

# Stratatech Mineral Resources Private Limited

Reference No. – SMRPL/FC/2023/233

Date : 10.06.2023

## COST BENEFIT ANALYSIS

**Table-A: Category of proposals for which Cost Benefit Analysis are applicable at Dhirauli Coal Block , Tehsil -Sarai , Distt - Singrauli & Singrauli Forest Division of Madhya Pradesh**

Sr . N o.	Nature of Proposal	Applicable / Not applicable	Remarks
1	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectares in hills	Not Applicable	NIL
2	Proposal for defence installation purposes and oil prospecting (prospecting only)	Not Applicable	NIL
3	Habitation, establishment of industrial units, tourist lodges / complex and other building constructions.	Not Applicable	NIL
4	All other proposals involving forest land more than 20 Ha in plain and more than 5 ha in hills including roads, transmission lines, minor medium and major irrigation projects, hydel projects, mining activities, Railway lines, location specific installation like Micro-wave station, auto repeater center, TV towers, etc.	Applicable	These are cases where a Cost benefit analysis is necessary to determine when diverting the forest land to non-forest use is in the overall public interest.

**Table B: estimation of cost of forest diversion:**

Sl . N o.	Parameters	Cost in Cr Rs.	Remarks
1	Ecosystem services losses due to proposed forest diversion.	170.010	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 ( 1397.54 Ha) as prescribed by the

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			Central Government, (MoEF & CC).
2	Loss of Animal Husbandry	17.002	<p>1. As per the calculation, Loss of animal husbandry productivity including loss of fodder is Rs.11.354 Crores.</p> <p>( a) Estimated Quantity of fodder / grasses = Average production fodder / grasses in M.T. x Area Applied(based on the assumption that on closer an area is capable of yielding an average 2 to 4 MT of grass per ha. (MT):  <math>3\text{mt.} \times 1397.54 = 4192.62 \text{ mt.}</math></p> <p>b) Value of fodder = Estimated quantity x market rate = 4192.62 MT x Rs.4500/Ha= Rs.1.88 Crores)</p> <p>2. Considered 10% NPV which is maximum : Rs 170.01 Crores x 0.1 (10%)= Rs.17.001Crores</p>
3	Cost of Human Resettlement	NIL	Though there are no human resettlement in Forest land, Cost of human resettlement (R&R) in Tenancy land is included in Project cost estimates
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc) on forest land, which would require forest land if	Nil	Though there are no loss of public facilities & administrative

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	these facilities were diverted due to the project.		infrastructure on forest land but Cost of public facilities & administrative infrastructure in Government land in outside the forest area is included in Project cost estimates
5	Possession value of forest land diverted.	204.37	<p>1.Circle rate of adjoining area in the district as a cost component as possession value of forest land is arrived as <b>Rs 204.370 Crores.</b></p> <p>2. 30% of environmental costs (NPV) due to loss of forests (170.010x0.30=Rs 51.003 Crores)</p> <p>3. Circle rate of adjoining area is Rs.204.370 crores which is maximum compared to 30% of NPV. <b>Hence Rs.204.370 Crores is considered as possession value of forest land diverted.</b></p>
6	Cost of suffering to Oustees.	Nil	No human habitation exist on forest land proposed to be diverted as such there is no social cost of rehabilitation of oustees. However, cost likely to be incurred in R&R plan is provided in Project Cost.
7	Habitat Fragmentation Cost.	85.005	The cost due to fragmentation has been pegged at 50% of NPV applicable as

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			thumb rule...i.e.. 170.010x0.50=Rs.85.005 Crores
8	Compensatory afforestation and soil & moisture conservation cost.	71.81	The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value is <b>Rs 71.81 Crores</b> which is included in Project Cost
<b>Total</b>		<b>476.38</b>	

**Table (B1): PROJECT COST ESTIMATES:**

**Abstract of the Project cost estimates:**

S n o.	Particulars	Value in Crores	Remarks
1	Capital Investment including preoperative expenses	2459.649	
2	R&R	131	Cost of human resettlement (R&R) in Tenancy land
3	Cost of Public facilities and administrative infrastructure	24	Cost included in the part of Land Cost of the Project
4	Net Present Value(NPV) payable to Forest Dept...Total Forest land=1397.54 Hectares	170.01	Cost included in the part of Forest Cost of the Project
5	Cost of Compensatory Afforestation payable to Forest Dept.. Total Cost of Afforestation on Revenue Forest land (1397.54 Hectares)	71.81	Cost included in the part of Forest Cost of the Project
<b>Project Cost</b>		<b>2856.47</b>	

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**TABLE C: ESTIMATION OF BENEFITS OF FOREST DIVERSION:**

Life of Project	: 87 years (40 Yrs open Cast & 87 Years for Underground Mines)
Construction Period	: Excluding 2 Years of Construction Period

S L	Parameters	Calculations / Particulars				
1	Increase in productivity attribute to the Dhirauli Coal Block	Net revenues due to Coal				
		SL	Parameters	Rate (Rs.)	Unit	Amount (Rs.Cr)
		I	Gross revenues from ROM Coal for Life-of-Mine (G9 Grade) 200.41 MT @ Rs.3269 / tonne ( Basic Selling Price)	3269	Rs/MT	104653.766
		ii.	Tentative Operative Cost including depreciation, interest on loan payment & tax liability..etc for 42 Years @ ( 298.12 MT x Rs.	1985	Rs/MT	59176.82

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			1985 per tonne)			
			<b>Net Revenues (Benefits) due to Coal (1-2)</b>			<b>45476.946</b>
		<b>SL</b>	<b>Parameters</b>	<b>Rate (Rs.)</b>	<b>Unit</b>	<b>Amount (Rs/Cr)</b>
		iii	Royalty (14% of base price)	457.66	Rs./MT	14651.53
		iv	M.P. Adhosaancha Tax (5% Of base price)	163.45	Rs./MT	5232.69
		v	Forest Transit Fees	57.00	Rs./MT	1824.80
		vi	DMF ( District Mineral Fund - 10% of royalty)	45.77	Rs./MT	1465.15
		vii	NMET ( National Mineral Explorati on Trust - 2% of royalty)	9.15	Rs./MT	293.03
		viii	Compensation Cess	400.00	Rs./MT	12805.60
		ix	<u>GST @ 5%</u>	200.10	%	6406.05
						<b>42678.84</b>
3	No. of population Benefited due to the Project	Approx Population indirectly benefited				<b>3000.00</b>
4						<b>478.12</b>

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	Economic benefits due to direct & indirect employment due to the Project	Benefits due to direct employment for 910 persons (910x40Yrsx131352 /Year)	
5	Economic benefits due to Compensatory Afforestation	Benefits from Compensatory Afforestation (CA) accruing over next 50 years monetise and discounted to the Present Value has been included as benefits from CA.	1051.65
	<b>Total Benefits (1+2+4+5)</b>		<b>89685.56</b>

## D. CALCULATION OF COST

### BENEFIT RATIO:

Total Benefits (As per Table C: Estimation of benefits of Forest Diversion)	89685.56
Total Cost (As per Table (B+B1): losses of forests + Cost of the Project)	3332.85
<b>Hence, Benefit/ Cost Ratio</b>	<b>26.91</b>

Thus, the project gives positive Benefit/ Cost Ratio. The monetary returns of the Project are positive over the environmental losses.

**Authorised Signatory**

**(Bacha Prasad)**

Chief of Cluster - Singrauli

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