



भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार)

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भारतमाला

प्रगति के पथ पर अग्रसर

COST BENEFIT ANALYSIS

Name of the Project: Construction of 4 laning of Ghazipur –Ballia- UP/Bihar border New Greenfield section from Km. 0.000 to 117.120 of NH-31 and construction of new Buxar Spur connectivity from km 0.000 to km 17.270 in the state of Uttar Pradesh.

Name of the Proposal: Diversion of 23.8 Ha. Forest land under FCA, 1980 for green field road.

Purpose: The Cost of Benefit Analysis is undertaken for proposed diversion of Forest land.

Division- wise Area Proposed for Diversion:

S. No	State	Name of the District	Taluka	Forest Division	Village	Area required in Ha.
1	UP	Ballia	Ballia Sadar	Ballia	Akoni	0.117
2			Ballia Sadar		Ojha Kaucha	0.128
3			Bariya	Bariya	Bairiya	0.156
4			Bariya		Ibrahimwad Uparwar	8.858
5			Bairiya		Chand Diyar	8.883
6	Bihar	Saran	Manjhi	Manjhi	Sahabalpur	5.662
Total Area in Ha.						23.80

TABLE-A: Cases under which a Cost- Benefit Analysis for Forest Diversion is Required.

S No	Nature of Proposal	Applicable / Not Applicable	Remarks
1	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectares in hills.	Applicable	Diversion in plains > 20 Ha. (23.8 Ha.)
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 Ha. In plains and more than 5 Ha. In hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, locations specific installations, like micro-wave stations, auto repeater centres, TV towers etc	Applicable	More than 20 Ha. is to be diverted for Road widening.

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TABLE-B: Estimate of Cost of Forest Diversion

S No	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion.	NPV = 6.26 Lakh per Ha. = 23.8×6.26 = 148,988 lakh
2	Loss of animal husbandry productivity, including loss of fodder.	
3	Cost of human settlement	No human settlement is found
4	Loss of public facilities and administrative infrastructure (Roads, Buildings, Schools, Dispensaries, electric lines, railways etc.) on forest land, which would require forest land if these facilities were diverted due to project.	No such loss
5	Possession value of forest land diverted.	Per hectare rate along highway = 55 lakh For 23.8 Ha. = 55×23.8 = 1,309 lakh OR = 30% of environment costs (NPV) = $(30/100) \times 148,988$ = 44.6964 lakh Considering INR 1,309 lakh
6	Cost of suffering to oustees.	Not Applicable
7	Habitat Fragmentation Cost	= 50% of NPV applicable as thumb rule = $(50/100) \times 148,988$ = 74.494 lakh
8	Compensatory afforestation and soil & moisture conservation cost.	Approximate CA cost per hectare with 10 years maintenance considering cost escalation is = INR 400000 CA cost = 4 lakh * (23.8*2) = 190.4 lakh

Total Cost (Environment Loss) (A) = 1722.882 lakh



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TABLE-C: Existing Guidelines for Estimating Benefits of Forest Diversion in CBA

S No	Parameters	Remarks
1	Increase in productively attribute to the specific project.	<p>During construction period, temporary employment generation = 800 people for 2 years- 584000 man-days.</p> <p>During operation period (including toll) for 25 years, generation permanent employment for 100 people.</p>
2	Benefits to economy due to the specific project.	Economic benefit in terms of increase in trade in saving vehicular operation and maintenance and saving travel time. However, they have not been quantified as it will be a function of various government policy variables.
3	Number of population benefited due to specific project	Proposed project traverses through two Ghazipur and Ballia districts with 6860042 population.
4	Economic benefits due to of direct and indirect employment due to the project.	<p>Benefit due to temporary employment = INR 500 per day $= 500 * 584000$-man days $= 2920$ lakh</p> <p>Assuming 50% of labour in construction period as locals, utilities cost per day per person, assuming, INR 25 Total cost = $25 * 400 * 730$ $= 73$ lakh Benefit due to permanent employment with approx. annual income 2.8 lakh $= 100 * 2.8 * 25$ $= 7000.00$ lakh</p>
5	Economic benefits due to compensatory afforestation	<p>CA will be taken up in 47.60 Ha. Having a minimum density of 0.7. The ecological value for 50 years period for the density of 1.0 is INR 126.74 lakh per hectare as per Forest © Act 1980.</p> <p>Therefore, ecological gain would be $= 6032.824$ lakh</p>

Total Benefit (B) = 16025.824 lakh

Benefit to Cost Ratio = (B) / (A)
= 16025.824 / 1722.882
= 9.301 (>1)

The Benefit to cost ratio being greater than 1 (i.e. 9.301) the project is found viable as per the analysis/described criteria.



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