

COST BENEFIT ANALYSIS

Name of the Project: Proposal for Diversion of Forestland for "Construction of Twin Tunnel (2+2 lane) with Four Lane Approaches (from existing roads) for providing direct connectivity between Aanakampoyil-Kalladi-Meppadi in Kozhikode and Wayanad Districts of Kerala".

Nature of Proposal: Diversion of 17.263 Ha of forest land under FCA, 1980 for tunnel road construction.

Forest Proposal No. - FP/KL/ROAD/148616/2021

Purpose: The Cost of Benefit Analysis is being undertaken for proposed Diversion of Forest land being affected due to the construction of Twin Tunnel (2+2 lane) with Four Lane Approaches (from existing roads) for providing direct connectivity between Aanakampoyil-Kalladi-Meppadi in Kozhikode and Wayanad districts of Kerala

Total length of the road along the PF/RF

Under Reserve/protected Forest of Kozhikode and Wayanad South forest divisions = 5.78 km approx.

Total Forest area proposed for diversion

Under Reserve/ protected forest Kozhikode and Wayanad South forest divisions = 17.263 Ha.

Table A

[As per MoEF&CC guidelines for conducting Cost Benefit Analysis vide file no. 7-69/2011-FC(Pt.) dated 1st August, 2017]

S. No.	Parameters	Applicable/not applicable	Remarks
1	All categories of proposals involving forest land upto 20 Hectares in plains and upto 5 Hectares in hills.	Applicable	The proposed project involves 17.263 Ha of forest land. Hence, the CBA is applicable.
2	Proposals for defence installation purposes and oil prospecting (Prospecting only)	Not applicable	No such area is involved in the project.
3	Habitation, establishment of industrial units tourist lodges/complex and other building construction.	Not applicable	No such activities are involved in the project.
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, hydel projects, mining activities, railway lines, location specific installation like micro-wave stations, auto repeater controls, towers etc.	Applicable	The proposed project involves 17.263 Ha of forestland. Hence, the CBA is applicable. Hill = 17.263 Ha Plain = Nil Ha

Table B: Estimation of cost of forest diversion

[As per MoEF&CC guidelines for conducting Cost Benefit Analysis vide file no. 7-69/2011-FC(Pt.) dated 1st August, 2017]

S. No.	Parameters	Remarks
1	Ecosystem services losses due to the proposed forest diversion	The proposed forest area to be diverted is mostly characterized by Tropical Wet Evergreen Forests / Tropical Semi Evergreen Forests. According to MoEF&CC Guidelines for diversion of forest land for non-forestry purposes under Forest (Conservation) Act, 1980- and Guidelines for collection of Net Present Value (NPV) dated 05.02.2009, the area comes under Class I type of forest. Considering Eco - Class I (Very Dense Forest), an average value of ₹. 10,43,000.00 can be considered per hectare. Hence, the total NPV for the diverted project shall be ₹ 1,80,05,309 (approx.)
2	Loss of animal husbandry productivity, including loss of fodder	10% of NPV i.e. ₹ 1800531
3	Cost of human resettlement	Nil
4	Loss of public facilities and Administrative (road, 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.	No utility shifting in forest area
5	Possession value of forest land diverted	30% of the NPV i.e. INR 54,01,593
6	Cost of suffering to outstees	There are no outstees involved in the forest area. However, the final recommendation shall be made after the R&R survey is completed.
7	Habitat Fragmentation cost	50% of the NPV i.e. ₹ 90,02,655
8	Compensatory afforestation and soil & moisture conservation cost	The compensatory afforestation will be added later after receiving from DFO.

The total estimated cost of forest diversion = Ecosystem services losses+ Loss of animal husbandry productivity+ Cost of human resettlement+ Loss of public and Administrative facilities+ Possession value of forest land diverted+ Cost of suffering to outstees+ Habitat Fragmentation cost+ Compensatory afforestation and soil & moisture conservation cost.

Hence, the Total Cost of Forest Diversion = ₹ 34,210,087.60

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

[As per MoEF&CC guidelines for conducting Cost Benefit Analysis vide file no. 7-69/2011-FC(Pl.) dated 1st August, 2017]

S. No.	Parameters	Remarks
1	Increase in productivity attributable to the specific project.	The proposed project doesn't involve any manufacturing or production. Hence, this section is not applicable.
2	Number of population benefitted due to the project	Population of project districts, Kozhikode (3,086,293) and Wayanad (817,420) will get benefited due to proposed development of tunnel road (<i>Source: Census of India, 2011</i>). As per the traffic forecast on new proposed new alignment, 14,027 PCU @ 2030, 23,183 PCU @ 2040 and 35992 PCU @ 2049. Economic benefit in terms of increase in trade in 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	Economic benefits due to direct and indirect employment of the project	A total of about 915 persons shall be employed by the proposed project. The period of construction for the project is estimated to be 5 years. Considering 300 working days per year a total of 1372500 man days is expected to be generated due to the project. Total income for ₹ 772,717,500.00/-
4	Economic benefits due to Compensatory afforestation	Compensatory Afforestation Rate @ ₹ 10,43,000 per Ha. Hence the total cost will be ₹ 10,43,000 x 17.263 Ha = ₹ 36436162.00/- The compensatory afforestation will be added later after receiving from DFO.

The total estimated benefits of forest diversion = Number of population benefitted due to the project + Economic benefits due to direct and indirect employment of the project + Economic benefits due to Compensatory afforestation.

Hence, the total Environmental Benefit of Forest Diversion comes out to be ₹ 772,717,500.00 + ₹ 36436162.00 = **₹ 809,153,662.00**

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Based on value of products:

A. Total Benefit to the Society = ₹ 809,153,662.00

B. Total Cost to the Society = ₹ 34,210,087.60

Therefore, Cost benefit Ratio = Total Environmental Benefits/Total cost of the environment

$$\frac{809,153,662.00}{₹ 34,210,087.60} = 23.7 > 1$$

Hence, Project is found viable.



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