

COST BENEFIT ANALYSIS (TOTAL)**Project: - Construction of 132 KV DCSS Bhanupratappur- Pakhanjur line Transmission line****A. BENEFIT-****Calculation of cost benefit due to construction of Transmission line.**i. Demand when proposed Transmission line commissioned $A=40$ MVA.ii. Expected sale of Energy in KWH/ year $B=A \times 1000 \times L.F. \times PF \times Hrs./year$

$$= 40 \times 1000 \times 0.8 \times 0.9 \times 8760$$

$$= 252288000 \text{ Units}$$

iii. Weighted average incremental tariff of state (Rs. Per unit) $C=0.25$ iv. Value of benefit to CSPTCL for sale of Energy/year $D= B \times C$

$$D = 0.25 \times 252288000$$

$$D = \text{Rs. } 630.72 \text{ Lac}$$

Net profit after 50 year

$$= 50 \times 630.72 \text{ Lac}$$

Net profit= 31536.00 lacs

B. COST-

i. Investment Cost of the Project - 7070.00Lacs



ii. Total Loss due to Forest Diversion - 4823.35Lacs

iii. Total Loss (1+2) - 11893.35Lacs

C. COST BENEFIT RATIO = 31536/11893.35

$$= 1:2.65$$

$$\text{Ratio} = 1:2.65$$


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

Sr. No.	Project	Construction of 132 KV DCSS Bhanupratappur-Pakhajur line Transmission line		
	Forest land need to be diverted	40.426 Hectare		
	Average quality of forest	III rd		
	Average density of forest	0.4 to 0.6		
	No of trees (above 20 cm girth)	2256		
1	Evaluation of Loss of Value of timber fuel, 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	Cum.	Rate	Amount
	a. Estimated Timber volume:	136.29	25031	3261288.99
	b. Estimated Fuel volume	296.917	1566	464972.022
	c. Estimated Total Timber & Fuel volume	427.207		
	d. Estimated Total value of timber & fuel loss		Rupee	3726261.012
	e. Estimated loss of timber, fuel as per enumeration list		3726261.012	Rupee
B.	Value of minor forest produce (M.F.P.)			
	a. Total forest Area for diversion in Hectare	40.426	Hectare	
	b. Total annual income from MFP in the Division.	302435032.00	Rupee	
	c. Total forest area of Division in Hectare	130377.00	Hectare	
	d. Average annual revenue per Hectare from M.F.P.	2320	Rupee	
	e. Value of M.F.P. loss = Average annual revenue per Hectare x Area of diverted forest	93776.039	Rupee	
C.	Loss of mandays:-			
	a. Cost of coupe working :-	14.5 MD/ Cum or 2952 Rs./ per cum.		
	b. Estimated total volume of timber & fuel =	427.207 Cum. in 40.426 Hectare.		
	c. Mandays per hectare =	MD per Cum.x Volume of wood in Cum.)/ Area of forest land		
	Mandays per hectare =	=14.5*427.207/40.426		
	d. Therefore Coupe working Mandays per hectare	153.23	Mandys/Hectare	
	e. Cost of M.F.P. collection per hectare is about 60% of Gross revenue per hectare	=2320*60/100		
	Cost of M.F.P. collection per hectare	1391.82	Rupee	
	f. Present Daily wages	223	Rupee	
	g. M.F.P. collection Mandays/hectare	= Cost of M.F.P. collection per hectare / Daily wages=1391.82/223		
	h. M.F.P. collection Mandays/hectare	6.24	Mandays/Hec.	
	i. Total Mandays per hectare = 163.36+6.24	169.60	Mandays/Hec.	
	j. Total Loss of mandays = 169.60*40.426	6856.25	Mandays	
	k. Loss of Mandays in value = Total loss of man days x Daily wages	=6856.25*223		
	l. Total Loss of Mandays in value	1528944	Rupee	
	Total loss of timber, fuel, minor forest produce (M.F.P.), Mandays = Loss due to (1A.e+1B.e+1C.l)	5348981	Rupee=	53.489 Lac

2	Loss of animal husbandry productivity including loss of fodder	Productivity of animal husbandry including loss of fodder will not be affected by transmission line, because these line will be drawn overhead in air and area below the line is totally free for animal husbandry productivity including fodder.		
3	Cost. Of human resettlement	There is no inhabitant as per record in transmission line corridor in forest land. Hence there would be no loss due to human settlement.		
4	Loss of public facilities and administrative infrastructure (roads, buildings, 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.		
5	Environment losses (soil erosion effect on hydrological cycle, wildlife habitats of Ecological balances.)	Environment losses is quantified as follows.		
	Items	Forest Division Bhanupratappur (East & West)		
	a. Forest area proposed for diversion in hectare	40.426		
	b. Environmental value of one Hectare of fully stocked forest (density 1.0) for period 50 year.	181.00		
	c. Density of proposed forest	0.6		
	d. Total Environmental loss for a period of 50 year in lacs.	=40.426x181 x0.6		
	d. Total Environmental loss for a period of 50 year in lacs.	4390.26 lacs		
6	Suffering to outsets.	Not applicable since there is no displacement of people.		
7	NPV of proposed area to be diverted @ Rs. 9.39 Lacs per hectare			
	Compartment no	Area in Hectare	Rate Rs.in lac	Amount in lacs
	OA-79,71,267,228,13,492,1,170,43,13,112,80,79,62,678,749,539,542,119,123 PF-899,919,932,875,842 RF- 640,639,638 Forest- 59,13,83,85,282,4,94,97,1,67	40.426	9.39 lacs	379.60
	Revenue			
	Total NPV		379.60 lacs	
8	Total Loss (1 to 7)		4823.35 lacs	

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