

Cost Benefit Analysis Report for

Diversion of 65.52 ha of Forest land located in villages Surda , Sohada, Benashole , Parthargora and Forest Block of District : East Singhbhum , State: Jharkhand for Surda Copper Mine of M/s. Hindustan Copper Limited.

Table-A: Cases under which a cost-benefit analysis for forest diversion is required

No	Nature of proposal	Applicable/Not applicable	Remarks
1	All categories of proposals involving forest land upto 20 hectares in plains and upto 5 hectare in hills	Not applicable	These proposals may be considered on a case to case basis and value judgement
2	Proposal for defence installation purposes and oil prospecting (prospecting only)	Not applicable	In view of national Priority accorded to these sectors, the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non-forest use.
3	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable	These activities being detrimental to protection and conservation of forest, as a matter of policy, such proposals would be rarely entertained.
4	All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centers, TV towers etc.	Applicable	The proposed project is for diversion of 65.52 ha forest land for underground mining of Surda Copper Mine in the villages namely Surda , Sohada, Benashole , Parthargora and Forest Block of District : East Singhbhum, State: Jharkhand

MAMTA PRYADARSHI
Divisional Forest Officer
Jamshedpur Forest Division
Jamshedpur

Handwritten signature
14/11/19

Table -B: Estimation of cost of forest diversion

S.N	Parameters	Remarks	Cost Estimation
1	Ecosystem services losses due to proposed forest diversion	Economic value of loss of eco-system services due to diversion of forests shall be the net present value (NPV) of the forest land being diverted as prescribed by the Central Government (MoEF&CC). Note: In case of National Parks the NPV shall be ten (10) times the normal NPV and in case of Wildlife Sanctuary the NPV shall be five (5) times the normal NPV or otherwise prescribed by the Ministry or any other Competent Authority	Total Forest area to be diverted : 65.52 ha As per demand note of DFO, Jamshedpur dtd. 24.03.2022, NPV applicable for 65.52 ha is Rs 52, 65,256/- , considering the report of Surface Strain predicted by 3D subsidence prediction model carried out by IIT(ISM), Dhanbad. (The said amount of NPV has already been deposited to State Adhoc CAMPA account of Jharkhand on 29.03.2022)
2.	Loss of animal husbandry productivity including loss of fodder.	To be quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum	Rs. 5,26,526/- (10% of applicable NPV at S.N 1 above) (Mode of mining will be through underground mining)
3.	Cost of human resettlement	To be quantified and expressed in monetary terms as per approved R&R plan.	No R&R issue
4.	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railway etc.) on forest land if these facilities were diverted due to project	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion	As the proposal is for underground mining purpose, so no loss of such public facilities are involved.
5.	Possession value of forest land diverted	30% of environmental costs (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a cost component as possession value of forest land whichever is maximum.	Rs 15,79,577/- (30% of applicable NPV at S.N 1 above)
6.	Cost of suffering to oustees	The social cost of rehabilitation of oustees (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R&R plan) be worked out as 1.5 times of what oustees should have earned in two years had he not been shifted.	Nil

MAMTA PRIYADARSHI
Divisional Forest Officer
Jamshedpur Forest Division
Jamshedpur

14/1/22

S.N	Parameters	Remarks	Cost Estimation
7.	Habitat Fragmentation Cost	While the relationship between fragmentation and forest goods and services is complex, for the sake of simplicity the cost due to fragmentation has been pegged at 50% of NPV applicable as a thumb rule	Rs. 26,32,628/- (50% of applicable NPV at S.N 1 above)
8.	Compensatory Afforestation and soil & moisture conservation cost	The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value	Nil. As the diversion of proposed forest land of 65.52 ha is required for underground mining and no surface activities involved over the said forest land.
Total Cost for diversion of 65.52 ha of forest land = Rs 52,65,256/- + Rs 5,26,526/- + Rs 15,79,577/- + Rs 26,32,628/-			Rs 1,00,03,987/- i.e. Rs 1.00 Crore

Table-C: Estimation of Benefits

Sr. No.	Parameters	Remarks	Benefit
1.	Increase in productivity attribute to the specific project.	To be quantified & expressed in monetary terms avoiding double counting.	<p>Total Quantity of mineral produced 0.9 Million tonnes/ year i.e. 7650 tonne Metal in Ore (MIO) per year considering 0.85% of Cu in Ore</p> <p>6885 tonne metal in Concentrate (MIC) per year considering 90% recovery in concentrate</p> <p>6541 tonne Refined Copper per year considering 95% recovery in smelting</p> <p>Price of mineral per year is Rs 4,10,45,88,796/- considering average LME Price @ Rs:6,27,541/tonne of Copper as published by Indian Bureau of Mines latest for the month of October 2022.</p> <p>Total price of mineral for the period of 20 years based on the present rate is Rs 8209,17,75,915/- only i.e. Rs 8209.17 Crore</p>
2.	Benefits to economy due to the specific project.	The incremental economic benefit in monetary terms due to the activities	Royalty: Rs. 22,17,91,876/- per year (to be paid to State Govt. @ 4.62% of value of

MAMTA PRIYADARSHI
Divisional Forest Officer
Jamshedpur Forest Division
Jamshedpur

Sr. No.	Parameters	Remarks	Benefit
		attributed to the specific project.	<p>MIO as per Second Schedule of MMDR 1957 amended till 28th March 2021]</p> <p>District Mineral Foundation (DMF): Rs.6,96,54,429/- per year (to be paid to State Govt. @ 30% of Royalty</p> <p>National Mineral Exploration Trust (NMET): Rs. 44,35,836/- per year (to be paid to State Govt. (@ 2% of Royalty</p> <p>Additional amount on extension of mining lease Equivalent to 50 % of the royalty to be paid to State Govt. per year as per Fifth Schedule of MMDR Act,1957 amended till 28th March 2021)= Rs. 11,08,95,908/-</p> <p>Total amount to be paid to State Govt on account of Royalty, DMF,NMET and additional amount on Royalty = Rs 40,36,61,104/- per year</p> <p>Total amount for a period of 20 years Lease period to be paid to State Govt. = Rs. 807,32,22,089/- i.e. Rs 807.32 Core</p>
3.	No. of population benefited due to specific project.	As per the Detailed project report.	As per Mining Plan direct benefit to the population : 1162 nos.
4.	Economic benefits due to of direct and indirect employment due to the project.	As per the Detailed project report.	<p>Economic benefit on account of wages of direct employment of 1162 nos. = Rs 31,41,34,920/- per year</p> <p>For 20 years of lease period the economic benefit On account of wages of 1162 of direct employment = Rs 6,28,26,98,400/- for 20 years</p> <p>ie. Rs 628.27 Crore</p>
5.	Economic benefits due to Compensatory afforestation.	<p>Benefits from such Compensatory Afforestation accruing over next 50 years monetized and discounted to the present value should be included as benefits of Compensatory Afforestation.</p> <p>*For benefits of CA the guideline of the Ministry for NPV estimation may be consulted.</p>	Nil. As the diversion of proposed forest land of 65.52 ha is required for underground mining and no surface activities involved over the said forest land.
Total benefit due to diversion of 65.52 ha of forest land for a period of 20 years Lease period = Rs. 8209.17 Cr + Rs. 807.32 Cr + Rs. 628.27 Cr			Rs. 96447696404/- i.e. Rs. 9644.77 Crore

[Signature]
14/12

COST BENEFIT ANALYSIS

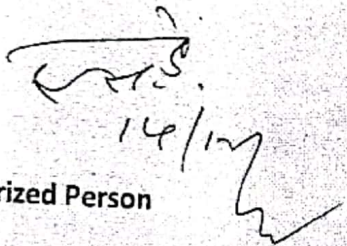
(As per Comprehensive guidelines for effective and transparent implementation of the provisions of FC Act, 1980 published by MoEF&CC, dtd. 28th March 2019)

Based on the value of products:

- a) Total Benefit to the Society = Rs 9644.77Cr
- b) Total Cost to the Society = Rs 1.00 Cr

$$\begin{aligned}\text{Benefit and Cost ratio} &= \frac{9644.77}{1.00} \\ &= 9644.77\end{aligned}$$

Signature of Authorized Person


MAMTA PRIYADARSHI
Divisional Forest Officer
Jamshedpur Forest Division
Jamshedpur