

COST BENEFIT ANALYSIS**220 KV D/C RAMCHANDRAPUR-CHAIBASA TRANSMISSION LINE****EVALUATION OF BENEFITS:****1. Increase in productivity attributable to the specific project:**

Power Flow	=	2X200MVA
Load Factor	=	60%
Power Factor	=	0.8
Losses	=	2.5%
Average Value Added	=	Rs.6.00 per kWh
Energy sent out per year	=	$2 \times 200 \times 10^3 \times 0.6 \times 0.8 \times 0.975 \times (365 \times 24)$ kWh
	=	1639872000 (unit)
Value added	=	Rs. 9839232000
	=	Rs. 983 crore / year

2. Benefits to economy:

The 2500MW Power (share of Jharkhand State) to be Generated from the Power plants of Private Sectors will be transmitted through 20 Nos. of 400/230/132/33 KV Transmission lines including this 220 KV D/C Ramchandrapur - Chaibasa Tr. Line being constructed by POWERGRID for JUSNL under implementation of 400/230/132/33KV Transmission system for Jharkhand State. This project will provide sustained and incessant supply of power to Jharkhand State which will be utilized by large and SMEs industries leading to increased industrial output in Jharkhand State 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 of around 163987200 households can be provided electricity per year.

4. Employment potential

During Construction, the project will employ an average of 200 labours with an average of 200 days of work in an year for 1.25 years (15 Months).

Therefore, total man-days generated= $200 \times 200 \times 1.25 = 50000$.

Value of mandays generated assuming the labour cost of Rs. 200/manday= $50000 \times 200 = 1$ crore.

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

Nil


R. K. SAINI
प्रबंधक (जेसीपी)
MANAGER (JCP)
पामंदीख, जमशेदपुर
POWERGRID, JAMSHEDPUR

(a) Loss of Agriculture

Nil

(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 4.672 hectares of forest may be calculated as $4.672 \times 8.04 = 37.56$ lacs (say Rs. 0.38 crore)

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 4.672 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

= $4.672 \times \text{Rs. } 126.74 \text{ lakhs}$
= Rs. 592.13 lakhs
= Rs. 5.92 crores.

र. क. सैनी
प्रभु (जोशी)
MANAGER (JCP)
मनसिंह, जयपुर
JAYPUR, JANSHEPURI

For the purpose of cost benefit analysis

The total cost = (I) + (V) = 0.38 + 5.92 = 6.3 crores.

The total value of benefits yearly = (1) + (4) = 983 + 1.0 = 984 crores.

Hence Cost: Benefit Ratio = 6.3 crores : 984 crores
= 1 : 156.03
Say 1 : 156

Thus the construction of 220 KV D/C Ramchandrapur-Chaibasa Tr. line would be advantageous in monetary terms.


R. K. SAINI
प्रबंधक (जंजीरी)
MANAGER (JCP)
पुनर्वसन, अमरींदपुर
JALSHEDPUR