

Name of Project: Forest Land proposed to be diverted for 4-Laning of Naraini to Kalinjar Road from CH. No. 35.000 Km to CH. No. 60.825 Km in District Banda (Uttar Pradesh)

COST BENEFIT ANALYSIS as per guidelines Dated 01/08/2017

Purpose: Proposed Diversion of Protected Forest (31.58 Ha) under FCA 1980 for 4-Laning of Naraini to Kalinjar Road from CH. No. 35.000 Km to CH. No. 60.825 Km in District Banda (Uttar Pradesh)

Table-A: Cases under which a Cost-Benefits analysis for forest diversion is required

No.	Nature of proposal	Applicable/Not applicable
1	All categories of proposal involving forest land up to 20 hectares in plains and up to 5 hectares in hills	Not applicable
2	Proposal for defence installation purposes and oil prospecting (Prospecting only)	Not applicable
3	Habitation, establishment of industrial units, tourist lodges complex and other building construction.	Not applicable
4	All other proposals involving forest land more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations like micro-wave stations, auto repeater centres, TV towers etc.	Applicable

Table-B: Estimation of cost of forest diversion

1.	Ecosystem Services losses due to Proposed forest diversion	NPV value as per Forest (Conservation) Act 1980 for Class III Eco-class is in between Rs. 6.26 and 8.87 Lakhs per Hectare. NPV values for Medium category III forest land is Rs. 8.03 Lakhs per hectare. Economic Value of Ecosystem services due to diversion of forest be the Net Present Value (NPV) in this Project = Proposed Forest area X NPV Rate per Ha = 31.58 x 8.03 lakhs = INR 253.5874 lakhs No. of Trees 1914, trees of <i>Azadirachta indica</i> , <i>Eucalyptus Tereticornis</i> , <i>Dalbergia sissoo</i> , etc. will be affected due to the Project. Value of a tree is Rs 174, therefore, Total Value of trees = INR 3.33036 lakhs
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)	<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 lakhs per hectare.</p> <p>The division wise environment loss is as follows:</p> <table><tr><th>Division</th><th>Forest area (Ha)</th><th>Density</th><th>Environment Losses</th></tr><tr><td>Naraini-Kalinjar Road</td><td>31.58</td><td>0.4</td><td>1600.97968 lakhs</td></tr></table> <p>Hence, total environmental loss for the project is 1600.97968 Lakhs.</p>	Division	Forest area (Ha)	Density	Environment Losses	Naraini-Kalinjar Road	31.58	0.4	1600.97968 lakhs
Division	Forest area (Ha)	Density	Environment Losses							
Naraini-Kalinjar Road	31.58	0.4	1600.97968 lakhs							
5.	Possession value of forest land	Possession value of forest land will be 30% of environment costs (NPV) due to loss of forests = 0.3×1600.97968 lakhs= INR 480.293904 Lakhs								
6.	Cost of suffering to outeers	Nil								
7.	Habit Fragmentation Cost	Nil								
8.	Compensatory afforestation and soil & moisture conservation cost	The CA cost for 63.16 Ha of land is Rs. 197.81712 Lakhs								
9.	Expenditure for development and maintenance of the project for 15 years	Expenditure cost = Cost of Project + Renewal cost of BC for two cycle = Rs. 14230.04 lakhs + 7115.02 lakhs = 21345.06 lakhs								

Table-C: Existing guidelines for estimating benefits of forest-diversion in CBA

Sr.No.	Parameter	Remarks
1	Increase in productivity attribute to the specific Project	<p>The proposed project for which diversion of forest land is sought is for widening of Existing road. The project road will improve accessibility to the region. This will help in boost economic & social development in the region.</p> <p>The project will enable smooth accessibility in the region by which people of the region will be directly benefited. This will accelerate industrialization / commercialization in region and same will directly generate maximum employment opportunities in these areas and boosting up the economy of the region and state. Again directly the project will have the potential for temporary employment generation of 9000 man days and 5 on permanent basis during construction period.</p> <p>Due to up gradation of the existing road, there will be overall development of the project area in terms of transportation of agriculture products, easy access to education, health market etc.</p>
2	Benefits to economy due to specific project	<p>Socio economic benefits due to the project will be:</p> <ul style="list-style-type: none"> • Better accessibility to famous Pilgrim & tourist place Kalinjar Fort and social infrastructure like educational institution, health facilities, markets etc. • Savings in vehicular operating cost • Savings in travel time • Benefits to trade especially in movement of perishable goods • Reduced vehicular maintenance cost • Reduction in accident • Overall enhancement of socio-economic conditions of the area along the project corridor

3	No. of population benefited due to specific project	The Population of 150000 People from district Banda will be benefited directly or indirectly.										
4	Economic benefits due to direct and indirect employment due to project	Direct employment to approximately 90000 man days of temporary employment will be generated during the construction period. Approx. 5 persons will be engaged permanently as staff in road operating activities.										
5	Economic benefit due to Compensatory afforestation	In Lieu of total affected forest land it is proposed to undertake at least twice of the affected trees as compensatory afforestation as per Forest (Conservation) Act, 1980. So the net productivity will increase. Apart from compensatory plantation / road side plantation, the compensatory afforestation will be taken up in about 31.58 Ha x 2 = 63.16 Ha, which is at least two times of the area proposed to be diverted. The CA will be done in 63.16Ha of degraded forest land, which is down the line would be having the density of 0.5. The ecological value for a 50 years period for the density of 1.0 is 126.74 lakhs per hectare (as per Forest Conservation Act 1980). By considering the min 0.5 density the ecological gain for this project would be INR 126.74 lakh x 0.5 x 63.16 = 4002.45 lakh.										
6	Economic benefit due to project	<p>The benefit to economy due to the project is shown in table below:</p> <table><tr><th>Project Details</th><th>Increasing Rate of Cost per year</th><th>Project Cost after 50 Years</th><th>Current Cost Involve in Construction Project</th><th>Net Profit in 50 years</th></tr><tr><td>4-Laning of Naraini to Kalinjar Road from CH. No. 35.000 Km to CH. No. 60.825 Km in District Banda (Uttar Pradesh)</td><td>8%</td><td>71150.20 Lacs</td><td>14230.04 Lacs</td><td>56920.16 Lacs</td></tr></table> <p>So benefit of economy in 50 years = 56920.16 lakhs. GDP will increase @29%(569.2016/1940.92) at current prices GDP of Banda. Saving due to less consumption of fuel and fatalities is about RS. 10 crore Total NPV of the project = 31.58 x 8.03 = INR 253.5874 lakhs (0.4 density)</p>	Project Details	Increasing Rate of Cost per year	Project Cost after 50 Years	Current Cost Involve in Construction Project	Net Profit in 50 years	4-Laning of Naraini to Kalinjar Road from CH. No. 35.000 Km to CH. No. 60.825 Km in District Banda (Uttar Pradesh)	8%	71150.20 Lacs	14230.04 Lacs	56920.16 Lacs
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4-Laning of Naraini to Kalinjar Road from CH. No. 35.000 Km to CH. No. 60.825 Km in District Banda (Uttar Pradesh)	8%	71150.20 Lacs	14230.04 Lacs	56920.16 Lacs								

Summary of Cost-Benefit Analysis for the Project


No.	Loss (in Lakhs)	Benefit (in Lakhs)
1	Ecosystem service losses Rs. 253.5874 Lakhs Total value of trees affected due to project is Rs. 3.3306 lakhs	Ecological gain from compensatory afforestation on 63.13 (at least) Ha of land would be Rs. 4002.45 lakhs.
2	Environmental losses(soil erosion, effect on hydrological cycle, wild life habitat, microclimatic upsetting of ecological balance) Rs. 1600.97968 lakhs	
3	Possession Value for forest land is Rs. 480.293904 lakhs	Economic gain due to project is Rs. 56920.16 lakhs
4	Compensatory afforestation and soil & moisture conservation cost = 197.81712 lakhs	Savings due to less consumption of fuel and fatalities is about RS. 1000.00 lakhs

5	Expenditure for development and maintenance of the project for 15 years is Rs. 21345.06 lakhs	Total NPV of the project = $31.58 \times 8.03 = \text{INR } 253.5874 \text{ lakhs}$
	Total Cost / Loss = $253.5874 \text{ lakhs} + 3.3306 \text{ lakhs} + 1600.97968 \text{ lakhs} + 480.293904 \text{ lakhs} + 197.81712 \text{ lakhs} + 21345.06 \text{ lakhs} = 23881.0687 \text{ Lakhs}$	Total gain / benefit from project = $4002.45 \text{ lakhs} + 56920.16 \text{ lakhs} + 1000.00 \text{ lakhs} + 253.5874 \text{ lakhs} = 62176.1974 \text{ Lakhs}$

Cost Benefit Ratio = Total Benefit / Total Loss = $62176.1974 / 23881.0687 = 2.6$ which is > 1 , so project is found viable based on given above described area.

Date:

Place:


 अधिशाषी अभियन्ता
 निर्माण खण्ड-1, लो०नि०वि०
 बाँदा।