COST-BENEFIT ANALYSIS OF DEVELOPING NIT MIZORAM VIS-À-VIS NPV

TABLE-A: ESTIMATION OF COST OF FOREST DIVERSION

SL. NO.	PARAMETER	REMARKS	MONETARY EQUIVALENT
1	ECOSYSTEM SERVICE 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 the forest land being diverted as prescribed by the Central Government (MoEF&CC). *Note:* In case of National Parks the NPV shall be ten (10) times the normal NPV and in case of Wildlife Sanctuary the NPV shall be five (5) times the normal NPV or otherwise prescribed by the ministry or any other competent authority.	NPV for the diverted forest area is considered as Rs. 11.169 Lakhs/Ha Total value of NPV = Rs. (11.169 Lakhs x 63.441) **= Rs 7.09 Cr** (approx.)
2	LOSS OF ANIMAL HUSBANDRY PROUCTIVITY, INCLUDING LOSS OF FODDER	To be quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum.	The loss of Animal Husbandry productivity, including loss of fodder is calculated as 10% of NPV **= Rs. 0.71 Cr** (approx.) Although there will not be any losses for animal husbandry as this is a small patch within continuous Riverine Reserve Forest where human intervention for animal husbandry is minimal.
3	COST OF HUMAN RESETTLEMENT	To be quantified and expressed in monetary terms as per approved R&R plan	NIL. There is no human settlement in the proposed site as this is within the Riverine Reserve Forest, hence there is no resettlement issue in this project. Hence no cost involved for any R&R scheme.
4	LOSS OF PUBLIC FACILITIES AND	To be quantified and expressed in monetary	NIL. The project does not

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	ADMINISTRATIVE INFRASTRUCTURE (ROADS, BUILDING, SCHOOLS, DISPENSARIES, ELECTRIC LINES, RAILWAYS ETC) ON FOREST LAND, WHICH WOULD REQUIRE FOREST LAND IF THESE FACILITIES WERE DIVERTED DUE TO THE PROJECT.	terms on actual cost basis at the time of diversion.	require diversion of any public facility. Also, since this site is within Riverine Reserve Forest no public facility exists within the area.
5	POSSESSION VALUE OF FOREST LAND DIVERTED	30% of environmental 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 whichever is maximum.	The possession value of forest land diverted is calculated as 30 % of NPV **= Rs. 2.13 Cr**
6	COST OF SUFFERING 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 2 years had he not been shifted.	NIL. Not applicable for this project since there is no resettlement involved.
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.	Calculated as 50% of NPV **= Rs. 3.55 Cr (approx.)**
8	COMPENSATORY AFFORESTATION AND SOIL AND MOISTURE CONSERVATION COST	The actual cost of compensatory afforestation and soil and moisture conservation and its maintenance in future at present discounted value.	Cost of CA is considered as Rs. 1,75,046/ Ha Total CA Cost = 1.75046 x 64.25 Lakhs = **Rs. 1.13 Cr (approx..)**
TOTAL COST OF FOREST DIVERSION=			Rs. (7.09+0.71+2.13 +3.55+1.13) Cr
			Rs. 14.61 Cr (approx.)

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TABLE-B: ESTIMATION OF BENEFITS OF FOREST DIVERSION

SL. NO.	PARAMETER	REMARKS	MONETARY EQUIVALENT
1	Increase in productively attribute to the specific project	To be quantified and expressed in monetary terms avoiding double counting	Socio-economic development with technical education facility will improve the competence of students and the interacting community. The lump-sum monetary equivalent of the above benefit is considered as **Rs. 5 Cr.**
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	The monetary return of the specific project of setting up an Institute of National Importance viz. NIT Mizoram is calculated as bellow- Number of B. Tech students graduating every year = 150 Number of post graduate students graduating every year = 20 Number of Ph.D students passing every year = 10 Total number of students passing per year = 180 Average salary packages per students = Rs. 5 Lakhs per annum. Total salary of all students after graduating = Rs. 5 Lakhs x 180 = **Rs. 9 Cr**.
3	No. of population benefitted due to specific project	As per the Detailed Project Report	This project will enhance the Technical competence of students of Mizoram as well as external students across the country joining the Institute. The lump-sum monetary equivalent of the above

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			benefit is considered as **Rs. 5 Cr.**
4	Economic Benefits due to direct and indirect employment due to the project	The lump-sum monetary equivalent of the above benefit is considered as Rs. 5 Cr.	The number of temporary staff = 300 Average salary per year = Rs. 2 Lakhs The number of Regular staff = 132 Average salary per year = Rs. 15 Lakhs Total economic benefit from employment = Rs. (300*2+132*15)/100 Cr. **= Rs. 25.8 Cr**.
5	Economic Benefits due to Compensatory Afforestation	Benefits from such compensatory accruing over next 50 years monetised 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 estimation may be consulted.	Benefits of compensatory afforestation is huge and monetary equivalent is considered as **Rs. 1 Cr**.
TOTAL BENEFIT OF FOREST DIVERSION=			Rs. (5 + 9 + 5 + 25.8 + 1) Cr
			Rs. 45.8 Cr (approx.)

COST BENEFIT RATIO (CBA RATIO) $= \frac{BENEFIT}{COST}$

$= \frac{45.8}{14.61}$

CBA RATIO **= 3.13 : 1**

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