

COST BENEFIT ANALYSIS REPORT

Total land required for forest diversion was 351.890 ha out of which 20.692 ha has already been diverted vide letter no. F No. 8-56/2009 -FC dated 11th may 2010 and 17th September 2010 and handed over to NTPC therefore the CB ratio has been calculated for 331.198 ha land only

A. Parameter for Evaluation of land of Forest:

S No	Parameters	Remarks	Annexure/Reference
1	Ecosystem Services losses due to Proposed Forest Diversion.	<p>NPV x Area to be divert $8,03,000 \times 331.198 = \text{Rs.} 2659.519 \text{ Lacs}$ <u>Basis of Calculation</u> Economic value of loss of eco system services due to diversion of forest shall be the net present value (NPV) of the forest land being diverted as prescribed by the central government (MoEF&CC) Please Refer Annexure-I & II</p>	<p>Annexure-I Guideline for conducting Cost Benefit Analysis for projects involving diversion of forest land under the provision of the forest (Conservation) Act, 2018. Notification No.7-69/2011-FC (Pt.) dated 01 August 20117. Annexure-II Letter from office of PCCF, Jharkhand-Ranchi vides letter no. 3068 dt. 25th August 2008.</p>
2	Loss of animal husbandry productivity, including loss of Fodder.	<p>$265951994 \times 10 \% = \text{Rs.} 265.951 \text{ Lacs}$ <u>Basis of Calculation</u> To be quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum.</p> <p style="text-align: right;"><i>26.02.19</i></p>	Refer Annexure-I

3	Cost of human resettlement.	Amounting Rs. 5951.000 Lacs NTPC will comply the provision of Jharkhand R &R	Refer Annexure-III Statement showing R & R cost as per Jharkhand R & R Policy
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.	Not Applicable	-----
5	Possession value of forest land diverted.	$265951994 \times 30\% = \text{Rs. 797.855 Lacs}$ <u>Basis of Calculation</u> 30% of environmental cost (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a cost component as possession values of forestland whichever is Maximum.	Refer Annexure-I Point no.5 of Table-A
6	Cost of suffering to oustees.	Total No of PAFs = 204 This cost is already taken care in land compensation to land oustees (Covered in Sl. No. 3 above)	Refer Annexure-III

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7	Habitat, Fragmentation cost.	$265951994 \times 50\% = \text{Rs. } 1329.759 \text{ Lacs}$ <u>Basis of Calculation</u> 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 thumb rule.	Refer Annexure-I Point no.7 of Table-A
8	Compensatory afforestation and soil and moisture conservation cost.	Forest Land to be diverted = 331.198 Ha. $331.198 \text{ Ha.} \times 3,30,000 = \text{Rs. } 1092.95 \text{ Lacs.}$ <u>Basis of Calculation</u> Compensatory afforestation and soil and moisture conservation estimated cost. Rs. 3, 30,000 Lacs per Hectare.	This is tentative estimation

Total Cost due to forest land diversion

Rs. 2659.519 + Rs. 265.951 + Rs. 5951.000 + Rs. 797.855 + Rs. 1329.759 + Rs. 1092.953 =
 Rs. 12097.03 Lacs Say Rs. 12,097.00 Lacs.

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B. Parameters for Evaluation of Benefit

S.N	Parameters	Basis of calculation	Remarks
1	Increase in productivity attribute to the specific project.	Total quantity of Coal produced 30, 00,000 lakh tone @Rs 1575/tone. =Rs. 47250.00 Lacs /year for entire Lease period of 52 years.	Refer Annexure -IV price of Grade "G8" Coal .The new grades and their ROM price have been updated by Coal India Ltd. vide their notification no. CIL: M&S:GM(F)/Pricing 2018/07 dated 08-01-2018 . The base price of 'G8' grade coal of North Karanpura Coalfield of CCL is Rs.1465 per tonne ROM coal. As per the CIL notification No S&M: GM (F) pricing 1907 dated 26.02.2011 . For the coal sizing up to 50 mm through manual facilities or mechanical means, a charge at the rate of Rs. 110.00 per tonne will be levied in addition to the price applicable for ROM coal. Sale price/Transfer price for financial analysis has been considered as Rs. 1575.0 (1465+110) per tonne (without royalty) for grade "G8". (Refer Abstract PFR Volume- III Page no. 7)
2	Benefits to economy due to the specific project.	Auction price of Grade G8 coal is Rs. 1575/t Royalty @ 14% of base price = Rs 220.50/Tonne Clean Energy Cess = Rs. 400/ Tonne NMET@2% of Royalty = Rs 4.41/ Tonne NMFT@Rs 1.09/Tonne=1.09/Tonne DMFT@30% of Royalty = Rs. 66.15/ Tonne GST@5% on Base Price = Rs 78.75/ Tonne Total Value judgment of the coal = Rs. 2345.90 Say Rs.2346/ Tonne Mineable Reserve = 30, 00,000 Lakh tonne Benefits to economy = 30, 00,000 x 2346 = Rs. 70380.00 Lacs/year	

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3	Number of population benefited due to specific project.	Persons benefited directly and indirectly per year will be around 62 and 800 respectively	As Per page no. 5 of PFR Volume III
4	Economic benefits due to of direct and indirect employment due to the specific project.	<p>The Approx employment potential of this project will be 62. The average wages @ Rs 18000 per person/month.</p> <p>$62 \times 18000 \times 12 = \text{Rs.133.92 Lacs/year}$</p> <p>Indirect Employment: - 800 person. Taking an average size 5 of the family.</p> <p>$800 \times 5 = 4000$</p> <p>(Benefit@Rs1000/person/month)</p> <p>$4000 \times 12000 = \text{Rs. 480.00Lacs / year}$</p> <p>Total Benefit due to employment = Rs. 613.92Lacs /year</p>	-----
5	Economic benefits due to compensatory afforestation.	<p>Compensatory Afforestation of 331.198 Ha of land @ 2500 nos of sapling x Survival rate 100 nos of sapling per hectare = 33198 or say 33120.</p> <p>Economic benefit of one tree accruing over next 50 years monetized in term of providing Oxygen, Water, Soil, Moisture conservation etc + Timber & Firewood = Rs. 23.50 Lacs.</p> <p>Further benefits of 33120 nos of tree @ Rs. 23.50 Lacs = Rs. 778320.00Lacs</p>	Benefits from such compensatory forestation accruing over next 50 years monetized and discounted to the present value should be included as benefit to compensatory afforestation.

Total Benefit due to diversion of forest land

Rs. 47250.000 + Rs. 70380.000+ Rs. 613.920 + Rs. 778320.000 = Rs. 896563.92 Lacs

Say Rs. 8,96,564.00 Lacs.

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COST BENEFIT ANALYSIS

S.No	Particulars (Based on value of products)	Rs. in Lacs
1	Total Loss (Cost)	12097.00
2	Total Benefit	893264.00
3	Cost: Benefit Ration (C/B Ration)	$\frac{893264.00}{12097.00} = 73.841$ 1:73.841

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