COST BENEFIT RATIO

765 KV D/C (HEXA) RANCHI - MEDINIPUR TRANSMISSION LINE

EVALUATION OF BENEFITS:

1. **Increase in productivity attributable to the specific project:**

Power Flow	=	5000 MW
Load Factor	=	60%
Losses	=	2.5%
Average Value Added	=	Rs.6.00 per kwh
Energy sent out per year	=	$5000 \times 10^6 \times 0.6 \times 8.76 \times 0.975$ kwh
	=	25623×10^6 kwh
Value added	=	$25623 \times 10^6 \times 6.00$
	=	**Rs. 15373.8 crore / year**

2. **Benefits to economy:**

The power will be transmitted through this line to the power deficit regions of ER, NR and WR. This project will provide sustained and incessant supply of power to these regions which will be utilized by large and SMEs industries leading to increased industrial output which in turn will lead to increase in GDP of India.

3. **No. of population benefitted:**

Assuming average 10 units consumption per day per household.
Total **7.02 million households** can be provided electricity per year.

4. **Employment potential**

The project will employ an average of 250 labours with an average of 200 days of work in a year for 03 years.
Therefore, total mandays generated= 250*200*3=150000.
Value of mandays generated per year assuming the labour cost of Rs.290/manday= 250*200*290= **1.45 crores**

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5. **Cost of Acquisition of facility on non-forest land wherever feasible:**

   Nil

   (a) Loss of Agriculture
   (b) Animal husbandry production due to diversion of forest land

   Nil

6. **Cost of rehabilitating the displaced persons as different from compensatory amounts given for displacement.**

   Nil

7. **Cost of supply of free fuel-wood to workers residing in or near forest area during the period of construction**

   Nil

EVALUATION OF LOSS OF FORESTS

I. **Loss of value of timber, fuelwood and minor forest produce on an annual basis, including loss of man-hours per annum of people who derived livelihood and wages from the harvest of these commodities:**

    Only one time loss of vegetation occurs during construction and there is no loss of man-hours.
    Considering the NPV of 8.04 lakhs per hectare, the total loss of timber, fuelwood and minor forest produce for 17.876 hectare of forest may be calculated as 17.876*8.04= **1.44 crores.**

II. **Loss of animal husbandry productivity, including loss of fodder**

    Nil

III. **Cost of human resettlement**

    Nil

IV. **Loss of public facilities and administrative infrastructure:**

    Nil

V.   Losses due to soil erosion/effect on hydrological cycle/wildlife habitat etc.

In the present case total forest involvement is 26.526 ha. Assuming the value of 01 Ha. of fully stocked forest (density 1.0) as 126.74 lakhs, to accrue over a period of 50 years.

Total value of forest

=	17.876 x Rs.126.74 lakhs
=	Rs. 2265.60 lakhs
=	**Rs. 22.66 crores**

For the purpose of cost benefit analysis

The total cost= (I)+(V) = 1.44+22.66= **24.10** crores.

The total value of benefits = (1) + (4) = 15373.8+1.45= **15375.25** crores

Hence Cost: Benefit Ratio   = 24.10 crores: 15375.25 crores
                              = 1:637.977
                              Say **1: 638**

Thus the construction of 765 KV D/C(Hexa) line would be advantageous in monetary terms.

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