Proposed Protected forest land to be diverted for 4- Lane widening and strengthening of Bilrayan - Panwari Road (SH-21) From Ch. No. 399.60 to 427.00 km, (Chikasi to Rath), in Forest Division: Hamirpur, District: Hamirpur (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 of 49.32 Ha is = 49.32 x 6,26,000= 30874320.0/- No. of Trees that will be affected due to proposed diversion of forest land are 2611 trees so, total value of trees is 454314.00/-
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:-

Division	Proposed Forest Area (ha)	Density	Environmental Loss in INR.
Hamirpur	49.32	0.3	187524504.00
Total			187524504.00/-

Hence, on calculation the current total environmental loss is INR =38,02,200 per hectare and
Total environmental loss for the project is 1875.245Lakhs.

6.	Possession value of forest land	30% of environment costs due to loss of forests = 30% x 187524504.00/- = 56257351.20/-
7.	Suffering to outsee	Nil

Therefore, Current Environment Net loss

= 30874320.0 (Ecosystem Losses) + 454314.00 (Trees Values) + 187524504.00 (Environmental Loss)

+ 56257351.20 (Possession Value of forest land) = INR **275110489.20/-**

Expenditure for development and maintenance of the project for 15 years

= Cost of Project + Renewal cost of BC for two cycle

= INR 1206289000 + 603144500

= INR 1809433500.00/-

Net Total Losses/Cost = INR 275110489.20 + 1809433500.00

= INR 2084543989.20/-

(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 affected forest land area is 49.32 Ha and total 2611 no. of felling of trees. The CA will be done in 98.64 Ha of degraded forest land thus; total 108504 trees (1100 trees per Ha will be planted) are to be planted as per compensatory afforestation which is down the line after ten years would be having the density of 1.0. The Compensatory Afforestation cost will be INR 17163360.00/- 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 625081680.0/-.
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 transportation. • 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.

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

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
Protected forest land to be diverted for 4-Lane widening and strengthening of Bilrayan - Panwari Road (SH-21) From Ch. No. 399.60 to 427.00 km, (Chikasi to Rath), in Forest Division: Hamirpur, District: Hamirpur (Uttar Pradesh)	8%	60314.45Lac	12062.89Lac	48251.56Lac

So benefit of economy in 50 years =48251.56Lac.
GDP will increase 0.05%(48251.56/923116) current GDP of Hamirpur.
Saving due to less consumption of fuel and fatalities=1 crore
Total NPV of the project = 49.32 x 6,26,000= 30874320.0/-
 So, total NPV for the project is INR 308.7432Lacs.
The result of economic evaluation show that the proposed development of project is economically viable with EIRR 12.13%

Therefore Project Benefit
= 17163360.00 (CA cost) + 625081680.0 (Ecological value) + 25478400000.00 (Economic gain) + 10000000.00 (Savings) + 30874320.0 (NPV)

Net Profit=INR 5508275360.00/-

Therefore Benefit cost ratio = **5508275360.00/2084543989.20**
                                                  = **2.64**

23/07/20
राज कुमार साहू
अवर अभियन्ता (सिविल)
Raj Kumar Sahu
निर्माण खण्ड-2, लो०नि०वि०
हमीरपुर
Junior Engineer
C.D-2, P.W.D. Hamirpur