

APPENDIX - I

Name of Project: Widening & Up-gradation of NH 54 to 2-Lane with paved shoulder and geometric improvements from Km 125.0 to Km 250.0 in the State of Mizoram				
User Agency		NHIDCL		BO-Aizawl
COST BENEFIT ANALYSIS for Package-2; Additional Reserve Forest Area				
Calculation of Cost Part				
Table-B: Estimation of cost of forest diversion				
SN	Parameters	Criteria	Amount (In Rs)	Remarks
1	Ecosystem 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 the forest land being diverted as prescribed by the Central Government (MoEF& CC).	732420	Details are at Enclosure-I
		<i>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</i>		
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	73242	Taken as 10% of NPV
3	Cost of human resettlement	To be quantified and expressed in monetary terms as per approved R&R plan	NIL	There is no human resettlement in the forest land along the project road & in Non-forest land; the Assessment is being made by Competent Authority under NH Act, 1956
4	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 were diverted due to the project	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion	NIL	There are no public facilities and administrative infrastructure Roads, Building, School, Dispensaries, Electric Lines, Railways etc) on Forest land.
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 as possession value of forestland whichever is maximum	219726	30 % of NPV



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COST BENEFIT ANALYSIS for Package-2; Additional Reserve Forest Area

Calculation of Cost Part

Table-B: Estimation of cost of forest diversion

SN	Parameters	Criteria	Amount (In Rs)	Remarks
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 two years had he not been shifted.	NIL	The Road alignment has been kept to have minimum impact on agricultural land. No grazing land is going to be affected so there is no suffering to oustees.
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.	366210	50 % of NPV
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	97500	Details are at Enclosure-II
Total			1489098	



Calculation of Benefit Part				
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S.No	Parameters	Criteria	Amount (In Rs)	Remarks
1	Increase in productivity attribute to the specific project	To be quantified & expressed in monetary terms avoiding double counting	50,00,000	Increase in trade and commerce in the state of Mizoram and neighboring states as the safety and security of country as a whole including prevention of smuggling valuable goods and establishment of law and order in the State will result subsequent economic growth as well as radical development of the society. This benefit parts cannot be directly quantified. However, approx amount will be around Rs 50 Lakhs
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	5,00,00,000	Long term planning has to be kept in view for economic and social benefit as a result of economic activities growing in the State and whole country. Therefore, this project is expected to serve tremendous economic and social causes. Economic growth in project district considering 0.1% enhances growth of the state GDP against normal benefit will be for 5 years.
				(0.1 Lacs Crore/annum in 2019-20 However, approx amount= Rs. $(10000 \times 0.001 \times 5 \times 0.1) = 5.0$ Crores NB: Considered the 0.1 factor on the total amount
3	No. of population benefited due to specific project	Total no. of potential benefited is 35895.	25,00,000	All those travelling on the road can save on fuel and time, reducing pollution and carbon emission. For those residing on the region will be less exposed to the air and noise pollution. Small scale business & other trade likely to be generated as soon as this highway is developed. This benefit part cannot be directly quantified. However, approx amount will be Rs 25 Lakhs.



Calculation of Benefit Part				
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S.No	Parameters	Criteria	Amount (In Rs)	Remarks
4	Economic benefits due to of direct and indirect employment due to the project		1,35,00,000	Approximately 200 Nos of Villagers likely to be employed on self employment basis due to likely development of small scale industries as well as general development of economy is expected to occur due to this highway development. This amount cannot be directly quantified. However, this is taken as (250 days/year x 200 nos x 270 INR) Rs. 1.35 Crores
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 afforestation. *For benefits of CA the guideline of the Ministry for NPV estimation may be consulted.	25,00,000	The Benefits from compensatory afforestation accruing over next 50 years will result into yield of a large volume of timbers, fruits and enviornmental growth. However, these benefits cannot be exactly calculated. The approx amount will be Rs. 25 Lakhs
		Total	7,35,00,000	
			COST	BENEFIT
			1489098	73500000
		COST BENEFIT RATIO	1	49.36

