

## NATIONAL HIGHWAYS AUTHORITY OF INDIA

**Proposed Protected Forest Land to be diverted for Improvement and Up-gradation of NH-530B from Mathura (NH-44) to Bareilly (NH-30) from CH. No. 66.000 to CH. No. 123.100, in District:- Hathras, Etah & Kasganj (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 &lt;0.4) = 9,57,780/- per Ha.</p> <p>Therefore, Ecosystem services losses due to proposed diversion of :</p> <p>71.6191 Ha forest land (0.3 density) in Hathras forest division = 71.6191 x 9,57,780 = 68595341.5980/- 5.3244 Ha forest land (0.3 density) in Etah forest division = 5.3244 x 9,57,780 = 5099603.8320/- 12.4681 Ha forest land (0.3 density) in Kasganj forest division = 12.4681 x 9,57,780 = 11941696.8180/- Hence, total ecosystem service losses is <b>85636642.25/-</b> No. of Trees that will be affected due to proposed diversion of forest land are: 8413 trees in Hathras forest Division, 945 trees in Etah forest division &amp; 1959 trees in Kasganj Division. Therefore, total value of trees is = 1969158.0/-</p>
2.	Loss of animal husbandry, productivity including loss of fodder	10% of NPV = 10% x 85636642.25 = 8563664.22/-
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.	The loss of Public facilities and administrative infrastructure (roads buildings, schools, dispensaries, electric lines, railway etc.) on proposed diverted forest land is estimated to be 475 lakhs
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.
		Hathras	71.6191	0.3	272310142.02/-
		Etah	5.3244	0.3	20244433.68/-
		Kasganj	12.4681	0.3	47406209.82/-
		Total	339960785.52/-		
		Hence, Total environmental loss for the project is 3399.61 Lakhs.			
6.	Possession value of forest land	30% of environment costs due to loss of forests = 30% x 339960785.52/- = 101988235.656/-			
7	Suffering to outsee	Nil			

**Therefore, Current Environment Net loss**

= 85636642.25 (Ecosystem Losses) + 1969158.0 (Trees Values) + 8563664.22 (Loss of animal husbandry) + 47500000.0 (Loss of public facilities) + 339960785.52 (Environmental Loss) + 101988235.656 (Possession Value of forest land) = INR 538118485.65/-

**Expenditure for development and maintenance of the project for 15 years**

= Cost of Project + Renewal cost of BC for two cycle  
= INR 23207300000.0 + 11603650000.0  
= INR 34810950000.00/-


**Net Total Losses/Cost** = INR 538126489.65/- + 11603650000.0/-  
= INR 35349068485.65/-

**(b) Parameters for evaluation of Benefit Not withstanding Loss**


Sr.No.	Parameter	Description
1	Increase in productivity attributable to the specific Project	<p>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 11317 no. of felling of trees and proposed forest land to be diverted is 89.4116 hectares, thus; the CA will be done in 178.8232 Ha of degraded forest land, which is down the line after ten years would be having the density of 0.5. The Compensatory Afforestation cost will be INR 53646960.00/-</p> <p>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 1133202618.40/-.</p>

  
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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"><li>• Improvement and Up-gradation of NH-530B road will allow shifting of traffic and thereby decongestion it.</li><li>• Reduce fuel consumption due to better surface quality.</li><li>• Traffic speed increase which save time of road users.</li><li>• Fuel consumption is estimated to be reduced.</li><li>• Vehicle operating cost will reduce due to better transportation.</li><li>• In general there will be enhancement of socio-economic condition of the area along the project corridor.</li></ul> <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 average Population of 150000 People from district Hathras, Etah & Kasganj will be benefited directly or indirectly.										
4	Economic benefit due to direct and indirect Employment Potential	Approximately 2 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	<p>The benefit of Economy shown in table below</p> <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>Proposed Protected Forest Land to be diverted for Improvement and Up-gradation of NH-530B from Mathura (NH-44) to Bareilly (NH-30) from CH. No. 66.000 to CH. No. 123.100, in District:- Hathras, Etah &amp; Kasganj (Uttar Pradesh).</td><td>8%</td><td>1160365Lac</td><td>232073Lac</td><td>928292Lac</td></tr></table> <p>So benefit of economy in 50 years = 928292 Lac. GDP will increase 0.68%(928292/1361672) current GDP of Hathras.</p>	Project Details	Increasing Rate of Cost year	Project cost after 50 Years	Current Cost Involve in Construction Project	Net Profit in 50year	Proposed Protected Forest Land to be diverted for Improvement and Up-gradation of NH-530B from Mathura (NH-44) to Bareilly (NH-30) from CH. No. 66.000 to CH. No. 123.100, in District:- Hathras, Etah & Kasganj (Uttar Pradesh).	8%	1160365Lac	232073Lac	928292Lac
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		<p>Saving due to less consumption of fuel and fatalities=10 crore . Total NPV of the project = 85636642.25/- .</p> <p>The result of economic evaluation show that the proposed development of project is economically viable with EIRR 13.513%</p>	
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**Therefore Project Benefit**

= 53646960.00 (CA cost) + 1133202618.40 (Ecological value) + 92829200000.00 (Economic gain) + 100000000.00 (Savings) + 85636642.25 (NPV)

**Net Profit=INR 94201686220.65/-**

Therefore Benefit cost ratio = **94201686220.65/35349068485.65**

**= 2.665**

  
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**(Authorised Signatory)**