JHARKHAND URJA SANCHARAN NIGAM LIMITED (JUSNL)

COST BENEFIT ANALYSIS

Cost benefit analysis for 220 KV Transmission Line from Dumka (New Madanpur 220KV GSS) to Jasidih (Kumetha 220 KV GSS) In Jharkhand state is estimated as per the guidelines of Govt. of India, issues with letter no. 7-69/2011-FC(Pt.) dated:-01-08-2017, and given below

Table-A: Estimation of cost of forest diversion:-

SL. No.	Parameters	Cost Rs. Lac
1	Ecosystem services losses due to proposed forest diversion (Economic value of loss of eco-system services due to proposed forest diversion has been taken as the "net present value (NPV)"of the forest land being NPV rates taken **as Rs. 9.39 Lacs. Per ha**. Under Class II of medium density forest born by the project works out to be **Rs. 36.057 lscks (4.3565Ha. x 9.39)**	40.907
2	Loss of animal husbandry productivity (taken at 10% of NPV)	4.090
3	Cost of human resettlement (there is no human resettlement due to proposed forest diversion)	NIL
4	Loss of public facilitates and administrative infrastructure (Road, Building, School, Dispensaries, Electrical lines, Railways etc. on Forest land, which would require forest land if these facilities were diverted due to project (No public facilities and administrative infrastructure are involve)	NIL
5	Possession value of forest land diverted (Taken at 30% of NPV)	12.272
6	Cost of suffering to ousters (There are no ousters due to proposed forest diversion)	NIL
7	Habitat suffering to ousters (Taken at 50%of NPV)	20.453
8	Compensatory a forestation and soil & moisture conservation cost (CA arrived at Rs. 2,50,000/-Per Ha.) (cost for double area)	21.78
9	Project Cost : Fixed assets, inclusive of investment, Current assets Loans & advances. Other Expenditures like preoperative expenses, interests, during construction etc.	4899.333
Total		4998.835

Electrical Executive Engineer

Transmission Division, Dumka

Table-B: Estimating Benefit of forest diversion:-

SL. No.	Parameters	Cost Rs. Lac
1	<u>Increase in productivity attributable ot the specific project:-</u> Power Flow $\quad$ = 240 MW (2x120) Load Factor $\quad$ = 60% Losses $\quad$ = 2.5% Average Value Added $\quad$ = Rs. 6.00 per kwh Energy sent out per year $\quad$ = 240x1000x0.6x8760x0.975 kwh $\quad$ = 122.9904×10^7 kwh Value Added $\quad$ = $122.9904 \times 10^7 \times 6.00$ $\quad$ = Rs. 737.9424 crore/year $\quad$ = Rs. 738 crore / year Value added for 50 years $\quad$ = 50x738=36900 crore	**3690000.00**
2	Benefit to economy due to the specific project. The power will be transmitted through this line to the power deficit of Deoghar & Dumka District of Jharkhand State. This Project will provide sustained and incessant supply of power to this district which will be utilized by large industrial, commercial, domestic and agriculture growth leading to increased outpur which in turn will lead to increase in GDP (Gross Domestic product) of Jharkhand.	**NA**
3	No. of population benefited due to specific project. Assuming average 10 units consumption per day per household. Total 3.10 million household can be provided electricity per year.	**NA**
4	Economic benefits due to of direct and indirect employment due to the project. During project stage, the project will provided employment to the 06 nos. of permanents and 260 temporary employments for a period of 18 month (for permanent employment benefit of Rs. 5.30 lacs / year per person and temporary employment Rs. 0.96 lacs / year per person)	**422.1**
5	Economic benefits due to Compensasory a forestation. (The NPV of the CA land considered as prescribed by the guidelines 7-69/2011 –FC (pt.)dated 01-08-2017 NPV rates taken as Class III Medium Density forest Rs.8.03Lacks / Ha. For **4.3565**Ha.	**34.982**
Total		**3690457.082**

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Cost Benefit Ratio:-

i)   Table – A Estimation of Cost of Forest diversion :- 4998.835 lacks
ii)   Table – B Estimating Benefit of forest diversion :- 3690457.082 lacks

Cost Benefit Ratio = 1: 3690457.082 lacks / 4998.835 lacks
= 1: 738.263
Say 1: 738

The Cost Benefit Ratio of the Project is estimated at 1:738

Signature   :

Name In Block Letters   :   CORNELIUS MARANDI

Designation   :   Electrical Executive Engineer.

Address   :   Jharkhand Urja Sancharan Nigam Limited

Transmission Division, Deoghar (Jharkhand)