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COST BENEFITS ANALYSIS IN ACCORDANCE WITH GOI GUIDELINES
NO. 7 – 69/2011-FC DATED 01.08.2017.

Name of Project **Renewal of lease of Forest land for 132 KV Transmission Line from Renusagar Power Plant to Hindalco, Renukoot Plant exist over an area of 52.9666 Ha. in Anpara & Pipri Ranges of Renukoot Forest Division, Renukoot, Sonbhadra (UP).**

Nature of Proposal **Renewal of lease area of 52.9666 ha. Forestland for existing 132 KV Transmission Line from Renusagar Power Plant, Renusagar to Hindalco Industries Limited, Renukoot, Sonbhadra (U.P.)**

Purpose: Renewal of 132 KV Transmission Line exists over an area of 52.9666 Ha. forest land for next 25 years (17.07.2021 – 16.07.2046).

Table – A: Cases under which a cost-benefits analysis for forest diversion are required.

S. 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 hectares in hills.	Applicable	Renewal of lease of existing 132 KV Transmission Line over an area of 52.9666 ha forestland for transmitting power from Renusagar Power Plant, Renusagar to Hindalco Plant, Renukoot, Sonbhadra (UP).
02.	Proposal for defence installation purposes and oil prospecting (prospecting only)	Not applicable	Nil
03.	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable	Nil
04.	All other proposals involving forestland more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centres, TV tower etc.	Applicable	Renewal of lease of existing 132 KV Transmission Line over an area of 52.9666 ha forestland for transmitting power from Renusagar Power Plant, Renusagar to Hindalco Plant, Renukoot, Sonbhadra (UP).

For Hindalco Industries Limited

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 क्षेत्रीय वन अधिकारी
 अनपरा रेंज
 वन प्रभाग रेंकूट

(मनमोहन मिश्र)
 प्रभागीय वनाधिकारी,
 रेंकूट वन प्रभाग, रेंकूट-सोनभद्र

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Table – B: ESTIMATION OF COST OF FOREST DIVERSION

Sl. No.	Parameters	Given Guideline	Remarks
01.	Ecosystem services losses due to proposed forest diversion.	Economic value of loss of ecosystem services due to diversion of forest land shall be the Net Present Value (NPV) of the forest land being diverted as prescribed by Central Govt. (MoEF & CC). Note: In case of national park the NPV shall be ten (10) times the normal NPV and in case Wildlife Sanctuary the NPV shall be five (5) times of the normal NPV or otherwise prescribed by the Ministry or any other competent authority.	Being Eco-class – 3 (Open forest), density 0.3 NPV has been taken @ Rs. 1357110/hectare for 52.9666 ha i.e. Rs. 7,18,81,503.00.
02.	Loss of animal husbandry productivity, including loss of fodder.	To be quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum.	Loss of Animal husbandry productivity due to proposed diversion is calculated below: Grass Loss @ 5 ton/Ha/Year @ Rs. 100/- per tonne. Therefore loss of fodder as estimated for 52.9666 ha for 25 yrs. will be: $5 \times 52.9666 \times 25 \times 100 = 6,62,083.00$ 10% of NPV = Rs. 71,88,150.00 So considered amount is : Rs. 71,88,150.00
03.	Cost of human resettlement	To be quantified and expressed in monetary terms as per approved R&R plan.	There is no human resettlement as the area is forestland.
04.	Loss of public facilities and administrative infrastructure (roads, building, schools, dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities are diverted due to the project.	To be quantified and expressed in monetary terms on actual basis at the time of diversion.	There is no existence of public facilities in proposed forestland, so there is no requirement of facilities diversion.

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(मनमोहन मिश्र)
प्रभागीय वनाधिकारी,
रेनुकुट वन प्रभाग, रेनुकुट-सोनभद्र

05.	Possession value of forest land diverted.	30% of environment costs (NPV) due to loss of forest or circle rate of adjoining area in the district should be added as a cost component as possession value of forest land which ever is maximum.	30% of NPV is Rs. 2,15,64,451.00 Whereas circle rate of adjoining area is Rs. 20 lacs/hectare i.e. Rs. 20x52.9666=Rs. 1060.00 lacs. Therefore Possession value of forest land diverted will be: Rs. 1060.00 lacs as maximum.
06.	Suffering of oustees.	The social cost of rehabilitation of Ousteas (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R & R Plan) be worked out as 1.5 times of what oustees should have earned in two years had he not been shifted.	Nil As no Resettlement and Rehabilitation is required in forest land for next 25 years.
07.	Habitat fragmentation cost.	While the relationship between fragmentation and forest goods and services is complex, for the sake of simplicity the cost due to fragmentation has been pegged at 50% of NPV applicable as a thumb rule	Habitat fragmentation cost is 50% of NPV i.e. Rs. 3,59,40,751.00
08.	Compensatory afforestation and soil & moisture conservation cost.	The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value.	User Agency is committed to pay Compensatory Afforestation Cost as demanded by State Government.

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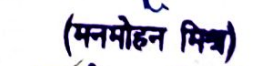
Table – C: EVALUATION OF BENEFITS DERIVED OUT OF PROJECT

Sl. No.	Parameters	Given Guideline	Remarks
01.	Increase in productivity attributable to the specific project.	To be quantified and expressed in monetary terms avoiding double counting.	Being Hindalco an integrated aluminium process plant, needs uninterrupted power supply and Transmission Line ensures continue smooth operation of plant for production of aluminium metal.
02.	Benefit to economy due to the specific project.	The incremental economic benefit in monetary terms due to the activities attributed to the specific project.	Hindalco aluminium producing plant generates direct employment to the people and contributes to Govt. exchequer to the tune of Rs. 423 crores through various taxes, levies etc. which benefits to country's economy..
03.	No. of population benefitted due to specific project.	-	7200 man days appx.
04.	Economic benefits due to direct employment & indirect employment due to the Project.	-	50 direct and 120 indirect.
05.	Economic benefits due to Compensatory afforestation	Benefits from such compensatory afforestation accruing over 25 years monetized and discounted to the present value should be included as benefits of compensatory afforestation. *For benefits of CA the guideline of the Ministry for NPV estimated may be considered.	The ecological value for a 25 years period for the density of 10 is Rs.25.348 lacs per hectare. By considering minimum 0.3 density the ecological gain for the project would be : $25.348 \times 0.8 \times 52.9666 =$ Rs. 1074.00 lacs.

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Summary of Cast-Benefit Analysis for the Project

Sl. No.	Loss (In lacs)	Benefit (In lacs)
01.	Ecosystem services losses = Rs. 718.81 lacs.	Ecology gain from Compensatory Afforestation in terms of money is Rs. 1074.00 lacs.
02.	Loss of animal husbandry productivity including loss of fodder Rs. 71.88 lacs.	547500 man days will be generated assuming 500 rupees per day as wages total benefit = 7200x500=Rs. 36.00 lacs.
03.	Loss of public facilities.	Nil
04.	Possession value of Forest land diverted. Rs. 1060.00 lacs	Hindalco aluminium contributes to Govt. exchequer to the tune of Rs. 423 crores through various taxes, levies etc. which benefits to country's economy..
05.	Habitat Fragmentation cost. Rs. 234.90 lacs	Nil
06.	Compensatory afforestation and soil and moisture conservation cost will be paid as demanded by State Govt.	Nil
	Total Loss: Rs. 718.81+71.88 +1060.00 +234.90 = Rs. 2085.59 lacs.	Total Benefit= 1074+4230.00+36.00+ = Rs. 5340.00 lacs.

Benefit Cost Ratio = Total benefit/total loss=
Rs. 5340.00/Rs. 2085.59 =Rs. 2.56
Which is more than 1 hence project is viable.

Note 1 : Net Present Value (NPV) of environment and ecosystem services loss:

The concept of Net Present Value of the forest land diverted is a scientific method of calculating the environment cost and other losses caused due to diversion of forest land for non forestry purposes. The NPV represents the net value of various eco-system services and other environment services in monetary terms which the forest would have provided if the forest would not have been diverted.

Note 2 – Possession Value of forest land diverted.

The forest land diverted for the project such as irrigation, hydro power, railways, roads, wind & transmission lines and mining etc. are unlikely to be returned and remain in possession of User Agencies. Therefore, 30% of the net present value (NPV) of the forest land diverted or market rate of adjoining area in the District should be added as a cost of component as "possession value of forest land" in addition to the environment costs due to loss of forests.

Date: 26.04.2022

Place: Renukoot

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वन प्रभाग रेनुकूट

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प्रभागीय वनाधिकारी,
रेनुकूट वन प्रभाग, रेनुकूट-सोनभद्र