

COST BENEFIT ANALYSIS

Name of the Project: Diversion of forest land for the Development of 8 lanes (Greenfield Highway) from Haryana –Rajasthan Boarder near Firozpur Jhirka village (Ch. 79.394) to Itawa village (Ch. 284.000) in Sawai Madhopur Section of NH-148 N (Total length 204.606 Km), Under BHARATMALA PRIYOJANA Lot-4/Pkg-4 in the state of Rajasthan.

Nature of Proposal: Diversion of 27.6396 Ha of forest land under FCA, 1980 for road construction.

Forest proposal No. - FP/RJ/ROAD/36182/2018

Purpose: The Cost of Benefit Analysis is being undertaken for proposed Diversion of Forest land being affected due to Development of 8 lanes (Greenfield Highway) from Haryana –Rajasthan Boarder near Firozpur Jhirka village (Ch. 79.394) to Itawa village (Ch. 284.000) in Sawai Madhopur Section of NH-148 N (Total length 204.606 Km), Under BHARATMALA PRIYOJANA Lot-4/Pkg-4.

Total length of the road along the PF/RF

Under Reserve/protected Forest Alwar, Dausa and Sawai Madhopur forest division = 2.819 km approx.

Total Forest area proposed for diversion

Under Reserve/ protected forest Alwar, Dausa and Sawai Madhopur forest division = 27.6396 Ha.

Table A

[As per MoEF&CC guidelines for conducting Cost Benefit Analysis vide file no. &-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 27.6396 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 27.6396 Ha of forest land. Hence, the CBA is applicable. Hill = Nil Plain = 27.6396 Ha

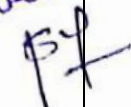
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Table B: Estimation of cost of forest diversion

[As per MoEF&CC guidelines for conducting Cost Benefit Analysis vide file no. &-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 dry deciduous forest. 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 III type of forest. Considering Open forest Class III, an average value of Rs. 6, 26,000.00 can be considered per hectare. Hence, the total NPV for the diverted project shall be INR 17302390.00 (approx.)
2	Loss of animal husbandry productivity, including loss of fodder	10% of NPV <i>i.e.</i> INR 1730239.00
3	Cost of human resettlement	There are some structures identified within the Bhedoli Forest Area. Cost of the resettlement will be estimated as per Rajasthan State Resettlement Policy after joint site visit with Forest dept.
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>i.e.</i> INR 5190717.00
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>i.e.</i> INR 8651195.00
8	Compensatory afforestation and soil & moisture conservation cost	The compensatory afforestation will be taken up in about 58ha of Degraded Forest land which is about two times of the area proposed to be diverted. The compensatory afforestation cost will be INR 7525650.00


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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 = INR 40400191.00

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. &-69/2011-FC(Pt.) 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 surrounding districts Alwar (315,379), Dausa (1,634,409) and Sawai Madhopur (121,106) will get benefited due to proposed development. In addition to the above, the man hours required for the commuters to travel the existing route shall be reduced by 66 km. Current scenario Distance=254 Kms Time required= 5.6 hours(@45 Kms/hr) Total man hours= 13547 man hours for 2 years (300 working days/year). Modify scenario Distance= 204.606 Kms Time required= 2.6 hours(@80 Kms/hr) Total man hours= 6120 man hours for 2 years (300 working days). Hence, a total of 7427 man hours shall be saved by the construction of the project. Total amount save in respect to travel INR 148533.00
3	Economic benefits due to direct and indirect employment of the project	A total of about 2800 persons shall be employed by the proposed project. The period of construction for the project is estimated to be 2 years. Considering 300 working days per year a total of 13440000 man hours is expected to be generated due to the project. Total income for INR 201600000.00
4	Economic benefits due to Compensatory afforestation	In lieu of total trees to be affected in forest land it is proposed to be undertake at least twice of the affected trees as compensatory afforestation as per Forest (Conservation) Act. So the net productivity will increase. Apart from compensatory plantation. The compensatory afforestation will be done in 55 ha of degraded forest land, which is down the line would be

S. No.	Parameters	Remarks
		<p>having a density of minimum 0.4. The ecological value for a 50 years period for the density of 1.0 is INR 55 lacs per hectare. By considering minimum density as 0.4 gains in density, the ecological gain for this project would be INR 322748533.00 down the line.</p> <p>The compensatory afforestation will be added later after receiving from DFO.</p>

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 INR 148533.00 + INR 201600000.00 + INR 121000000.00 = INR 322748533.00

Therefore, Cost benefit Ratio = Total Environmental Benefits/Total cost of the environment
= **40400191.00/322748533.00 = 8.0>1**

Hence, Project is found viable.

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