COST BENEFIT ANALYSIS

For "Upgradation of existing NH 30 from Km.169.770 to 236.150 of Vijayawada to Jagadalpur section to two lane with paved shoulders in the State of AndhraPradesh"

Name of Proposal: Diversion of 25.31 Ha of forest land under FCA Act 1980 for "Upgradation of existing NH 30 from Km.169.770 to 236.150 of Vijayawada to Jagadalpur section to two lane with paved shoulders in the State of Andhra Pradesh"

Purpose: The cost to 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 in Ha
Chintur	Bandirevu RF	9.99
	Pegha RF	9.15
	Madhavaraopeta RF	6.17
Total proposed diversion of forest in Ha =		25.31 Ha

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 upto 20 Ha in Plains and upto 5 Ha in Hills	Applicable	Diversion in Plains> 20 Ha (25.16 Ha)
2	Proposal for defense installation purpose 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 repeaters	Applicable	More than 20 Ha is to be diverted for widening of existing road.

	centers, TV towers etc.		

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 = 25.31 x6.26 = **158.4406 Lakhs**
2	Loss of Animal husbandry production, including loss of fodder	Loss = 5 Tonne/Ha./Year @Rs 125 per Tonne =5x25.31x125 = Rs.15,819 =15,819 x50 (for 50 Yrs) =**Rs.7,90,950/-** (or) =10% of environmental costs (NPV) =158.4406*10/100 =**15.844 Lakhs** Taking higher of the above values **i.e Rs.15.844 Lakhs**
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 alignment =40 Lakhs For diverted land area in Ha=40x25.31 =1012.4 Lakhs (OR) =30% of environmental costs(NPV) =(30/100)X158.446 = 45.53 Lakhs Considering higher of the above values **i.e**

		Rs.1012.40 Lakhs
6	Cost of suffering to oustees	Not applicable
7	Habitat Fragmentation Cost	=50% of NPV applicable as thumb rule. =158.446*50% **=79.223 Lakhs**
8	Compensatory afforestation and soil & moisture conservation cost	Approximate CA cost per ha with 10 years maintenance (considering cost escalation) is =4 Lakhs (OR) CA cost = 4x(25.31x2) **=202.48 Lakhs**

Total Cost (Environmental Loss) (A) = 1468.388 Lakhs

Table C: Existing Guidelines for Establishing Benefits and Forest Diversion in CBA

S.No	Parameters	Remarks
1	Increase in productivity attribute to the specific project	This stretch is predominantly known to all because of its agricultural lands and agricultural outputs and having rich mineral resources in spite of all that the stretch is located in the industrially, economically developing area.
2	Benefits to the economy due to the specific project	Widening and improvement of this section of NH-30 would further improve connectivity in terms of achieving smooth and safe traffic flow and improve level of service. In addition to above, substantial economic gain in terms of reduced Vehicle Operating Cost (VOC) and reduced travel time will be achieved.
3	No of population benefitted due to the specific project	This highway after completion will provide better connectivity to newly formed capital of Andhra Pradesh with the eastern districts of Andhra Pradesh.
4	Economic benefits due to	Employment likely to be generated is

	direct and indirect employment due to the specific project	10,000 Man days Benefit due to employment = INR 500 per day =10,000 ×500 =50,00,000
5	Economic benefits due to compensatory afforestation.	CA will be taken up in 50.62 Ha of land. having a minimum density of 0.7.The ecological value for 50 years period for the density of 1.0 is Rs.126.74 Lakhs per Ha as per forest act 1980. Therefore ecological gain would be **Rs.4490.905 Lakhs**

Total Benefit (B) =   4540.905 Lakhs

Benefit to Cost Ration = (B)/(A)

$$= 4540.905/1468.38$$

$$=3.09 \ (>1)$$

The Benefit to cost ration being greater than 1 (i.e 3.09) the project is found viable as per the analysis /described criteria.

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