

Cost Benefit Analysis in respect of diversion of 682.2722 Ha Forest Land (570.100Ha Inside ML area + 100.077 outside ML area+ 12.0952 Ha Revenue Forest) for Bailadila Iron Ore Deposit-4 of NMDC-CMDC Ltd., District – Dantewada

(As per new consolidated guidelines and clarifications, dated – 29.12.2023 issued by MoEF&CC, GoI and revised rates of NPV, dated – 06.01.2022 prescribed by MoEF&CC, GoI)

Table B: Estimation of Cost of Forest Diversion

Sl. No	Parameters	Remarks				Amount (in Rs. Cr.)	
1	Ecosystem services losses due to proposed forest diversion	Economic value of eco-system services loss due to diversion of forests (Site Quality / Eco-Class – V): NPV calculated as –				84.78	
		Sl. No.	Rserve Forest (Compartment No.) / Revenue Forest (Khasra No.)	Very Dense	Dense		Open
		1	1811	0	0.0133984		0.2566016
		2	1822	0	5.3968158		1.2301842
		3	1824	7.8257603	29.4602551		13.2939846
		4	1825	2.9354506	16.1052168		0.4613326
		5	1826	0	10.93242		12.03058
		6	1832	0.5690138	4.3473094		4.1356768
		7	1833	50.6498563	33.1004561		20.5816876
		8	1834	0.0015672	73.1582799		43.2261529
		9	1841	0	40.7487697		62.4892303
		10	1842	0	18.9463296		12.1796704
		11	1885	97.3253692	39.8501566		23.6864742
		12	1886	16.2288935	24.1015303		4.9085762
		13	Khasra-1	0	0		0.1543
		14	Khasra-3	0	0		0.5376
		15	Khasra-7	0	2.7907		6.9105
		16	Khasra-9	0	0.0276		0.4081
		17	Khasra-13/1	0	0.0368		0.0632
		18	Khasra-13/2	0.1962	0.4049		0
		19	Khasra-83/1/Ka	0	0		0.0875
		20	Khasra-88/1	0	0		0.0778
		21	Khasra-508	0	0		0.4
			Total Area	175.732111	299.4209377		207.1191514
			NPV Amount (in INR)	252469052	387106359.3		208198242.2
	Total NPV Amount (in INR)	847773653.3					
Total NPV Amount (in INR Crores) = 84.78							
2	Loss of Animal Husbandry, productivity, including loss of fodder	Taken as 10% of NPV = 10% of Rs. 847.8 Lakhs = Rs. 8.48 Crores				08.48	
3	Cost of Human Settlement	In the Bhansi Village – 36 PAFs and in the Porokameli Village – 25 PAFs are there as per survey reports prepared as per provisions of the Chhattisgarh Right to Fair Compensation & Transparency in Land Acquisition, Rehabilitation & Resettlement (Survey & Censes of Affected Families and preparation of Rehabilitation & Resettlement Scheme) Rules,2018.				13.58	

Sl. No	Parameters	Remarks	Amount (in Rs. Cr.)																																				
		Approx. Rs. 13.58 Crores will be incurred towards compensation for land, Value of assets, subsistence allowance, Resettlement allowance etc.																																					
4	Loss of public facilities & administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities were diverted due to the project.	There are few public facilities in the Revenue Land to be acquired for the project, however, no such facilities are there on the Forest Land.	0.00																																				
5	Possession value of forest land diverted	It is a case of proposal for diversion, thus possession value of Forest land diverted is taken as 30% of NPV. 30% of Rs. 8477.74 Lakhs = Rs. 25.43 Crores	25.43																																				
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. Average Annual Income of oustees of Porokameli Village - Rs.1588000.00 Average Annual Income of oustees of Bhnasi Village - Rs. 1333000.00 Two years of lost earning = Rs. 5842000.00 1.5 times of the lost earning = Rs. 8763000.00 = Rs. 0.88 Crores	0.88																																				
7	Habitat Fragmentation Cost	Habitat fragmentation cost taken as 50% of NPV = 50% of Rs. 8477.74 Lakhs = Rs. 42.39 Crores	42.39																																				
8	Compensatory afforestation and soil & moisture conservation	<div>The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value. Total CA including Soil & Moisture conservation cost at present value = 12732.99 Lakhs Let annual rate of inflation = 5% {Average of rate of inflation for last 10 years (2014-23)}</div> <table><tr><th>Year</th><th>Amount at present cost at the beginning of the period</th><th>Future inflated Value</th></tr><tr><td>Y1</td><td>534130122.9</td><td>534130122.9</td></tr><tr><td>Y2</td><td>315057487.2</td><td>330810361.6</td></tr><tr><td>Y3</td><td>125080170.8</td><td>137588187.9</td></tr><tr><td>Y4</td><td>85958834.52</td><td>98852659.7</td></tr><tr><td>Y5</td><td>49904403.42</td><td>59885284.1</td></tr><tr><td>Y6</td><td>30068694.23</td><td>37585867.79</td></tr><tr><td>Y7</td><td>32615584.41</td><td>42400259.73</td></tr><tr><td>Y8</td><td>28077643.04</td><td>37904818.1</td></tr><tr><td>Y9</td><td>34621933.64</td><td>48470707.09</td></tr><tr><td>Y10</td><td>37784097.92</td><td>54786941.99</td></tr><tr><td>Total</td><td>1273298972</td><td>1382415211</td></tr></table>	Year	Amount at present cost at the beginning of the period	Future inflated Value	Y1	534130122.9	534130122.9	Y2	315057487.2	330810361.6	Y3	125080170.8	137588187.9	Y4	85958834.52	98852659.7	Y5	49904403.42	59885284.1	Y6	30068694.23	37585867.79	Y7	32615584.41	42400259.73	Y8	28077643.04	37904818.1	Y9	34621933.64	48470707.09	Y10	37784097.92	54786941.99	Total	1273298972	1382415211	138.24
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Sl. No	Parameters	Remarks	Amount (in Rs. Cr.)
		Total CA including Soil & Moisture conservation cost after accounting inflation= Rs. 138.24 Crores	
	Total cost due to diversion of forest land		313.77

Table C: Existing guidelines for estimating benefits for Forest Diversion

Sl. No.	Parameters	Remarks	Amount (in Rs. Crores)																								
1	Increase in productively attribute to the specific project.	<p>Estimated Iron Ore reserves - 109010000 Tonnes (Lump – 40333700 Tonnes & Fines – 68676300 Tonnes)</p> <p>Average Sale price of Iron ore as per the IBM published prices for the Chhattisgarh for last 5 years {Rs. 5775 / Tonne (Lump Ore), Rs. 4901 / Tonne (Fine Ore)}</p> <p>Gross revenue from sale of Iron Ore = Rs.56950.97 Cr</p> <p>Capex Expenses (As per TEFR = 4091.33 Cr in the year 2021), inflated value (@5% per year) = 4705.03 Cr Operating Expenses (@30% of revenue) = 17085.29 Cr Statutory / Tax Expenses = 30633.22 Cr</p> <p>Net Profit Generated to Project Proponent = 4527.43 Cr</p>	4527.43																								
2	Benefits to economy due to the specific project.	<p>The incremental economic benefit in monetary terms due to the activities attributed to the specific project.</p> <table><tr><th>Description</th><th>Amount (in Rs. Crores)</th></tr><tr><td>Stamp Duty & Reg. charge</td><td>109.71</td></tr><tr><td>Payment to GoCG (Additional premium - 22.50% of Avg. sale price)</td><td>12813.97</td></tr><tr><td>Royalty (15% of Avg Sale price)</td><td>8542.64</td></tr><tr><td>DMF (30 % of Royalty)</td><td>256.28</td></tr><tr><td>NMET (2 % of Royalty)</td><td>170.85</td></tr><tr><td>Environment development Cess (Rs.22.5 / Tonne)</td><td>245.27</td></tr><tr><td>Forest permit fee (Rs.15 / Tonne)</td><td>163.52</td></tr><tr><td>IGST (@5%)</td><td>3316.48</td></tr><tr><td>Corporate Income Tax (@33.60%)</td><td>4823.84</td></tr><tr><td>CSR (@2% OF PAT)</td><td>190.66</td></tr><tr><td>Grand Total</td><td>30633.22</td></tr></table> <p>Above is excluding 49% share of the Chhattisgarh Government in the Net Profit.</p>	Description	Amount (in Rs. Crores)	Stamp Duty & Reg. charge	109.71	Payment to GoCG (Additional premium - 22.50% of Avg. sale price)	12813.97	Royalty (15% of Avg Sale price)	8542.64	DMF (30 % of Royalty)	256.28	NMET (2 % of Royalty)	170.85	Environment development Cess (Rs.22.5 / Tonne)	245.27	Forest permit fee (Rs.15 / Tonne)	163.52	IGST (@5%)	3316.48	Corporate Income Tax (@33.60%)	4823.84	CSR (@2% OF PAT)	190.66	Grand Total	30633.22	30633.22
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3	No. of population benefited due to specific project	Total population expected to be benefited from the proposed mining lease and screening cum beneficiation plant will be around 10500.																									
4	Economic benefits due to of direct and indirect employment due to the project	<table><tr><th>Category</th><th>Nos.</th></tr><tr><td>Highly Skilled</td><td>282</td></tr><tr><td>Skilled</td><td>127</td></tr><tr><td>Semi- Skilled</td><td>123</td></tr><tr><td>Un- Skilled</td><td>168</td></tr><tr><td>Contractual</td><td>1400</td></tr></table> <p>Employee Benefit (Salary, Bonus, Housing, Medical etc.) will be approx. 5% of the total revenue = Rs. 2847.55 Cr</p>	Category	Nos.	Highly Skilled	282	Skilled	127	Semi- Skilled	123	Un- Skilled	168	Contractual	1400	2847.55												
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5	Economic benefits due to	Compensatory afforestation of 682.2722 ha of Land @1000 no of sapling & survival rate @80%	10916.36																								

Sl. No.	Parameters	Remarks	Amount (in Rs. Crores)
	Compensatory afforestation	Number of survived trees = 545818 trees Economic benefits of one tree accruing over next 50 years monetized in terms of providing oxygen, water, soil, moisture conservation, etc. + timber & firewood= 2.00 lakh Future benefits of 545818 nos. of trees @ 2.00 lakh = Rs.10916.36 crore.	
	Total Benefit due to diversion of forest land		48924.56

Based on the value of products:

Total Benefit to the Society = Rs. 48924.56 Crores

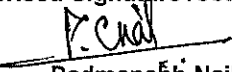
Total Cost to the Society = Rs. 313.77 Crores

Cost Benefit Ratio = Total Benefit / Total Cost

= Rs 48924.56 Crores / Rs 313.77 Crores = 155.924

Cost Benefit Ratio 1: 156

Authorised Signature /Seal


Padmanabh Naik
CEO, NMDC-CMDC Ltd