

EAST CENTRAL RAILWAY

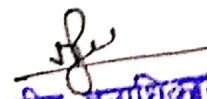
Proposed forest land to be diverted for Proposed new 2nd line along with existing railway line between (CH. No. 7.850 to CH. No. 28.500), Karaila to Shaktinagar doubling project of East Central Railway, Forest Division: Renukoot, District: Sonbhadra (Uttar Pradesh)


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 0.4) = 8,03,000/- per Ha. Therefore, ecosystem services losses due to proposed diversion of 56.7698 Ha is = 56.7698 x 8,03,000 = 45586149.4/- No. of Trees that will be affected due to proposed diversion of forest land is 1253 in Renukoot Division. Therefore, total value of trees is = 218022/-												
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, The division wise environment loss is as follows:- <table border="1"><thead><tr><th>Division</th><th>Proposed Forest Area (ha)</th><th>Density</th><th>Environmental Loss in INR.</th></tr></thead><tbody><tr><td>Renukoot</td><td>56.7698</td><td>0.4</td><td>287800178.08/-</td></tr><tr><td>Total</td><td></td><td></td><td>287800178.08/-</td></tr></tbody></table>	Division	Proposed Forest Area (ha)	Density	Environmental Loss in INR.	Renukoot	56.7698	0.4	287800178.08/-	Total			287800178.08/-
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क्षेत्रीय वन अधिकारी
अनपरा रेंज
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सहायक अभियंता (निर्माण)
Assistant Engineer (Cons)
पूर्व मध्य रेलवे सिंगरौली
East Central Railway Singrauli

		Hence, on calculation the current total environmental loss is INR =50,69,600 per hectare and Total environmental loss for the project is 2878.0017Lakhs.
6.	Possession value of forest land	30% of environment costs due to loss of forests = 30% x 287800178.08 /- = 86340053.424/-
7.	Suffering to ousteers	Nil

Therefore, Current Environment Net loss

= 45586149.4 (Ecosystem Losses) + 218022 (Trees Values) + 287800178.08 (Environmental Loss) +
86340053.424 (Possession Value of forest land) = INR 419944402.90/-


Expenditure for development and maintenance of the project for 15 years


= Cost of Project + Renewal cost of BC for two cycle
= INR 5285700000 + 2642850000
= INR 7928550000.00/-

Net Total Losses/Cost = INR 419944402.90+ 7928550000.00
= INR 8348494402.90/-

(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 1253 no. of felling of trees thus; total 2506 trees are to be planted as per compensatory afforestation. The CA will be done in 114 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 35704800.00/- 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 722418000.00/-.


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2	Benefits to economy due to specific project	<p>Socio economic benefits due to the railway line project include:</p> <ul style="list-style-type: none"> • Karaila to Shaktinagar route of east central Railway is heavily congested. Doubling of this route will allow shifting of traffic and thereby decongestion it. • Faster goods traffic will result in smooth coal movement to power plant. • 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. • In general there will be enhancement of socio-economic condition of the area along the project corridor. <p>The overall mission is to increase the GDP of the said region and make it comparable with the nation GDP.</p>										
3	No. of population benefited due to specific project	The Population of 1500000 People from district Sonbhadra will be benefited directly or indirectly.										
4	Economic benefit due to direct and indirect Employment Potential	Approximately 1000 man days of permanent employment and 12,00,000 man days of temporary employment will be generated due to the Project.										
5	Economic benefit due to specific Project	<p>The benefit of Economy shown in table below</p> <table border="1"> <thead> <tr> <th>Project Details</th> <th>Increasing Rate of Cost year</th> <th>Project cost after 50 Years</th> <th>Current Cost Involve in Construction Project</th> <th>Net Profit in 50year</th> </tr> </thead> <tbody> <tr> <td>Forest Land Proposed to be diverted for new 2nd line between (CH. No. 7.850 to CH. No. 28.500), Karaila to Shaktinagar doubling project of East Central Railway, Forest Division: Renukoot, District: Sonbhadra</td> <td>8%</td> <td>264285Lac</td> <td>52857Lac</td> <td>211428Lac</td> </tr> </tbody> </table> <p>So benefit of economy in 50 years =211428Lac. GDP will increase 0.23%(211428/923116) current GDP of Sonebhadra. Saving due to less consumption of fuel and fatalities=50 crore</p>	Project Details	Increasing Rate of Cost year	Project cost after 50 Years	Current Cost Involve in Construction Project	Net Profit in 50year	Forest Land Proposed to be diverted for new 2 nd line between (CH. No. 7.850 to CH. No. 28.500), Karaila to Shaktinagar doubling project of East Central Railway, Forest Division: Renukoot, District: Sonbhadra	8%	264285Lac	52857Lac	211428Lac
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		<p>Total NPV of the project = 56.7698 x 8,03,000 = 45586149.4/- So, total NPV for the project is INR 455.8615Lacs.</p> <p>The result of economic evaluation show that the proposed development of project is economically viable with EIRR 15.2%</p>
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Therefore Project Benefit

= 35704800.00 (CA cost) + 722418000.00 (Ecological value) + 21142800000.00 (Economic gain) +
500000000.00 (Savings) + 45586149.4 (NPV)

Net Profit=INR 22446508949.40/-

Therefore Benefit cost ratio = $22446508949.40/8348494402.90$
= 2.689

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