

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

Name of Project Renewal of lease of 61.2348 ha. Forest land for Ash Dyke in Compartment No. 1 of Auri Van Block Vill: Auri (Bichhari) in Anpara Range of Renukoot Forest Division, for Hindalco Industries Limited (Renusagar Power Division) Renusagar, Sonbhadra (UP).

Nature of Proposal Renewal of lease area of 61.2348 ha. Forestland for construction of Ash Dyke in favour of Hindalco Industries Limited, Renusagar Power Division, Renusagar, Sonbhadra (UP).


Purpose: For dumping of ash generated by Renusagar Power Plant in Compartment No.1 of Auri Van Block Vill: Auri (Bichhari) in Anpara Range.

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 61.2348 ha forestland for disposal of ash generated by our Renusagar Power Plant.
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.	Not applicable	Nil

For Hindalco Industries Limited


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Authorized Signatory)


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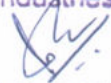

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Table – B: ESTIMATION OF COST OF FOREST DIVERSION

SI. 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. 6,26,000/hectare for 61.2348 ha i.e. Rs. 3,83,32,985.00. Scanned copy of a certificate issued by DFO, Renukoot is attached herewith in this regard.
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 due to proposed diversion is calculated below: Gross Loss @ 5 ton/Ha/Year @ Rs. 100/- per tonne. Therefore loss of fodder as estimated for 61.2348 ha will be: $5 \times 61.2348 \times 10 \times 100 = 3,06,174/-$ 10% of NPV = Rs. 38,33,299.00 So considered amount is : Rs. 38,33,299.00
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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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.	The circle rate of Vill: Auri is Rs. 18 lacs per hectare i.e. Rs. 1102.2264 lacs whereas 30% of NPV is Rs. 1,14,99,896/- Therefore Possession value of forest land diverted will be: Rs. 1102.2264 lacs.
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 to be renewed for next 10 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. 1,91,66,493.00
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 has already paid Compensatory Afforestation Cost Rs. 36,85,095.00.

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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.	Power is generated from coal at Renusagar Power Division to meet power requirement in Hindalco Industries Limited, Renukoot which is an integrated aluminium plant and power intensive industry. In this process, ash is generated as waste which is to be disposed off in eco-friendly manner in proposed leased area as requirement of this ash dyke is very much essential for smooth running of Company's Power Plant at Renusagar as well as aluminium plant at Renukoot.
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 Industries Limited generates direct & indirect employment to the people and contributes to Govt. exchequer to the tune of more than Rs. 423 crores/annum through various taxes, levies etc. which benefits to country's economy. Again the project will have the potential for temporary employment generation for local people of 150 persons for 10 years.
03.	No. of population benefitted due to specific project.	-	150 approx.
04.	Economic benefits due to direct employment & indirect employment due to the Project.	-	30 direct and 120 indirect.
05.	Economic benefits due to Compensatory afforestation	Benefits from such compensatory afforestation accruing over 10 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 10 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 : $25.348 \times 0.3 \times 61.2348 =$ Rs. 465.653 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. 383.33 lacs	Ecology gain from Compensatory Afforestation in terms of money is Rs. 465.653 lacs.
02.	Loss of animal husbandry productivity including loss of fodder Rs. 38.33 lacs	547500 man days will be generated assuming 500 rupees per day as wages total benefit = 547500x500=Rs. 2737.50 lacs.
03.	Loss of public facilities.	Nil
04.	Possession value of Forest land diverted. Rs. 1102.2264 lacs	Lease rent being paid: Rs. 1,10,22,264.00 per year for 10 years = Rs. 1102.22 lacs
05.	Habitat Fragmentation cost. Rs. 191.66 lacs	nil
06.	Compensatory afforestation and soil and moisture conservation cost Rs. 36.85 lacs	
	Total Loss: Rs. 383.33+38.33 +1102.2264 +191.66+36.85=1752.3964 lacs.	Total Benefit= 465.653 +2737.50+1102.22 = Rs. 4305.37 lacs.

Benefit Cost Ratio = Total benefit/total loss=
Rs. 4305.37/Rs. 1752.3964 =Rs. 2.4564
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: 03.05.2019

Place: Renukoot

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