

COST BENEFITS ANALYSIS

a) Parameters for Evaluation of Loss of Forests

Sl.	Parameters	Description
1	Loss of value of timber, fuel wood and minor forest produce on an annual basis including loss of man hours per annum of people who derived livelihood and wages from the harvest of these commodities. Also Compensatory Afforestation Cost	<ul style="list-style-type: none"> Net Present Value of Diverted Forest Land <ul style="list-style-type: none"> @ Rs. 11 Lacs/Ha x 1.828Ha = Rs. 0.20 Crore CAMPA (Present Value) <ul style="list-style-type: none"> @ Rs. 4 Lacs/Ha x 1.828Ha = Rs. 0.07 Crore Total = Rs. 0.27 Crore
2	Loss of animal husbandry productivity, including loss of fodder	Forest area of Bhojpur district is required for the road widening. There is no loss of animal husbandry including the loss of fodder. The road side vegetation is not being used as fodder.
3	Cost of human resettlement.	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 CPRs have been considered.
5	Environmental losses: (Soil erosion, effect on hydrological cycle, wildlife habitat, microclimate upsetting of ecological balance)	The total area of the forest land required for the widening of the project is approximately 1.828 Ha. However these would not be any ecological disbalance as only road side plantation is being affected. Suitable Environmental Management Plan has been proposed and Mitigation for adverse effects has been considered. Also three times of the number of trees felled will be planted.
6	Suffering to oustees	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

COST BENEFITS ANALYSIS

b) Parameters for Evaluation of Benefit, not with standing Loss of Forests

Sl.	Parameters	Description
1	Increase in productivity attributable to the specific project	In lieu of total trees to be affected in forest land, it is proposed to bear the cost of plantation of at least three trees as compensatory afforestation as per Forest (Conservation) Act 1980. Apart from compensatory plantation; it has been proposed to develop green belt by planting trees in side of the project road (if suitable considering space available) throughout the entire project stretch. There will be additional plantation of trees in others non forest area.
2	Benefits of economy	The project will give improved connectivity of the local area. Economic Improvement in the Project districts considering 1% enhanced growth rate in the GDP against normal growth rate due to the project. This benefit will be for 5 years at enhanced rate of 0.5% and 10 years for enhanced 0.25% rate (Current GDP of the project area @ 100 Cr/Annum in 2014-15 and expected GDP of Rs.110 Cr/Annum 2017-18)
3	No. of population benefited	Total No. of population benefited are 3 Lacs (approx) (People of district near project area as well as through traffic)
4	Employment Potential	Approx 8 skilled workers will be appointed / benefitted during the construction period of 2 years. Additional 15 semi skilled workers will be appointed for construction. 2 Technical People will also be involved.
5	Cost of acquisition of facility on non-forest land wherever feasible	Non Forest Land Acquisition (with structures) cost is 30 Crore which has been considered in Project Cost in Cost-Benefit Analysis.
6	Loss of (a) agricultural & (b) animal husbandry production due to diversion of forest Land	Nil
7	Cost of rehabilitating the displaced person as different from compensatory amounts given for displacement.	Budget for Rehabilitation and Resettlement in Forest Area is Nil. However the Non Forest LA cost is 30 Crore which has been considered in Project Cost in Cost-Benefit Analysis.
8	Cost of supply of free fuel wood to workers residing in or near forest area during the period of construction	No fuel wood will be supplied to the workers during the construction period. Contractor will supply LPG for the cooking and other purposes in the worker's camp to the workers

CALCULATION OF COST BENEFIT RATIO				
KM 118.089 to KM 119.572 of NH-30 Road				

COST				
Sl.	Parameters	Quantity	Rate	Amount (Rs. Cr.)
1	Net Present Value of Diverted Forest Land	1.828	1,100,000	0.20
2	Compensatory Afforestation	3.656	400,000	0.15
3	Project Cost (Civil + Agency Charge + LA + Utility + Forest)			96.49
TOTAL				96.84

BENEFITS				
Sl.	Parameters	Quantity	Rate	Amount (Rs. Cr)
1	Economic Improvement in the Project district considering 1% enhanced growth rate in the GDP(Local area) against normal growth rate due to the project. This benefit will be for 5 years at enhanced rate of 0.5% and 10 years for enhanced 0.25% rate (Current GDP of the state @ 100 Cr/Annum in 2014-15 and expected GDP of the region of Rs110 Cr/Annum 2017-18)	110 x (0.5%x5 + 0.25%x10)		5.50
2	Benefits on vehicle operation & maintenance cost due to improvement of the project Road	18.42 cr x 30 years		552.60
3	Employment Potential - Construction			
	Skilled Labour	8 x 600 x 365 x 2		0.35
	Semi-skilled Labour	15 x 350 x 365 x 2		0.38
	Technical People	2 x 2000 x 365 x 2		0.29
4	Employment Potential - Maintenance			
	Skilled Labour	3 x 600 x 365 x 30		1.97
	Semi-skilled Labour	10 x 350 x 365 x 30		3.83
	Technical People	1 x 2000 x 365 x 30		2.19
TOTAL				567.12

COST BENEFIT RATIO	1: 6
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