Cost Benefit Analysis

Cost Benefit Analysis in respect of diversion of 135.008 Ha. (Protected forest 9.500 Ha.) for Opencast Coal Mining of Vishnupuri UG TO OC Mine,Pench Area , Western Coalfields Limited, Parasia Tehsil, Chhindwara District, Madhya Pradesh.

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

Sl.No.	Nature of proposal	Applicable / Not applicable	Remarks
1	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectares in hills	Not Applicable	
2	Proposal for defense installation purposes and oil prospecting (prospecting only)	Not applicable	.....
3	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable	.....
4	All other proposals involving forest land 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 centers, TV towers etc.	Applicable	The Proposed project is for diversion of 135.008 Hac. for Open Cast Coal Mining of Vishnupuri UG TO OC Mine, Pench Area, Western Coalfields Limited, Parasia Tehsil, Chhindwara District, Madhya Pradesh.

Table . B Estimation of Cost of Forest Diversion

Sl.No.	Parameters	Remarks	Cost (in Rs.)
1	Ecosystem Service loss due to proposed forest diversion.	Economic Value of loss of ecosystem Services due to proposed diversion of Forest NPV amount of forest land being diverted as prescribed by Central Government (MoEF&CC).	Economic Value of loss of ecosystem Services due to proposed diversion of Forest shall be Rs 12,28,590 / Ha (NPV rate as per ECO value of Class III (c) Forest as per Handbook Guideline of MoEF& CC, GoI dated 06/01/2022) As prescribed by Central Government (MoEF&CC) Since the project is Opencast forest land required to surface mining and infrastructure hence NPV value is considered at 100%.

Table . B Estimation of Cost of Forest Diversion			
Sl.No.	**Parameters**	**Remarks**	**Cost (in Rs.)**
			Total Forest area : 135.008 Ha Environment loss: 135.008 x Rs 12,28,590 = 165869479/-
			100% of Rs 165869478.7/- **= Rs 165869478.7/-**
2	Loss of animal husbandry productivity including loss of fodder.	To be quantified and expressed in monetary term or 10% of NPV applicable whichever is maximum.	**=Rs 16586947.87**
3	Cost of Human Resettlement.	To be quantified and expressed in monetary terms as per approved R & R Plan.	**Not Applicable**
4	Loss of public facilities and administrative infrastructure (roads, building, schools, dispensaries, electric lines, railway etc.) on forest land, which would requires forest land if these facilities were diverted due to project.	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion.	**There is no public facilities and administrative infrastructure on the forest land to be diverted. Hence, there is no loss of public facilities.**
5	Possession Value of the forest land diverted.	30% of environment cost (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 whichever is maximum.	**= Rs 49760843.62**
6	Cost of suffering to oustees.	The social cost of rehabilitation of oustees(in additional 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	There will not be any loss on this account as diversion of the forest land to this project will not affect any evacuation of house or structure or human settlement in forest area.

Table . B Estimation of Cost of Forest Diversion			
Sl.No.	Parameters	Remarks	Cost (in Rs.)
		oustees should have earned in two years had he not been shifted.	
7	Habitat Fragmentation Cost.	While the relation 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.	**= Rs 82934739.36/-**
8	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.	The total cost will be decided by forest Dept.User agency is committed to deposit the same amount as per direction of Forest Dept.

Total cost due to diversion of forest land:
(Rs 165869478.70/- + Rs 16586947.87Rs 49760843.62+ Rs 82934739.36)

B. Total Cost to the Society = Rs 315152009.55/-

Table . C Existing guidelines for estimating benefits of forest - diversion			
Sl.No.	Parameters	Remarks	Benefits (in Rs.)
1	Increase in productively attribute to the specific project.	To be quantified & expressed in monetary terms avoiding double counting.	24420000 T x Rs 1865.42 (G 8) **= Rs 45,55,35,56,400/-**
2	Benefits to economy due to the specific project.	The incremental economic benefit in monetary terms due to the activities attributed to the specific project.	*Royalty, DMF, NMET,M.P Infrastructure tax, Forest transit cess amounts to Rs 592.56/- T **= Rs 14,47,03,15,200/-**
3	No. of population benefited due to specific project.		. Direct 180 . Indirect 500 . Employment generated on non forest land in afforestation programme

Table . C Existing guidelines for estimating benefits of forest - diversion			
Sl.No.	**Parameters**	**Remarks**	**Benefits (in Rs.)**
			. Locality people will have income opportunity in various ancillary work & other activities.
4	Economic benefits due to of direct and indirect employment due to the project.		. Direct 180 Rs 75000 x 180 x 12 (months) **=Rs 16,20,00,000/-** . Indirect 500 Rs 10000 x 500 x 12 (months) **= Rs 6,00,00,000/-** **For proposed life of mine =12years x 22,20,00,000/- = Rs 2,66,40,00,000/-**
5	Economic benefits due to Compensatory afforestation	Benefits from such compensatory forestation accruing over next 50 years monetized and discounted to the present value should be included as benefits of compensatory afforestation.	Compensatory afforestation of 3.000 Ha of land @ 1000no of sapling = survival rate @ 80%. The sapling 3.000/ Ha = 3000 trees Survival trees @ 80% = 2400 trees Economic benefits of one tree accruing over next 50 years monetized in terms of providing oxygen, water, soil, moisture conservation, etc, timber & firewood = Rs 200000. Future benefitsof 2400Nos. of trees @ Rs 200000 **= Rs 48,00,00,000/-**

Total benefits due to diversion of forest land for non . forest activity:
(Rs 45,55,35,56,400 + Rs 14,47,03,15,200 + Rs 2,66,40,00,000 + Rs 48,00,00,000)

C. Total Benefit to the Society = Rs 63,16,78,71,600/-

Cost Benefit Analysis

Based on value of products:

1. Total Benefit to the Society	= Rs 63,16,78,71,600/-
2. Total Cost to the Society	= Rs 31,51,52,009.55/-
Cost Benefit Ratio	Total Benefit / Total Cost
Cost Benefit Ratio	= 63,16,78,71,600/- / 31,51,52,009.55/-

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S.V.S.R.S

Sub Area Manager
Shivpuri Sub Area

Area Survey Officer
Pench Area, WCL.

Area Planning Officer
Pench Area, WCL.