

**COST BENEFIT ANALYSIS**  
**CALCULATION OF LOSS OF FOREST**  
**PARAMETERS OF EVALUATION OF LOSS OF FOREST**

Project		Construction of 132 KV DCSS South kondagaon to Narayanpur Electric Transmission Line		
	Forest land need to be Diverted	27.627 Ha. + 10.247 Ha. = 37.874 Ha.		
	Average quality of forest	III A & III B		
	Average density of forest	0.2 to 0.6		
	No of tree (about 20 cm girth)	3855 + 1272 = 5127		
1	Evaluation of Loss of Value of timber fule, wood and minor forest produce on an annual basis including loss of man hours per annum of people who derived live hood & wages			
A.	Evaluation of Loss of timber, Fuel, minor forest produce (M.F.P.), Mandays			
	Items	Forest Division South kondagaon	Forest Division Narayanpur	Total
	a. Estimated Timber volume in Cum	287.667	115.789	403.456
	b. Estimated Fuel volume in cum	307.56	52.14	359.700
	c. Estimated Total Timber & Fule volume in Cum	595.227	167.929	763.156
	d. Estimated Total value of timber & Fuel loss in Rs.	7237374	2701408	9938782
	e. Estimated loss of timber, fuel as per enumeration list	7237374	2701408	9938782.00
		9938782.00		Rupee
B.	Value of minor forest produce (M.F.P.)	Forest Division South kondagaon	Forest Division Narayanpur	Total
	a. Total forest Area for diversion in Hectare	27.627	10.247	37.874
	b. Total annual Income from MFP in the Division	5,13,59,810.00	6,43,69,000.00	
	c. Total forest Area of Division in Hectare	2,65,461.900	1,14,868.000	
	d. Average annual revenue per Hectare from M.F.P.	193.47	560.37	
	e. Value of M.F.P. loss = Average annual revenue per Hectare X Area of diverted forest in Rs.	5345.00	5742.00	11087.00
C.	Loss of mandays :-	Forest Division South kondagaon	Forest Division Narayanpur	
	a. Coupe working Mandays per Hectare	193.90	147.49	Mandays/Hec.
	b. M.F.P. collection Mandays/ Hectare	0.81	54.68	Mandays/Hec.
	c. Total Mandays per Hectare (1.c.a.+1.C.b.)	194.71	202.17	Mandays/Hec.
	d. Total loss of mandays	5379.25	2071.64	Mandays
	e. Loss of Mandays in value = Total loss of man days X Daily wages i.e. 239	1285641.51	495121.00	Rupee
	Loss of timber, fuel, minor forest produce (M.F.P.), Mandays = Loss due to 1A.e+ 1B.e+1C.e	8528360.51	3202271.00	Rupee
	Total loss of timber, Fuel, Minor forest produce (M.F.P.), Mandays	11730631.51		Rupee
2	Loss of animal husbandry productivity including loss of fodder	(i) Eastimated quantity of grass in M.T. (Average Product per ha X Area applied for diversion ) 2 MT x 37.874 = 75.748 MT (ii) Value of loss of fodder : Eastimated quantity x Market price = 75.748 x 5000 = Rs 378740/-		
3	Cost. of human resettlement	Nil		
4	Loss of public facilities and administrative infrastructure (road, building, school, Dispensary, Electric lines, Railway etc., on forest land if these facilities were diverted due to the project.	The route/ corridor of Transmission line not affecting any public facilities on forest land. ( although Raw Ghat to Jagdalpur Rail Line Crossing the Transmission line according to survey done by Railway Department )		
5	Environment lasses (soil erosion effect o hydrological eyele, wildlife habitats of Ecological Balances.)	Environment losses Is quantified as fallows.		
	Items	Forest Division South kondagaon	Forest Division Narayanpur	Total
	a. Forest area proposed for diversion in hectare	27.627	10.247	37.874
	b. Environmental value of one Hectare of fully stocked forest (density 1.0) for period 50 year.	126.74 Lac.		
	c. Density of proposed forest	0.5	0.5	
	d. Total Environmental loss for a period of 50 year in lacs.	= 27.627 X 126.74 X .5	= 10.247 X 126.74 X .5	= 37.874 X 126.74 X .5
	d. Total Environmental loss for a period of 50 year in lacs.	1750.72	649.35	2400.08
	So Total Environmental loss for a period of 01 year in lacs.	35.01	12.99	48.00
6	Suffering to outsets.	Not applicable since there is no displacement of people.		
7	NPV of proposed area to be diverted			
	South Kondagaon FD			
	Compartment no	Area In Hectare	Rate Rs. in lac	Amount in lacs
	P 799, P 807, P 808, P809, P 838	5.620	Rs. 9.39 Lacs per Ha.	52.77 Lac.
	Revenue Forest	22.007	Rs. 7.30 Lacs per Ha.	160.65 Lac.
	Total			213.42 Lac.

Narayanpur FD				
Compartment no	Area in Hectare	Rate Rs. in lac	Amount in lacs	
PF 2313(D), PF 3214, PF 2325, PF 2324(A), PF 2330	5.118	Rs. 9.39 Lacs per Ha.	48.06 Lac.	
Revenue Forest	5.129	Rs. 7.30 Lacs per Ha.	37.44 Lac.	
Total			85.50 Lac	
Grant Total NPV in Lac.			298.92 Lac	
There for total loss ( Calculated for 01 year)		117.30 + 3.78 + 48.00 + 298.92 = 468 Lac		

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## Cost Benefit Analysis

### Project :- Construction of 132 KV Kondagaon - Narayanpur TL

<b>A    <u>Benefit-</u></b>			
1	Net Benefit	=	22750 Lacs/Year
<b>B    <u>Cost-</u></b>			
2	Investment cost of the project	=	3324 Lacs
3	Total Loss Due to Forest Diversion	=	468 Lacs
4	Total Loss(2+3)	=	3792 Lacs
C	Cost Benefit Ratio	=	3792/
			22750
		=	1:06

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### BENEFIT ANALYSIS

**Project :-** Construction of 132KV Kondagaon- Narayanpur Transmission line Calculation of cost benefit due to construction of Transmission line.

1. Demand when proposed transmission line commissioned = 30 MVA.
2. Expected sale of Energy in KWH / year =  $30 \times 1000 \times 0.7 \times 0.9 \times 8760$   
= 165594000 units
3. Weighted average incremental tariff of state (Rs. Per unit) = 0.25
4. Value of benefit to CSPTCL for sale of Energy/ year  
=  $0.25 \times 23 \times 165565000$  = Rs. 4,13,91,250 ( 4.14 Crore)
5. Benefit due to Reduction on loss @ 10% to CSPTCL = 0.41 CRORE
6. Net benefit ( 4+5) = 4.55 CRORE
7. Project cost = 33.24 CRORE
8. Percentage Gross Return = 13.688 %

  
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## चयनित गैर वनक्षेत्र/निजी भूमि राजस्व वनक्षेत्र का विवरण

छत्तीसगढ़ राज्य विद्युत पारेषण कम्पनी मर्यादित द्वारा प्रस्तावित 132 के.व्ही. कोण्डागांव - नारायणपुर विद्युत पारेषण लाईन परियोजना में आने वाले वनभूमि के बदले गैर वनक्षेत्र चयनित नहीं की गई है। अतः इसे निरंक मानी जावें।

12/02/17  
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