

COST BENEFIT ANALYSIS

NAME OF THE PROJECT :	Preparation of Detailed Project Report and providing pre-construction services in respect of 2 laning of Peren-Jalukie section on NH 129A on Engineering, Procurement and Construction mode in the state of Nagaland.
NATURE OF PROPOSAL :	Diversion of Forest Land under FCA, 1980 for road widening.
PURPOSE:	This Cost Benefit Analysis is being undertaken for Proposed Diversion of Forest Land being affected due to widening and improvement of Peren-Jalukie Road Section of NH 129A into 2 laning of existing 35.626 km from 109+767 to 145+393 in the state of Nagaland under NHIDCL.

TABLE - A: ESTIMATION OF COST OF FOREST DIVERSION

Sl.	Parameters	Description		
1	Eco-system Services Losses due to Proposed Forest Diversion		Rs. 3.603 Lakhs	
	1) Propose Area to be diverted		0.450 Ha	
	2) Crown density of the proposed area		0.60 %	
	3) Forest Cover Area		Area in Hactare	
	(i) Very Dense Forest		0.000	
	(ii) Moderately Dense Forest		0.183	
	(iii) Open Forest		0.060	
	(iv) Scrub		0.207	
		Total Forest Diversion Area =	0.450	
	4) As per Supreme Court's Order dated 28.03.2008 in WP(C) No. 202/1995			
	(i) Forest type of the proposed diversion area : Eco-Class I			
	(ii) Net Present Value :			
		Forest Class	Area (Ha)	Rate (Lakhs/Ha)
		(a) Very Dense Forest	0.000	10.43
		(b) Moderately Dense Forest	0.183	9.39
		(c) Open Forest	0.060	7.30
		(d) Scrub	0.207	6.99
			Total =	3.603
2	Loss of animal husbandry productivity, including loss of fodder	10% of NPV = 10% of Rs. 3.603 Lakhs =		0.360 Lakhs
3	Cost of human Resettlement.	Nil		
		The cost of Human Resettlement for diversion of Forest Land is Nil.		
4	Loss of public facilities and administrative infrastructure (Roads, buildings School, dispensaries, electric lines, railways etc) on forest land, or which would require forest land if these facilities were diverted due to the project.	Electric lines & Poles, Water pipe lines, Water Tank etc. public facilities which are being affected have been considered in the budget. Also the budgets for affected CRSs have been considered.		
5	Possession Value of Forest Land Diverted	30% of NPV = 30% of Rs. 3.603 Lakhs =		1.081 Lakhs
6	Suffering to oustees	Nil		
		The widening and strengthening of the project road is to be undertaken on the adjoining land of the existing road, so there are no sufferings to oustees.		


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7	Habitat Fragmentation Cost	50% of NPV = 50% of Rs. 3.603 Lakhs =	1.802 Lakhs
8	Compensatory Afforestation and Soil & Moisture Conservation Cost	Compensatory Afforestation cost of 0.9 Ha land for 0.45 Ha proposed Forest Land Diversion = Rs.1.8 Lakhs (including Rs.0.18 Lakhs as soil & moisture conservation cost which is 10% of CA item work cost for a maintenance period of 8 years)	1.800 Lakhs
TOTAL (TABLE - A: COST OF FOREST DIVERSION)			8.646 Lakhs

TABLE - B: ESTIMATION OF BENEFITS OF FOREST DIVERSION

Sl.	Parameters	Description																																																				
1	Increase in Productivity and Economy	'[(18000*(1.05)^3) x (1.83/30) x {((10%*5 + 5%*10 + 2%*15))'	Economic Improvement in the Project District (Peren) considering enhanced growth in the GDP against normal growth rate due to the project. This benefit will be for 5 years at enhanced rate of 10%, 10 years for enhanced 5% rate & 15 years for enhanced rate of 2% (Current GDP of the state @ 18,000 Crore / annum in 2011-12, Population of Nagaland is 22.8 Lacs and Peren District is 9744).	1,652.394 Lakhs																																																		
2	Benefits on vehicle operation & maintenance cost due to improvement of the project Road	38 Cr. per year x 30 years for Saving in VOC		1,14,000.00 Lakhs																																																		
3	No. of Population benefited due to specific project	Population along NH-129A Peren District (9744) shall be benefited from the project. In addition, the project will boost the agricultural and Industrial development of the surrounding area which will eventually boost the economic growth.																																																				
4	Economic benefits due to direct and indirect employment due to the project	<p>1. Employment Potential – Construction</p> <table border="1"> <thead> <tr> <th>Type</th> <th>No.</th> <th>Rate / Day</th> <th>Years</th> <th>Amt (Lakhs)</th> </tr> </thead> <tbody> <tr> <td>Skilled</td> <td>50</td> <td>600</td> <td>3</td> <td>328.500</td> </tr> <tr> <td>Semi Skilled</td> <td>16</td> <td>350</td> <td>3</td> <td>61.320</td> </tr> <tr> <td>Technical</td> <td>3</td> <td>2,500</td> <td>3</td> <td>82.125</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>471.945</td> </tr> </tbody> </table> <p>2. Employment Potential – Maintenance</p> <table border="1"> <thead> <tr> <th>Type</th> <th>No.</th> <th>Rate / Day</th> <th>Years</th> <th>Amt (Lakhs)</th> </tr> </thead> <tbody> <tr> <td>Skilled</td> <td>3</td> <td>600</td> <td>30</td> <td>197.100</td> </tr> <tr> <td>Semi Skilled</td> <td>2</td> <td>350</td> <td>30</td> <td>76.650</td> </tr> <tr> <td>Technical</td> <td>1</td> <td>2,500</td> <td>30</td> <td>273.750</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>547.500</td> </tr> </tbody> </table> <p>Total Employment Potential = 1,019.45 Lakhs</p>	Type	No.	Rate / Day	Years	Amt (Lakhs)	Skilled	50	600	3	328.500	Semi Skilled	16	350	3	61.320	Technical	3	2,500	3	82.125					471.945	Type	No.	Rate / Day	Years	Amt (Lakhs)	Skilled	3	600	30	197.100	Semi Skilled	2	350	30	76.650	Technical	1	2,500	30	273.750					547.500		
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5	Benefit from Compensatory Afforestation	432 Mandays as per prevailing wage rate for a maintenance period of 8 years of @ present wage rate Rs. 225 Mday =		0.972 Lakhs																																																		
TOTAL (TABLE - B: BENEFIT OF FOREST DIVERSION)				1,16,672.811 Lakhs																																																		

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