NORTHERN RAILWAY

Proposed Protected Forest Land to be Diverted For Proposed new 2nd line along with existing Railway line between (Km. No. 847.170 to 934.450) under Jhangai - Pratapgarh - Amethi Railway Track Doubling Project of N. Railway passing through Districts: Jaunpur, Pratapgarh & Amethi (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 0.1) = 6,26,000/- per Ha. Therefore, division wise ecosystem services losses due to proposed diversion of forest land are as follows:

Division	Proposed Forest Area (ha)	NPV Rate	Ecosystem services Losses in INR.
Jaunnpur	11.5778	626000/-	7247702.8
Pratapgarh	29.5555	626000/-	18501743
Amethi	6.1698	626000/-	3862294.8
Total			29611740.6/-

No. of Trees that will be affected due to proposed diversion of forest land are 450 in Jaunpur Division, 2673 in Pratapgarh Division and 2816 trees in Amethi Division.

Therefore, total value of trees is = 1033386.0/-

2.	Loss of animal husbandry, productivity including loss of fodder	Nil
3.	Cost of human resettlement	Nil
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,

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The division wise environment loss is as follows:-

Division	Proposed Forest Area (ha)	Density	Environmental Loss in INR.
Jaunnpur	11.5778	0.1	14673703.72
Pratapgarh	29.5555	0.1	37458640.70
Amethi	6.1698	0.1	7819604.52
Total			**59951948.94/-**

Hence, on calculation the current total environmental loss is INR =38,02,200 per hectare and
Total environmental loss for the project is 599.52 Lakhs.

6.	Possession value of forest land	30% of environment costs due to loss of forests = 30% x 59951948.94/- = 17985584.682/-
7	Suffering to outsee	Nil

Therefore, Current Environment Net loss
= 29611740.6 (Ecosystem Losses) + 1033386.0 (Trees Values) + 59951948.94 (Environmental Loss) +
17985584.682 (Possession Value of forest land) = INR **108582660.22/-**

Expenditure for development and maintenance of the project for 15 years
= Cost of Project + Renewal cost of BC for two cycle
= INR 7197600000 + 3598800000
= INR 10796400000.00/-

Net Total Losses/Cost = INR 108582660.22 + 10796400000.00
= INR 10904982660.22/-

(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 total diverted forest land area is 47.30310 Ha 5939 no. of felling of trees. Thus, The CA will be done in 94.6062 Ha of degraded forest land and total 94606 trees 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 16461478.80/- 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 599519489.40/-.
2	Benefits to economy due to specific project	Socio economic benefits due to the railway line project include: • Doubling of Jaunpur – Pratapgarh - Amethi route will allow shifting of traffic and thereby decongestion it. • The project will generate employment to several unemployed, thus reducing the rate of unemployment and will lead to increase in GDP of India. • Improve punctuality of trains & less wear and tear of existing rail line will benefit to overall growth of country.

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		• 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 5000000 People from districts Jaunpur, Pratapgarh & Amethi will be benefited directly or indirectly.
4	Economic benefit due to direct and indirect Employment Potential	Approximately 100 man days of permanent employment and 10,000 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 Project	Net Profit in 50year
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So benefit of economy in 50 years =287904.0Lac.
GDP will increase @0.416 (287904/691821) current GDP of Pratapgarh.
Saving due to less consumption of fuel and fatalities=100 crore
Total NPV of the project = 47.30310 x 6,26,000 = 29611740.6/-
The result of economic evaluation show that the proposed development of project is economically viable with EIRR 13.25%

Therefore Project Benefit
= 16461478.80 (CA cost) + 599519489.40 (Ecological gain) + 28790400000.00 (Economic gain) + 1000000000.00 (Savings) + 29611740.6 (NPV)
Net Profit=INR 30435992708.80/-

Therefore Benefit cost ratio = **30435992708.80/10904982660.22**
                = **2.8**

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