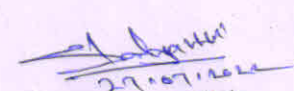# COST BENEFIT ANALYSIS

Project: Diversion of 4.9969 Ha of Forest Land for "Construction of 33KV D/C Transmission line for 16MVA power supply arrangement to M/s CCL-Karo Konar OCW from DVC-BTPS S/yard" under Bokaro Forest Division in the State of Jharkhand.

- Total length of the transmission line passing through forest area (under Bokaro Forest Division) = **3.331** km.
- Total forest area proposed for diversion (under Bokaro Forest Division) = **4.9969 Ha.**

Table-A: Cases under which a cost-benefit analysis for forest diversion are required

Sl. No.	Nature of Proposal	Applicable/not applicable	Remarks
01.	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectare in hills	Applicable	The line is meant for facilitating power supply to open cast works(OCW) of M/s CCL-Karo Konar at Bermo, P.S- Gandhinagar, P.O- Sunday Bazar, Bokaro for production of coal/coal derivatives for multipurpose use and in interest of nation and hence M/s CCL has approached to Damodar Valley Corporation (DVC) to provide the power supply arrangement. In line with Power conferred to DVC, the corporation has consented to provide power from its 132/33 KV switchyard at BTPS,Bokaro Thermal by erecting/laying a 33 KV Multi Ckt transmission line to the said project of M/s CCL Karo-konar
02.	Proposal for defense installation purposes and oil prospecting (prospecting only)	Not applicable	In view of national Priority accorded to these sectors, the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non-forest use.
03.	Habitation, establishment of industrial units, tourist lodges complex and other building construction	Not applicable	Theseactivities being detrimental to protection and conservation of forest, as a matter of policy, such proposals would be rarely entertained.
04.	All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission line, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centers. TV towers etc.	Not Applicable	

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Table-B: Estimation of cost of forest diversion

Sl. No.	Parameters	Remarks
01.	Ecosystem service losses due to proposed forest diversion	Considering the Net present value of forest area to be diverted be 8.03 Lakh per Ha as per density in Eco class III. Hence losses to Eco system:8.03 Lakh X 4.9969=**40.12511Lakh**
02.	Loss of animal husbandry productivity, including loss of fodder	8.03 LakhX4.9969X10%=**4.01251Lakh**
03.	Cost of human resettlement	**Not applicable,** since there is no displacement of people due to the project.
04.	Loss of public facilities and administrative infrastructure (roads, building, School, dispensaries, electric lines, railways etc.) on forest land if these facilities were diverted due to the project	**Not applicable,** since these facilities are not available inside the proposed forest area of diversion.
05	Possession value of forest land diverted	Considering 30% of environmental costs (NPV) due to loss of forest. Hence losses: 8.03 LakhX4.9969 Ha X30% = **12.03753 Lakh**
06	Cost of suffering to oustees	**Not applicable,** since there will be no displacement of people.
07	Habitant fragmentation Cost	The cost due to fragmentation, considering 50% of NPV 8.03LakhX4.9969HaX50%=**20.06255 Lakh**
08	Compensatory afforestation and soil& moisture conservation cost	Considering 4 Lakh/Ha including CA and soil & Moisture conservation cost Hence Losses: 4 Lakh X4.9969 Ha.= **19.9876 Lakh**
	TOTAL LOSS	**Rs. 96.2253 Lakhs**

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Table–C: Existing guidelines for estimating of forest- diversion in CBA.

Sl. No.	Parameters	Remarks
01.	Increase in productively attribute to the specific project	At the rate of Rs. 4100/- per MWH Considering: (a) Power factor = 0.85 (b) Load factor = 0.80 (c) Factor after deducting transmission loss = 0.978 Total power flow = 16MVA x 0.85 x 0.8 x 0.978 **= 10.64 MW** Energy flow per year = 10.64 x 24 x 365 **= 93206.4 MWH** Social Benefit per year = Rs. 93206.4 x4100 = Rs. 382146240.00 =Rs. 3821.46240 Lakh/year
02.	Benefits to economy due to the specific project	Same as above. Apart from that Coal production will be ease by CCL and hence immense benefit to the national economy.
03.	No of population benefited due to specific project	A large no. of population will be benefited due to power supply to CCL. At this will lead to smooth production of coal in the region. This will also lead to growth of Steel industries, Coal Mines, Power sector and ultimately to Nation-economy.
04.	Economic benefits due to of direct and indirect employment due to the project	As per the Detailed project report. The project requires 15 persons in regular basis and Temporary employment (Number of person-days)-3650. 3650- man day's X Rs. 443=16.1695 Lakh
05	Economic benefits due to compensatory afforestation	Considering it to be equivalent to the NPVon the area to be diverted. Hence benefits: 8.03 Lakh X 4.9969=40.12511Lakh
	TOTAL PROFIT	**Rs.3877.7501 Lakh**
	Cost of Ratio:-Total Loss to Environment: Benefits to economy	Rs.(96.2253):Rs.(3877.7501)= 1:40.298

Signature :

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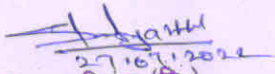
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