ANNEXURE-IV

COST BENEFIT ANALYSIS

220 KV *DIC* CHAIBASA- GUA TRANSMISSION LINE

<u>EVALUATION OF BENEFITS:</u>

1. Increase in productivity attributable to the specific project:

Power Flow	240 MW
Load Factor	60%
Losses	2.5%
Average Value Added	Rs.6.00 per kWh
Energy sent out per year	240 x 1000 x 0.6 x 8760 x 0.975 kWh
	122.9904 x10^7 kWh
Value added	122.9904 x10^7 x 6.00
	Rs. 737.9424 crore / year
	=738 crore/ year

2. Benefits to economy:

The power will be transmitted through this line to the regions of Gua from Ulijhari, Chaibasa grid substation. 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.
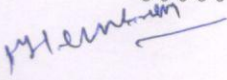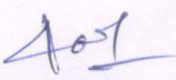
3. No. of population benefitted:

Assuming average 10 units consumption per day per household. Total 2.08 million households can be provided electricity per year.

4. Employment potential

The project will employ an average of 200 labours with an average of 200 days of work in a year for 1.5 years.
Therefore, total man-days generated= 200*200*1.5=60000.
Value of man-days generated assuming the labour cost of Rs 275/man day= 60000*275=1.65 crore.

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

Nil

(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, fuel wood 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, fuel wood and minor forest produce for 51.266 hectare of forest may be calculated as 51.266 X 8.04 = 412.1786 lakhs, say 4.12 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

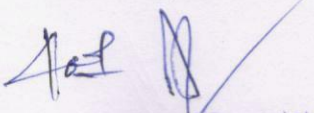V. Losses due to soil erosion/effect on hydrological cycle/wildlife habitat etc.
In the present case total forest involvement is 51.266 ha. Assuming the value of 01 Ha. Of fully stocked forest (density 1.0) as 126.74 lakhs, to accure over a period of 50 years.

Total value of forest

= 51.266 x Rs.126.74 lakhs Rs. 6497.4528 lakhs
Rs. 64.974 crores approx.

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For the purpose of cost benefit analysis

The total cost= (I) + (V) = 4.12+64.974= 69.094 crores.

The total value of benefits= (1) + (4) = 738+1.65=739.65 crores

Hence Cost:Benefit Ratio   = 69.094 crores:739.65 crores
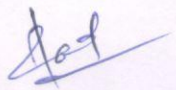   = 1: 10.704
                            Say 1: 11

Thus the construction of the 220 K V *DIC* line would be advantageous in monetary terms.

(Signature of User Agency)
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