



## भारतीय राष्ट्रीय राजमार्ग प्राधिकरण

(सड़क परिवहन एवं राजमार्ग मंत्रालय, भारत सरकार)

### National Highways Authority of India

(Ministry of Road Transport & Highways, Govt. of India)

#### Project Implementation Unit

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### COST BENEFITS ANALYSIS

#### For Four Laning Mancherial to Maharashtra state border Section of NH 363

Name of the Project : Diversion of Forest land for Four Laning of NH 363 Hyderabad-Karimnagar-Chanda road from Km 0.000 (Km.251.900) to Km 94.602 (Km 342.000) (from Mancherial to Maharashtra State border) in the state of Telangana.

Nature of Proposal: Diversion of 62.25 Ha. Forest land under FCA, 1980 for road widening.

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

Division- wise Area Proposed for Diversion:

Name of the Forest Division	Name of the Reserve Forest	Area (Ha.)
Mancherial	Indaram	42.57
Bellampalli	Tandur Ext-1 & Madaram	3.55
Asifabad	Tandur Ext-1, Rebbena & Manighar	16.13

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 hectare in plains and up to 5 hectare in hills.	Applicable	Diversion in plains > 20 Ha. (62.25 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	Applicable	More than 20 Ha. Is to

  
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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	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. =62.25*6.26 =389.69 lakh
2	Loss of animal husbandry productivity, including loss of fodder.	Loss = 5ton/Ha./year@ INR 100/- per tonne. =5*62.25*100 =31125*50 (for 50 years) =15.56 lakh OR =10% of environment costs (NPV) =(10/100)*389.69 =38.96 Lakh
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 62.25 Ha.=55*62.25 =3423.75 lakh OR =30% of environment costs (NPV) =(30/100)*382.61 =116.91 Lakh Considering INR 3423.75 lakh
6	Cost of suffering to oustees.	Not Applicable
7	Habitat Fragmentation Cost.	=50% of NPV applicable as thumb rule = (50/100)*381.61 = 194.84 Lakh

  
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8	Compensatory afforestation and soil & moisture conservation cost.	<p>Approximate CA cost per hectare with 10 year maintenance considering cost esclation is =INR 400000</p> <p>CA cost = 4 lakh * (62.25*2) = 498 lakh</p>
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Total Cost (Environment Loss) (A)= 4545.24 lakh

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	<p>Proposed project traverses through two Mancherla and Asifabad districts with 1399868 population.</p> <p>In addition, commuters/freight from Hyderabad to Maharashtra and vice-versa gets facilitated.</p>

  
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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</p> <p>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>GA will be taken up in 124.5 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 Therefore ecological gain would be  = 15779.13 lakh</p>

Total Benefit (B) = 25699.13 lakh

Benefit to Cost Ratio = (B)/(A)  
= 25,699.13 /4545.24  
= 5.65(>1)

The Benefit to cost ratio being greater than 1 (i.e. 5.65) the project is found viable as per the analysis/described criteria.

  
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