

COST BENEFIT ANALYSIS

Cost benefit analysis of 33kV Underground Cable Feeder from JUSCO's 132/33 kV Substation at Tata Growth shop to 33/11 kV Substation at Seraikela Town along ROW of TATA – Kanda – Seraikela main Road in the district of Seraikela – Kharsawan in Jharkhand is estimated as per the guidelines of Govt. of India, issues with letter no. 7-69/2011-FC(Pt.) dtd. 01-08-2017 and is given below:

Table -A : Estimation cost of Forest Diversion

| Sl.No. | Parameters | Cost (Rs. Lakhs) |
|--------------|--|------------------|
| 1 | Ecosystem services loss due to proposed forest diversion (Economic value of loss eco-system due to proposed forest land being diverted as prescribed by the Central Government (MoEF &CC) NPV rates taken as Rs. 12.29 Lakhs per Ha. Under Class III of Dense Forest category (Rs. 12.29 Lx 0.3627 Ha). The NPV rates are taken from the circular from Govt of India , MOEF , Forest Conservation Division via letter no. 5-3/2011-FC (Vol-I) dtd. 06.01.2022. | 4.458 |
| 2 | Loss of animal husbandry productivity (Taken at 10 % of NPV) | 0.446 |
| 3 | Cost of human resettlement (There is no human resettlement due to proposed forest division) | Nil |
| 4 | Loss of public facilities and administrative infrastructure (Road, Building, School, Dispensaries, Electrical lines, Railways etc. on forest land, which would forest land if these facilities were diverted due to project (No public facilities and administrative infrastructures are involve) | Nil |
| 5 | Possession value of forest land diverted (Taken at 30% of NPV) | 1.3374 |
| 6 | Cost to suffering to oustees (There are no oustees due to proposed forest diversion) | Nil |
| 7 | Habitat Fragmentation Cost (Taken at 50 % of NPV) | 2.229 |
| 8 | Compensatory Afforestation, soil & moisture cost (CA arrived @ Rs.2.5 Lakhs per Ha. x 0.3627 Ha) | 0.907 |
| 9 | Project Cost – Fixed Assets, inclusive of investment, Current assets loans & advance. Other Expenditures like preoperative expenses, interests , interests during construction etc. | 3200 |
| Total | | 3209.38 |

Table -B : Estimating of Benefits of Forest Diversion

| Sl.No. | Parameters | Cost (Rs. Lakh) |
|--------|---|-----------------|
| 1 | Increase in productively attribute to this project: Expected Power Flow: 30 MVA i.e. $30 \times 0.85 \text{ MW} = 25.5 \text{ MW}$ Expected Load Factor: 60 % Loss = 0.5 % Average value added = Rs. 5.00 per Kwh Average value added per Year = $25.5 \times 1000 \times 0.6 \times 8760 \times 0.995$ $= 133.36 \times 10^6 \text{ kwh}$ Value = $133.36 \times 10^6 \times 5.00 = \text{Rs. } 6668 \text{ Lakhs / Year}$ Value added for 50 Years = $50 \times \text{Rs. } 6668 \text{ Lakhs} = \text{Rs. } 333400 \text{ Lakhs}$ | 333400 |

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|--------------|---|------------------|
| 2 | Benefits to Economy due to this project: The line shall be utilized for transfer the power from 132/33 KV Grid sub-station to 33/11 KV distribution sub-station to distribute power to Seraikela Town & nearby villages. Power will be provided to all category of consumers including domestic, commercial & industrial facilities. This will boost the overall economic activities in the region. Industrial growth in the region will lead to overall increase in the GDP (Gross Domestic product) of Jharkhand. | Na |
| 3 | Number of population benefited due to this project: Approximately 5000 domestic households – 25000 population is expected to be benefited directly. In addition, approximately 5000 families is expected to be benefited due to employment generation in the factories where power will be provided by this project. | Na |
| 4 | Economic benefit due to direct and indirect employment to the project: During Project stage this project will provide employment to 80 No's of contract workmen & 6 No's supervision staff for a period of approx. 12 months. (Average compensation approx. 6 x Rs. 2.3 Lakhs/ Year + 80 x Rs. 1.53 lakhs/ Year) | 136.2 |
| 5 | Economic benefits due to Compensatory Afforestation: NPV of the CA land considered as prescribed by the guidelines 7-69/2011-FC(Pt.) dtd. 01-08-2017 NPV rates taken as Rs. 6.26 Lakhs per Ha. Under Class III of Open Forest category (Rs. 6.26 Lx 0.3627 Ha) | 2.27 |
| Total | | 333538.47 |

Cost Benefit Ratio:

- | | |
|---|-----------------|
| 1. Table -A: Estimation cost of Forest Diversion: | 3209.38 Lakhs |
| 2. Table -B: Estimating of Benefits of Forest Diversion | 333538.47 Lakhs |

Cost Benefit Ratio = 1: 333538.47 / 3209.38

= 1: 103.93

Say 1 : 104

The Cost Benefit Ratio of the Project is estimated at 1: 104

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