF to MDF

A. Thus, change in benefits (as per NPV) [@ Rs (12.28-9.57) lakhs/ha

= **653.7 Lakhs**

B. Economic value of carbon storage

Change in economic value [@ Rs (270040 – 95721)= Rs. 174319 = Rs. 1.74319 [Lakhs] for 60 yrs.

Thus economic value for 50 yrs = Rs.350.40 lakh

Total Economic benefits due to compensatory afforestation = (A+B)=**Rs 1004.10Lakhs**

Table: Estimation of cost of forest diversion (as per table B of guidelines)		
Sl No	Parameter	Result(in Lakhs)
1	Ecosystem services losses due to proposed forest diversion	1481.80
2	Loss of animal husbandry productivity, including loss of fodder	148.18
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	Possession value of forest land diverted	864.56
6	Cost of suffering of oustees	Nil
7	Habitat Fragmentation cost	740.90
8	Compensatory afforestation and soil & moisture conservation cost	424.56
	Total Loss in lakhs	3660

Table: Existing guidelines for estimating benefits of forest – diversion in CBA (As per Table C of Guidelines)		
Sl No	Parameters	Result (in Lakhs)
1	Increase in productively attribute to the specific project	1,14,91,200
2	Benefits to economy due to specific project	38,218.92
3	No of population benefitted due to specific project	2700
4	Economic benefits due to of direct and indirect employment due to project	11,172.24
5	Economic benefits due to compensatory afforestation	653.7
6	Total(2+4+5)	50044.86

Cost to benefit ratio = 3660/50044.86= 1:13.67

Amrapali Railway Siding (120.61 Ha)

[Signature]
17/5/22
Project Officer
Amrapali Project