Environment Cost and Benefits Analysis

S.N.	Environment Cost/Benefit	MoEF Guidelines for CBA of forest land diversion,2017	Parameters		Total loss (Rs lakh)
A	**Environment Cost**				
1	Eco-system services losses due to proposed forest diversion	Economic value of loss of eco-system services due to diversion of forests shall be the net present value (NPV) of forest land being diverted *(MOEF OM 5-3/2011-F.C dated 06.01.2022)*	NPV of 29.997ha forest land (eco-class-VI, dense forest) to be diverted @Rs 10.6947 lakh/ha.		320.81
			29.997	10.69	
2	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	(i)29.997ha x Rs25070/ha	7.52	32.08
			(ii) 10% of Rs 320.81 lakh	32.08	
			= Rs 32.08 lakh. (Max. of two is adopted)		
3	Cost of human resettlement	To be quantified and expressed in monetary terms as per R&R Plan	As per R&R Plan No resettlement is involved.		0
4	Loss of Public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric lines, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project.	To be quantified and expressed in monetary terms as per actual cost basis at the time of diversion.	No public facilities on forest land are to be diverted		0
5	Possession value of forest land diverted	30% of environmental costs (NPV) due to loss of forests or circle rate of adjoining area in the district should be added as a cost component of possession value of forestland, whichever is maximum	30%	320.81	96.24
			= 30% of Rs 320.81 lakh (NPV)		
6	Cost of sufferings to oustees	The social cost of rehabilitation of oustees (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.	There are no oustess from forest land or private land, thus nosocial cost of rehabilitation of oustees is involved.		0
7	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.	50% of NPV 0.50x Rs 320.81 lakh Rs 160.41 lakh		160.41

अधिशासी अभियन्ता (जानपद)
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मुनस्यारी, पिथौरागढ़

Environment Cost and Benefits Analysis

S.N.	Environment Cost/Benefit	MoEF Guidelines for CBA of forest land diversion,2017	Parameters	Total loss (Rs lakh)
8	Compensatory afforestation & soil moisture conservation cost	The actual cost of Compensatory afforestation & soil moisture conservation and its maintenance in future at the present discounted value	Cost of Compensatory Afforestation& soil moisture conservation including maintenance cost =Rs 202.31 lakh	202.31
9	Cost of conservation of Schedule-I wildlife and endangered plant species	To be quantified and expressed in monetory terms based on actual cost of mitigation measures as per EMP	Cost of Wildlife and Bio-diversity Management plan	99
10	Cost of mitigating land degradation	To be quantified and expressed in monetory terms based on actual cost of mitigation measures as per EMP	Cost of Catchment Area Treatment Plan, Muck Management Plan, Cost of Restoration of quarry area and landscaping plan, Reservoir rim treatment Plan (=Rs 595+1262+70+252)	2179
11	Cost of impairment in air quality in project area and haul roads, increase in noise levels and impairment in surface water quality	To be quantified and expressed in monetory terms based on actual cost of mitigation measures as per EMP	Cost of water, air,noise management, Environ safe guard during road construction, green belt development plan, Env. Monitoring Plan (= Rs 36+80+25+85)	226
12	Cost of Environmental Management Plan for avoiding, mitigating, checking the adverse impacts on various environmental components during construction and operational phase of the project.	As per cost of EMP included in EIA report avoiding the cost of losses already included in serial No.1,8,9,10 and 11	Total cost of EMP after discounting cost included against SL No 1,8,9,10 and 11 (=3798-202.31-99-2179-226)	1092
			Total Environment Cost(A) =	**4407.85**

21/11/2024
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मुनस्यारी, पिथौरागढ़

Environment Cost and Benefits Analysis

S.N.	Environment Cost/Benefit	MoEF Guidelines for CBA of forest land diversion,2017	Parameters	Total loss (Rs lakh)
B	**Environment Benefits**			
1	Increase in productivity attribute to the specific project	To be quantified and expressed in monetary terms avoiding double counting	After accounting for 12% free power to the state and 1% free power for local development of area, net annual Saleable annual energy (after accounting for 0.70% auxiliary consumption and 0.50% transmission loss) = 522.8 GWhX0.87 = 454.90 MU. The benefit expressed in monetary terms shall be for 454.90 MU @ levellised tariff of Rs3.31/unit.	15057.19
2	Benefits to economy due to specific projects	The incremental economic benefit in monetary terms due to the activities attributed to the specific project.	Establishment of project will facilitate the emergence of industries, trade and commerce and would bring more and more economic development in the State and Country At present the industry sector alone consumes 42% of total consumption of the state. Therefore, on a conservative estimate about 219.58 GWh shall be consumed in industry. Since the tariff for mixed industry in the state is Rs 5.30/unit, which implies that the difference of Rs 5.30-3.31=Rs 1.99/unit shall accrue as an additional income of Rs 4369.64 lakh to the state.	4369.64
3	Number of Populations benefit due to specific project	As per DPR	The project will directly benefit the population of the country as a whole and the population of state, due to share of 12% free power and people of the project area by 1% free power for local development of area. The benefit expressed in monetary terms shall be for 522.8x0.13=67.96 MU @ levellised tariff of Rs3.31/unit	2249.48

अधिशासी अभियन्ता (पदेन)
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Environment Cost and Benefits Analysis

S.N.	Environment Cost/Benefit	MoEF Guidelines for CBA of forest land diversion,2017	Parameters	Total loss (Rs lakh)
4	Economic benefits due to direct and indirect employment due to the project.	As per DPR	(i) During peak stage of construction, employment will be generated for 1000 skilled/semi-skilled/unskilled labour. Assumung that on an average 500 persons are employed with an average minimum wage of Rs 9383/- pm after discounting the income of Rs 4000/pm by the personbeing earned before being engaged in construction, the net benefit shall be =Rs 5383x12x500= Rs322.98 lakh.	322.98
			(ii) After completion during operation about 50 people will get employment for O&M, routine upkeep / maintenance of roads and buildings. Average benefit shall be 25x12x25000=Rs75 lakh	75
5	Economic benefits due to compensatory afforestation	Benefits from such compensatory afforestation accruing over next 50 years monetised and discounted to the present value should be included as benefits of compensatory forestation. For benefits of CA the guidelines of the Ministry for NPV estimation may be consulted	Benefits from Compensatory afforestation in 60 ha @ discount rates of 6% /yr of NPV (6% of NPV @10.6947 =10.05) (Rs 10.05x60=Rs 603 lakh)	30.15
Total Environment Benefits (B) =				**22104.442**
Total benefits due for useful life of 40-year = 40x (15057.19+4369.642+2249.48+75+30.15)+322.98				**871581.46**
Environment Benefit Cost Ratio= (871581.46/4407.853)				**197.73 : 1**

27/11/2024
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