

Cost Benefit Analysis (CBA)

Name of the Project- Mahadev-Toloi-Pfutsaro road section-I (Ch. 0.000 to 108.030)

Total proposed area- 70.1866 ha

Division-Ukhrul/Senapati (Manipur)

Table A: Cases under which cost benefit analysis or Forest diversion required

S.NO	NATURE OF PROPOSAL	APPLICABLE/NOT LICABLE	APP	REMARK
1	All categories of Proposal Involving forest land up to 20 hectares in plains and up to 5 hectare in hills	Not Applicable		Not Applicable
2	Proposal for define installation purposes and prospecting (prospection only)	Not Applicable		Not Applicable
3	Habitation establishment of industrial units, tourist lodges complex and other building construction	Not Applicable		Not Applicable
4	All other proposals involving forest land more than 20 hectare in bills including roads, transmission line, minor, medium and major irrigation project, hydro projects, ,mining activity, railway lines, location specific installation like micro, wave station, auto repeater centers, TV tower etc.	Applicable		Benefit Cost Ratio has been calculated as per forest guideline.



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Table B : Estimation of cost of forest diversion

S.NO	Parameter	APPLICABLE/NOT APPLICABLE	REMARK
1	Ecosystem services losses due to proposed forest diversion	Applicable	NPV value has been taken as Rs. 7, 30,000 Lacs per hectare. Therefore losses :- 730000×70.1866 Rs. 512.36 lacs
2	Loss of animal husbandry productivity including loss of fodder	Applicable	Loss of animal husbandry duo to proposed diversion of very, moderate, and calculated below. Gross loss @6 tone/Ha./Year @ Rs.100/- per ton. Therefore loss of folder at estimated for about approximate 70.1866 ha Will be $70 \times 6 = 420 \times 100 = 42000/-$ 10% NPV 0.10×51.236 So considered amount of Rs. 51.656 lacs
3	Cost of human resettlement	Not Applicable	Nil human resettlement is required since no family residing in forest land
4	Loss of Public facilities and administrative infrastructure (Road, building, school, dispensaries, electric lines railways, etc) on forest land, which would require forest land if these facilities were diverted due to the project.	Not Applicable	No loss of public infrastructure and administrative infrastructure on the forest land.
5	Possession value of forest land diverted	Applicable	The circle rate adjoining area in the district is about 1.76 lakhs per hectare whereas 30% NPV Rs. 2.19 lakhs. Which is less than 1.076 lakhs per hectare. Their for Possession value of forest land will be $70.1866 \times 1.76 = 123.52$ lacs Rs. 123.52 lacs
6	Cost of suffering to ousters	Not Applicable	Not Applicable
7	Habitat fragmentation cost	Applicable	Habitat fragmentation cost of NPV 50% i.e. Rs.256.12 lacs
8	Compensatory afforestation and soil & moisture conservation cost.	Applicable	350 lacs
	Total		1293.656 lacs



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TABLE C: Existing Guidelines for estimating benefits of forest- diversion in CBA

S.NO	Parameter	Given Guidelines	Evaluation
1	Increase in productively attribute to the specific project	To be quantified & expressed in monetary terms avoiding double counting	The objective of the project is to provide improve connectivity to the Manipur and Nagaland via interior villages of both states as well as to provide a shortest possible route and to enable to exploration of rich agriculture/horticulture/forest and natural produces as well. Again directly the project will have the potential for employment generation for local people 1000 family's days. With this project, the local people will get a source of business and there will be a profit of 1000 Rs.per day. Will get a total business profit of in 5 years from Monetary benefits due to increase in productivity is. 1825 lacs
2	Benefit to economy due to specific project	The incremental economic benefit in monetary terms due to the activities attributes to the specific project.	Economic benefit in terms of increase in trade, saving in vehicular operation and maintenance cost better connectivity, safer journey to commuter and saving of travel time. Improved road connectivity helps in better implementation and management of government schemes it will provide last and economical transport of goods, After completion of project, the local people and industries situated in the area will be greatly benefited. The widening of project road will provide safe and fast, economical and environment friendly transportation to the state, which in term will accelerate the rate of growth in this area. Fuel saving:- Total 5 years benefit 547.5 lacs
3	No. of population benefits due to specific project	As per Detailed Project Report	The project road Section-I passes though tehsil Ukhrul north, Ukhrul South and Ukhrul central, in Ukhrul district & Purul district in Senapati (Manipur). Total area is 2,761 km ² . Ukhrul north, Ukhrul South and Ukhrul central has a population of 1,50,742 (as per 2011 census) peoples. There are 19694 houses in the tehsils. There are about 57 villages in Ukhrul north, Ukhrul South and Ukhrul central tehsils. This project is being made for rural development and Farmers of rural areas will also have an impact on the economic system.
4	Economic benefits due of direct and indirect employment due to the project	As per Detailed Project Report	Permanente/Regular employee generated (Number of person) : 40 Temporary Employment generated (Number of person-days) : 42000 (i) Skilled – 4000 (ii) Semi-skilled- 10000 (iii) Unskilled – 28000 A total of man day's 42000 employment will be generated during construction phase for labour average wages inclusive of all cost: Skilled- 4000*1400 = 56.00 lacs Semiskilled-10000*1000 = 100.00 lacs Unskilled- 28000*600 = 168.00 lacs Total= 324.00 lacs
5	Economic benefit 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. For benefit of CA the guideline of the Ministry of NPV estimation may be consulted.	In lieu of total trees to be remove from proposed Row in forest land along the project road it is proposed to undertake at least twice of affected area as Compensatory afforestation and forest conservation act 1980 So the net productivity will increase. The Compensatory Afforestation proposal will be done in 50 hectare of forest land. Which is down the line would be having a density of minimum 0.6 The ecological value for a 50 years period for the ministry density of 10 is Rs. 172.5 Lacs per hectare .By may considering minimum 0.6 density the ecological gain for the project would be 249.2*0.6 = 149.5 lacs Rs.
Total			2846.00 lacs


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Total cost benefit ratio loss and benefit of the project


S.No.	Loss in lakhs	Benefit in lakhs
1	1293.656 lacs	2846.00 lacs

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 environmental cost and other losses caused due to diversion of forest land for non- forestry purposes. The NPV represents the net value of various ecosystem services and other environmental 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, hydropower, railways, roads, wind, and transmission lines and mining etc are unlikely to be returned and remains in possession of the user agencies. Therefore 30% of the net present value (NPV) of forest land diverted or market rate of adjoining area in the district should be added as a cost component as "possession value of forest land" in addition to the environmental costs due to loss of forests


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