

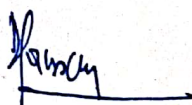
## COST BENEFIT ANALYSIS

**Project:** Diversion of 48.43941 Ha of Forest Land for construction of 132 KV D/C transmission line from DVC's Northkaranpura (Piparbar) to proposed TSS of East Central Railway, Dhanbad at Balumath transmission line under Latehar, Chatra South and Ranchi Division in the State of Jharkhand.

- Total length of the transmission line passing through forest area (under Latehar, South Chatra and Ranchi Forest Division) = 18.0994 km.
- Total forest area proposed for diversion (under Latehar, Chatra South and Ranchi Forest Division) = 48.86856 Ha.

**Table-A: Cases under which a cost-benefit analysis for forest diversion are required**

Sl. No.	Nature of Proposal	Applicable/not applicable	Remarks
01.	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectare in hills	Not applicable	These proposals may be considered on a case to case basis and value judgment.
02.	Proposal for defense installation purposes and oil prospecting (prospecting only)	Not applicable	In view of national Priority accorded to these sectors, the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non-forest use.
03.	Habitation, establishment of industrial units, tourist lodges complex and other building construction	Not applicable	These activities being detrimental to protection and conservation of forest, as a matter of policy, such proposals would be rarely entertained.
04.	All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission line, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centers. TV towers etc.	Applicable	Construction of 132 KV, D/C Transmission line from DVC's Northkaranpura (Piparbar) to proposed TSS of East Central Railway, Dhanbad at Balumath (Latehar) is being constructed by Damodar Valley Corporation. To carry moving of train that includes lighting, Water supply, running of all railways station facilities etc. that requires Electricity and the East Central Railways, Dhanbad has approached to DVC to provide the same.



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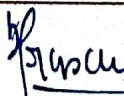


**Table-B: Estimation of cost of forest diversion**

Sl. No.	Parameters	Remarks
01.	Ecosystem service losses due to proposed forest diversion	Considering the Net present value of forest area to be diverted be 8.03 Lakh per Ha as per density in Eco class III. Hence losses to Eco system: $8.03 \text{ Lakh} \times 48.86856 = 392.414 \text{ Lakh}$
02.	Loss of animal husbandry productivity, including loss of fodder	$8.03 \text{ Lakh} \times 48.86856 \times 10\% = 39.241 \text{ Lakh}$
03.	Cost of human resettlement	Not applicable, since there is no displacement of people due to the project.
04.	Loss of public facilities and administrative infrastructure (roads, building, School, dispensaries, electric lines, railways etc.) on forest land if these facilities were diverted due to the project	Not applicable, since these facilities are not available inside the proposed forest area of diversion.
05	Possession value of forest land diverted	Considering 30% of environmental costs (NPV) due to loss of forest. Hence losses: $8.03 \text{ Lakh} \times 48.86856 \text{ Ha} \times 30\% = 117.724 \text{ Lakh}$
06	Cost of suffering to oustees	Not applicable, since there will be no displacement of people.
07	Habitant fragmentation Cost	The cost due to fragmentation, considering 50% of NPV $8.03 \text{ Lakh} \times 48.86856 \text{ Ha} \times 50\% = 196.207 \text{ Lakh}$
08	Compensatory afforestation and soil & moisture conservation cost	Considering 4 Lakh/Ha including CA and soil & Moisture conservation cost Hence Losses: $4 \text{ Lakh} \times 48.86856 \text{ Ha} = 195.474 \text{ Lakh}$
<b>TOTAL LOSS</b>		<b>Rs.941.06 Lakhs</b>

**Table-C: Existing guidelines for estimating of forest- diversion in CBA.**

Sl. No.	Parameters	Remarks
01.	Increase in productively attribute to the specific project	At the rate of Rs. 4100/- per MWH Considering: (a) Power factor = 0.85 (b) Load factor = 0.60 (c) transmission loss = 0.978 Total power flow = $240 \times 0.85 \times 0.6 \times 0.978 = 119.707 \text{ MW}$ Energy flow per year = $119.707 \times 24 \times 365 = 1048633.32 \text{ MWH}$ Social Benefit per year = Rs. $1048633.32 \times 4100$ = Rs. 4299396612.00 = Rs. 42993.966 Lakh/year

  
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02.	Benefits to economy due to the specific project	Same as above.
03.	No of population benefited due to specific project	A large no. of population will be benefited due to power supply to railway. At this will lead to smooth plying of trains in the region. This will also lead to growth of Steel industries and Coal Mines etc.
04.	Economic benefits due to of direct and indirect employment due to the project	As per the Detailed project report. The project requires 15 persons in regular basis and Temporary employment (Number of person-days)-3650. 3650- man day's X Rs. 300=1.095 Lakh
05	Economic benefits due to compensatory afforestation	Considering it to be equivalent to the NPV on the area to be diverted. Hence benefits: 8.03 Lakh X 48.86856=392.414 Lakh
<b>TOTAL PROFIT</b>		<b>Rs.43387.475</b>
<b>Cost of Ratio:- Total Loss to Environment: Benefits to economy</b>		<b>Rs.941.06:43387.475= 1:46.105</b>

**Signature**

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**Name in block letters**

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