

Name of Project :- Rehabilitation & widening work for 2-Lane with paved shouldering of Existing National Highway 80 alignment from Km. 70.150 to Km 121.025 Munger-Bariyarpur-Sultanganj-Bhagalpur Section in the state of Bihar

Cost Benefit Analysis as per Guidelines for forest land

Table-A : Cases under which a cost-benefit analysis for forest diversion are

Sl. No.	Nature of proposal	Applicable/ not applicable	Remarks
1	All categories of proposals involving forest land upto 20 hectares in plains and upto 5 hectare in hills.	Not applicable	These proposals may be considered on a case to case basis and value judgement.
2	Proposal for defence installation purposes and oil prospecting (prospecting only).	Not applicable	In view of national Priority accorded to these sectors, the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non-forest use.
3	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable	These activities being detrimental to protection and conservation of forest, as a matter of policy, such proposals would be rarely entertained.
4	All other proposals involving forestland more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centres, TV towers etc.	Applicable (Roads)	Diversion of 34.212 Ha PF land for upgradation to 2-lane with paved shoulder from design Km 70.150 to Km 121.025 of NH-80 in the state of Bihar.

ABH/
08/07/2022

E.E., N.H. Div., Bhagalpur

Table-B : Estimation of Cost of forest Diversion

S.No.	Parameters	Quantity	Rate	Amount (Rs. Lakh.)	Remarks
1	Eco-system Services Losses Due to proposed forest Diversion	34.212	957780	327.68	APCCF (Campa)-cum-Nodal Officer (Forest Conservation) letter No. 280 dt. 04.04.2022
2	Loss of animal husbandry productivity, including loss of fodder			32.768	To be Quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum
3	Cost of human resettlement.			0	land is Nil.
4	Loss of public facilities and administrative infrastructure (Roads, building School, dispensaries, electric lines, Railways etc.) on forest land, or which would require forest land if these facilities were diverted due to the project.			1170	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	Possession Value of forest Land Diverted	34.212	287334	98.3	30% of Npv
6	Suffering to oustees.			0	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
7	Habitat Fragmentation Cost			163.84	Taken as 50% of NPV
8	Compensatory Afforestation	68.424	146600	100.31	Rate deduced from APCCF (Campa)-cum-Nodal Officer (Forest Conservation) letter No. 280 dt. 04.04.2022
	Project Cost (Civil & Project Clearance)			47753.57	
Total				496	Crore


 08/07/2022
 E.E., N.H. Div.,
 Bhagalpur

Table C :- Parameters for Evaluation of benefits notwithstanding loss of forests.

Benefits				
Sl.	Parameters	Quantity	Rate	Amount (Rs. Cr.)
1	Increase in Productivity and Economics			978.00
				Remark Due to Upgradation of existing highway to two lane with paved shoulder configuration there will be overall development of the project area there would be easy and fast movement of the traffic, so that it will save time save fuel and maintenance cost of the vehicle. This will also result in reduction in congestion on road, saving in travel time and reduction in accident. I is assume that due to widening of road will result in improved traffic condition and saving in travel time will result in economic benefit of Rs. 978 crore.
2	Benefits to economy due to the specific project			131.55
				Remark Thr project usually contributes the growth of local economy by increased commercial, agricultural and tourist activities due to improvement of highway Following economic benefit due project are enlisted below : 1. Reduce pollution level due to better surface quality and traffic speed will be increased 80 Km/Hr. 2. Fuel Consumption is estimated to be reduce and saving in travel time 3. Provision of safety measures, Road furnitures along the road and truck lay bye and bus bays, necessary amenities provide reduction in accident 4. Vehicle operation cost will be reduced due to better transportation 5. Social economic growth of people unconnected in remote areas will take place Based on the economic analysis of the project, Economic Internal Rate of Return (EIRR) is as follows 24.7% of NPV = $0.247 \times 532.6 = 131.55$ Cr
3	No. of Population benefitted due to specific project			49,75,000
				Remark This road project directly benefits the people of Bhagalpur and Munger ie 49,72,041 (as per Aadhaar 2020) say 49,75,000 people. A large population of Bihar, Bengal and North-East states also get benefit of the project
4	Economic Benefits due to direct and indirect employment due to the project			8.34
				Remark Skilled 1100 no x Rs. 600/day x 30 x 2 Yrs = 3.96 Cr Semi skilled 800 no x Rs. 350/day x 30 x 2 Yrs = 1.68 Cr Technical People 180 no x Rs. 2500/day x 30 x 2 Yrs = 2.70 Cr
5	Benefit from Compensatory Afforestation			
				Remark NPV has been taken at the same rate as taken for calculation of cost
		68.424	957780	6.55
		Total		1,124.44 Crore
		Cost Benefit Ratio	Benefit/Cost	2.267
				1 : 2.27

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio

2.267

1 : 2.27

1,124.44 Crore

Benefit/Cost

Cost Benefit Ratio