


NORTHERN RAILWAY

Proposed Protected Forest Land to be Diverted For Proposed new 2nd line along with existing Railway line between (Km. No. 0.00 to 80.30) under Sitapur Cant – Roza Section Railway Track Doubling Project passing through Districts: Shahjahanpur, Hardoi, Lakhimpur Kheri & Sitapur (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	<p>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.</p> <p>Therefore, division wise ecosystem services losses due to proposed diversion of forest land are as follows:</p> <table><tr><th>Division</th><th>Proposed Forest Area (ha)</th><th>NPV Rate</th><th>Environmental Loss in INR.</th></tr><tr><td>Shahjahanpur</td><td>8.80</td><td>626000/-</td><td>5508800.0</td></tr><tr><td>Hardoi</td><td>6.1133</td><td>626000/-</td><td>3826925.8</td></tr><tr><td>South Kheri</td><td>24.060</td><td>626000/-</td><td>15061560.0</td></tr><tr><td>Sitapur</td><td>30.6259</td><td>626000/-</td><td>19171813.4</td></tr><tr><td>Total</td><td colspan="3">43569099.20/-</td></tr></table> <p>No. of Trees that will be affected due to proposed diversion of forest land are 58 in Shahjahanpur Division, 35 in Hardoi Division, 540 in South Kheri Division and 3658 trees in Sitapur Division.</p> <p>Therefore, total value of trees is = 746634.0/-</p>	Division	Proposed Forest Area (ha)	NPV Rate	Environmental Loss in INR.	Shahjahanpur	8.80	626000/-	5508800.0	Hardoi	6.1133	626000/-	3826925.8	South Kheri	24.060	626000/-	15061560.0	Sitapur	30.6259	626000/-	19171813.4	Total	43569099.20/-		
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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.	<p>There are no Public facilities and administrative infrastructure (roads buildings, schools, dispensaries, electric lines, railway etc.) on proposed diverted forest land.</p> <p> कार्यकारी इंजीनियर/निर्माण Executive Engineer/Const. उत्तर रेलवे, मुरादाबाद N. Railway, Moradabad</p>																								

5.	Environmental losses (soil erosion, effect on hydrological cycle, wild life habitat, microclimatic upsetting of ecological balance)	<p>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,</p> <p>The division wise environment loss is as follows:-</p> <table><tr><th>Division</th><th>Proposed Forest Area (ha)</th><th>Density</th><th>Environmental Loss in INR.</th></tr><tr><td>Shahjahanpur</td><td>8.80</td><td>0.3</td><td>33459360.00</td></tr><tr><td>Hardoi</td><td>6.1133</td><td>0.3</td><td>23243989.26</td></tr><tr><td>South Kheri</td><td>24.060</td><td>0.3</td><td>91480932.00</td></tr><tr><td>Sitapur</td><td>30.6259</td><td>0.3</td><td>116445796.98</td></tr><tr><td>Total</td><td colspan="3">264630078.24/-</td></tr></table> <p>Hence, on calculation the current total environmental loss is INR =38,02,200 per hectare and Total environmental loss for the project is 2646.3Lakhs.</p>	Division	Proposed Forest Area (ha)	Density	Environmental Loss in INR.	Shahjahanpur	8.80	0.3	33459360.00	Hardoi	6.1133	0.3	23243989.26	South Kheri	24.060	0.3	91480932.00	Sitapur	30.6259	0.3	116445796.98	Total	264630078.24/-		
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Total	264630078.24/-																									
6.	Possession value of forest land	30% of environment costs due to loss of forests = 30% x 264630078.24 /- = 79389023.472/-																								
7	Suffering to outsee	Nil																								

Therefore, Current Environment Net loss

= 43569099.20 (Ecosystem Losses) + 746634.0 (Trees Values) + 264630078.24 (Environmental Loss)
+ 79389023.472 (Possession Value of forest land) = INR **388334834.91/-**

Expenditure for development and maintenance of the project for 15 years

= Cost of Project + Renewal cost of BC for two cycle
= INR 5759400000.0 + 2879700000.0
= INR 8639100000.00/-

Net Total Losses/Cost = INR 388334834.91 + 8639100000.00
= INR 9027434834.91/-

[Signature]
11.7.19
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Executive Engineer/Const.
उत्तर रेलवे, मुरादाबाद
N. Railway, Moradabad

(b) Parameters for evaluation of Benefit Not withstanding Loss

Sr.No.	Parameter	Description
1	Increase in productivity attributable to the specific	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 4291 no. of felling of trees thus; total 8582 trees are to be planted as per compensatory afforestation.

	Project	The CA will be done in 139.2 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 43596938.88/- 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 882100260.80/-.														
2	Benefits to economy due to specific project	Socio economic benefits due to the railway line project include: <ul style="list-style-type: none">• Doubling of Roza – Sitapur 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.• 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 district Shahjahanpur, Lakhimpur Kheri, Hardoi & Sitapur will be benefited directly or indirectly.														
4	Economic benefit due to direct and indirect Employment Potential	Approximately 50 man days of permanent employment and 15,000 man days of temporary employment will be generated due to the Project.														
5	Economic benefit due to specific Project	<div>The benefit of Economy shown in table below</div> <table><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><tr><td>Protected Forest Land to be Diverted For Proposed new 2nd line along with existing Railway line between (Km. No. 0.00 to 80.30) under Roza – Sitapur railway Track Doubling Project of Moradabad division (U.P.)</td><td>8%</td><td>287970Lac</td><td>57594Lac</td><td>230376.0Lac</td></tr></table> <div>So benefit of economy in 50 years =230376.0Lac.</div>					Project Details	Increasing Rate of Cost year	Project cost after 50 Years	Current Cost Involve in Construction Project	Net Profit in 50year	Protected Forest Land to be Diverted For Proposed new 2nd line along with existing Railway line between (Km. No. 0.00 to 80.30) under Roza – Sitapur railway Track Doubling Project of Moradabad division (U.P.)	8%	287970Lac	57594Lac	230376.0Lac
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		<p>GDP will increase 0.25% (230376/923116) current GDP of Sitapur. Saving due to less consumption of fuel and fatalities=100 crore</p> <p>Total NPV of the project = 51.7248 x 6,26,000 = 32379724.80/- The result of economic evaluation show that the proposed development of project is economically viable with EIRR 14.21%</p>
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Therefore Project Benefit

= 43596938.88 (CA cost) + 882100260.80 (Ecological value) + 23037600000.00 (Economic gain) + 1000000000.00 (Savings) + 43569099.2 (NPV)

Net Profit=INR 25006866298.88/-

Therefore Benefit cost ratio = **25006866298.88/9027434834.91**
= 2.77

Mh
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