

CONSTRUCTION DIVISION-2, PWD HAMIRPUR

Proposed Protected forest land to be diverted for 4- Lane widening and strengthening of Bilrayan - Panwari Road (SH-21) From Ch. No. 430.000 to 442.100 km, & Rath ByPass Road, in Forest Division: Hamirpur, District: Hamirpur & From Ch. No. 442.100 to 448.680 km, in Forest Division: Mahoba, District: Mahoba (Uttar Pradesh)

COST BENEFIT ANALYSIS

Purpose: This cost benefit analysis is being undertaken for proposed diversion of forest Land being affected due to construction of access controlled.

(a) Parameters for Evaluation of the loss of Forests

1.	Ecosystem Services losses due to Proposed forest diversion	Economic Value of Ecosystem services due to diversion of forest = Proposed Forest area x NPV Rate per Ha Net Present Value (NPV) for forest land of Eco-class III (density 0.3) = 6,26,000/- per Ha. Therefore, ecosystem services losses due to proposed diversion of protected forest land in Forest division Hamirpur of 29.88 Ha is = 29.88 x 6,26,000= 18704880/- And ecosystem services losses due to proposed diversion of protected forest land in Forest division Mahoba of 11.844 Ha is = 11.844 x 6,26,000= 7414344/- No. of Trees that will be affected due to proposed diversion of forest land are: 1885 trees in Forest division Hamirpur 619 trees in Forest division Mahoba so, total value of trees is 435696.00/-																
2.	Loss of animal husbandry, productivity including loss of fodder	Nil																
3.	Cost of human resettlement	No human displacement involved in forest area																
4.	Loss of public facilities and administrative infrastructure (roads, buildings, schools, dispensaries, electric lines, railways etc) on forest land or which would require forest land if these facilities were diverted due to the Project.	There are no Public facilities and administrative infrastructure (roads buildings, schools, dispensaries, electric lines, railway etc.) on proposed diverted forest land.																
5.	Environmental losses (soil erosion, effect on hydrological cycle, wild life habitat, microclimatic upsetting of ecological balance)	As per Forest (Conservation) Act, 1980 the environmental loss for a 50 years period for the density of 1.0 is INR 126.74 Lacs per hectare, The division wise environment loss is as follows:- <table><tr><th>Division</th><th>Proposed Forest Area (ha)</th><th>Density</th><th>Environmental Loss in INR.</th></tr><tr><td>Hamirpur</td><td>29.88</td><td>0.3</td><td>113609736.00</td></tr><tr><td>Mahoba</td><td>11.844</td><td>0.3</td><td>45033256.80</td></tr><tr><td>Total</td><td colspan="3">158642992.80/-</td></tr></table> Hence, on calculation the current total environmental loss is INR =38,02,200 per hectare and Total environmental loss for the project is 1586.43Lakhs.	Division	Proposed Forest Area (ha)	Density	Environmental Loss in INR.	Hamirpur	29.88	0.3	113609736.00	Mahoba	11.844	0.3	45033256.80	Total	158642992.80/-		
Division	Proposed Forest Area (ha)	Density	Environmental Loss in INR.															
Hamirpur	29.88	0.3	113609736.00															
Mahoba	11.844	0.3	45033256.80															
Total	158642992.80/-																	


अमित कुमार
अवर अभियन्ता (सिविल)
निर्माण खण्ड-2, लो0नि0वि0
हमीरपुर

6.	Possession value of forest land	30% of environment costs due to loss of forests = 30% x 158642992.80/- = 47592897.840/-
7.	Suffering to outsee	Nil

Therefore, Current Environment Net loss

= 26119224.0 (Ecosystem Losses) + 435696.00 (Trees Values) + 158642992.80 (Environmental Loss)
+ 47592897.840 (Possession Value of forest land) = INR **232790810.64/-**

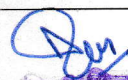
Expenditure for development and maintenance of the project for 15 years

= Cost of Project + Renewal cost of BC for two cycle
= INR 999814000 + 499907000
= INR 1499721000.00/-

Net Total Losses/Cost = INR 232790810.64 + 1499721000.00
= INR 1732511810.64/-

(b) Parameters for evaluation of Benefit Not withstanding Loss

Sr.No.	Parameter	Description
1	Increase in productivity attributable to the specific Project	In Lieu of total area to be affected in forest land it is proposed to undertake at least twice of the affected trees as compensatory afforestation as per Forest (Conservation) Act, 1980. Since, due to the current project there will be total 2504 no. of felling of trees thus; total 5008 trees are to be planted as per compensatory afforestation. The CA will be done in 83.448 Ha of degraded forest land, which is down the line after ten years would be having the density of 1.0. The Compensatory Afforestation cost will be INR 14519952.00/- The ecological value for a 50 years period of density of 1.0 is 126.74lac per hectare. By considering the min 0.5 density the ecological gain for this project would be INR 528809976.00/-.
2	Benefits to economy due to specific project	Socio economic benefits due to the proposed road strengthening project include: • Reduce fuel consumption due to better surface quality. • Traffic speed increase which save time of road users. • Fuel consumption is estimated to be reduced. • Vehicle operating cost will reduce due to better transporation. • In general there will be enhancement of socio-economic condition of the area along the project corridor. The overall mission is to increase the GDP of the said region and make it comparable with the nation GDP.
3	No. of population benefited due to specific project	The Population of 125000 People from district Hamirpur & Mahoba will be benefited directly or indirectly.


 अभिलेखित कुमार
 अवर अधीक्षक (सिविल)
 निर्माण विभाग, खण्ड-2, पोस्ट-10, वि०
 हमीरपुर

4	Economic benefit due to direct and indirect Employment Potential	Approximately 2 man days of permanent employment and 10000 man days of temporary employment will be generated due to the Project.				
5	Economic benefit due to specific Project	The benefit of Economy shown in table below				
		Project Details	Increasing Rate of Cost year	Project cost after 50 Years	Current Cost Involve in Construction of Project	Net Profit in 50year
		Proposed Protected forest land for 4-Lane widening and strengthening of Bilrayan - Panwari Road (SH-21) From Ch. No. 430.000 to 442.100 km, & Rath ByPass Road, in Forest Division: Hamirpur & From Ch. No. 442.100 to 448.680 km, in Forest Division: Mahoba	8%	49990.7Lac	9998.14Lac	39992.56Lac
		So benefit of economy in 50 years =39992.56Lac. GDP will increase 0.04%(39992.56/923116) current GDP of Hamirpur. Saving due to less consumption of fuel and fatalities=1 crore Total NPV of the project = 41.724 x 6,26,000= 26119224.0/- So, total NPV for the project is INR 261.19224Lacs. The result of economic evaluation show that the proposed development of project is economically viable with EIRR 13.24%				

Therefore Project Benefit

= 14519952.00 (CA cost) + 528809976.00 (Ecological value) + 3999256000.00 (Economic gain) + 10000000.00 (Savings) + 26119224 (NPV)

Net Profit=INR 4578705152.00/-

Therefore Benefit cost ratio = **4578705152.00/1732511810.64**
= **2.643**


 (Authorised Signatory)
 अमित कुमार
 ज्येष्ठ अभियन्ता (सिविल)
 निर्माण खण्ड-2, लो0नि0
 C.D-2, P.W.D. Hamirpur