

**Full Title of the Project:** Wildlife Clearance for Development of Laxmipura-Dora-Dabi-Ranaji  
Ka Guda NH-12, District – Bundi in the State of Rajasthan.

**Proposal No. :** FP/RJ/ROAD/29812/2017

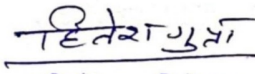
**Date of Proposal:** 09.06.2018

**Purpose:** The Cost Benefit Analysis is being undertaken as the proposed diversion of forest land being affected due to widening (Two Laning) of existing road for above said project is > 20 Ha.

**Cost Benefit Analysis as per Guidelines for Forest Land Diversion – 2017:**

Sr No.	Nature of Project	Applicable/Not Applicable	Remarks
1.	All categories of proposal involving forest land upto 20 ha. In plains and upto 5 Ha. In hills.	Not Applicable	These proposals may be considered on a case to case basis and value judgments.
2.	Proposal for defense installation purpose and oil prospecting (prospecting only)	Not Applicable	In view of national priority accorded to these sectors, the proposals would be critically assessed to help ascertain that the utmost minimum forest land is diverted for non-forest use.
3.	Habitation, establishment of industrial units, tourists lodge complex and other building construction.	Not Applicable	These activities being determined to protection and conservation of proposal would be rarely entertained.
4.	All other proposals involving forest land more than 20 Ha. In plains and more than 5 Ha. In hills including roads, Transmission line, minor, medium and major Irrigation projects, hydro projects, mining activity, railway line, location specific installations like microwave stations, auto repair centres, TV towers etc.	Applicable	These are the cases where a cost-benefit analysis is necessary to determine when diverting the forest land to non-forest use in the overall public interest.

Since the proposal is for diversion of forest land measuring more than 20 Ha. In the plain area for road project, cost benefit analysis report is applicable.

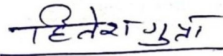
  
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**Table-B: Estimate of Cost of Forest Diversion in Bundi District**

Sr. No.	Parameters	Given Guideline	Evaluation
1	Ecosystem Services losses due to Proposed Forest Diversion	<p>Economic value of loss of ecosystem services due to diversion of forests shall be the net present value (NPV) of the forest land being diverted as prescribed by Central Government (MoEF&amp;CC)</p> <p>Note:- in case of National Parks the NPV shall be Ten (10) times the normal NPV and in case Wildlife Sanctuary the NPV shall be five (5) times the normal NPV or otherwise prescribed by the Ministry or any other competent authority.</p> <p>Note:-1: Net Present Value (NPV) of environment and ecosystem service loss:- The concept of Net Present Value (NPV) of environment and ecosystem services loss:- The Concept of Net Present Value of the forest land diverted is a scientific method of calculating the environment cost and other losses Caused due to diversion of forest land for non-forestry purposes, the NPV represents the net value of various ecosystem services and other environmental services in monetary terms which the forest would have provided if the forest would not have been diverted.</p>	<p>NPV value (as per of Forest Conservation act, 1980 is in between Rs. 6.70140 to 15.95790 lac per Hectare</p> <p>Accordingly, Net Present Value of Forest Land Proposed For Diversion is 9,57,780/- per ha. but 28.80 ha. Forest land is falling in the Protected area.</p> <p>NPV amount of 28.80 ha. Forest land (Protected Area) will be :</p> $957780 \times 28.80 \times 5 = \mathbf{13,79,20,320/-}$ <p>Rupees.</p> <p>NPV amount of 3.5264 Ha. Forest land will be :</p> $957780 \times 3.5264 = \mathbf{33,77,515/-}$ <p>Hence Total NPV Shall be : <b>14,12,97,835/-</b></p>
2	Loss of animal husbandry productivity including loss of fodder.	To be quantified and expresses in monetary terms of 10% of NPV applicable whichever is maximum.	<p>Loss of Animal husbandry due to proposed diversion is very moderate and calculated below.:</p> <p>Gross loss @ 5 ton/Ha/year @ Rs. 100/- per tonne.</p> <p>Therefore, loss of fodder as estimated for about...<b>32.3264</b> Ha. will be <b>32.3264 X 5 X 100 = 16163/YR X 50 Years = Rs. 808150 (8.08 Lac)</b></p> <p>So considered amount (maximum one ) is Rs. <b>141.2978 lac.</b></p>
3	Cost of human resettlement	To be quantified and expressed in monetary terms on actual terms as per approved R&R Plan.	Nil Human Resettlement is not required since no family is residing in

  
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			forest land.
4	Loss of public facilities and administrative infrastructure (roads, 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.	To be quantified and expressed in monetary terms on actual cost basis of the time of diversion.	No loss of public infrastructure like Roads, hospital etc are investigated. However, there will be some utility shifting like electricity pole, telephone line, OFC cable etc from proposed ROW located in forest land. The likely cost of these utility shifting is estimated Rs. 345.00 Lac.
5	Possession Value of Forest land	<p>30% of environmental cost (NPV) due to loss of forest or circle rate of adjoining area in the district should be added as a cost component as possession value of forest lands whichever is maximum.</p> <p>Note 2: Possession value of forest land diverted:- The forest land diverted for the project such as irrigation, hydropower, railways, roads, wind and transmission lines and mining etc are unlikely to be returned and remains in the possession of the user agencies, Therefore 30% of the net present value(NPV) of forest land diverted or market rate of adjoining area in the district should be added as a cost component as “possession value of forest land” in addition to the environment cost due to loss of forests.</p>	Possession value of forest land will be (considering 30% of NPV = 0.3 X 1412.9783= 423.8935 Lac.
6	Cost of Suffering to ousters	The social cost of rehabilitation of ousted (in addition to the cost likely to be incurred in providing residence, occupation and social services as per R&R plan) be worked out as 1.5 times of what ousted should have earned in two years had he not shifted.	<p>NIL, no resettlement &amp; rehabilitation is identified or required in forest land which is proposed to be diverted. Also the community residing along the project road is not dependent on forest or forest produce.</p> <p>There will not be any losses on this account as diversion of the</p>

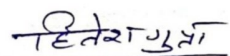
  
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			forest land to this project will not affect any house or structure in protected forest area which is basically a linear plantation.
7	Habitat Fragmentation Cost	While the relationship between fragmentation and forest goods and services is complex for the sake of simplicity the cost due to fragmentation has been pegged at 50% of NPV applicable as a thumb rule.	Habitat fragmentation cost is 50% of NPV that is Rs. 1412.9783 X 50% = 706.4892 Lac.
8	Compensatory afforestation and soil & moisture conservation cost	The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value.	As per DFO Office, Bundi CA cost estimated Rs. 55.92 Lac for 32.3264 Ha. Forest land to be diverted.

Table –C- Existing guideline for estimating benefit of forest diversion in Cost Benefit Analysis (CBA)

Sr No.	Parameter	Given guidelines	Evaluation
1.	Increase in productivity attributable to the specific project.	To be quantified & expressed in monetary terms avoiding double counting.	Socio economic benefits due to the road project will provide the <ul style="list-style-type: none"> <li>Connectivity to state capital to district head quarter</li> <li>With high speed corridor leading reduced travel time and fuel consumption.</li> <li>The benefit to trade specially in moment of perishable goods.</li> <li>Access to new industrial area.</li> <li>Overall enhancement of socio-economic condition of the area along the project corridor.</li> <li>Through overall mission to increase the GDP of the said region and make it comparable/above the nation GDP</li> <li>Again, directly approximately 146000-man days of temporary and 1000 permanent employment will be generated during the construction of the project for a period of 2 years.</li> </ul>
2.	Benefits to economy due to specific project	The incremental economic benefit in monetary terms due to the activities attributed to the specific project.	Economic benefit in terms of increase in trade saving in vehicular operation and maintenance cost better connectivity, safer journey to commuter and saving of travel time.  Improved road connectivity helps in better implementation and management of government schemes. It will provide last and economical transport of goods. After completion of project, the local people and industries situated in the area will be greatly benefited. The widening of project road will provide safe, fast, economic and environmental friendly transportation to the state which in term will accelerate the rate of growth in this area.

  
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			<p>In addition to that there area several other benefits that may accrue due to saving in fuel, reduction in time to commute, vehicle maintenance, reduction in carbon emission etc.</p> <p>“However, they have not been quantified as it will be a function of various govt. policy variables” Exact quantification of the value is not possible as it is time and policy dependent.</p>										
3.	No. of population benefited due to specific project.	As per detailed project report.	The Population of 250000 people from district Bundi will be benefited directly.										
4.	Economic benefit due to direct and indirect Employment potential.	As per detailed project report	Approximately 73000 man days of temporary and 300 permanent employment will be generated during the construction of the Project for a period of 2 Years and Wages @rs. 550/day (average) = Rs. 550 X 73000 = 401.00 Lac.										
5.	Economic benefit due to compensatory afforestation	Benefit from such compensatory afforestation accruing over next 50 years monetized and discounted to the present value should be included as benefit of CA the guideline of the Ministry for NPV estimation may be consulted.	<p>The benefit of Economy shown in table below:</p> <table><tr><th>Project Details</th><th>Increasing Rate of cost year</th><th>Project after 50 years</th><th>Current cost involves in construction project</th><th>Net Profit in 50 Year</th></tr><tr><td></td><td>5%</td><td>258.125 Cr.</td><td>103.25 Cr.</td><td>154.875 Cr.</td></tr></table> <p>So. Benefit of economy in 50 years = 154.875 crores</p> <p>In lieu of total forest land to be affected it is proposed to be undertake at least twice of the affected trees as Compensatory afforestation as per Forest (Conservation) Act 1980.</p> <p>Apart from compensatory plantation and on road divider plantation. The compensatory will be done on 32.3264 Ha. of Non forest land, which is down the line would be having a density of minimum 0.7. The ecological value for a 50 years period of density of 1.0 is 126.74 lac per hectare ( As per FCA 1980). By considering minimum 0.7 density, the ecological gain for this project would be 126.74 lac X 0.7 X 32.3264 = 2867.9335</p>	Project Details	Increasing Rate of cost year	Project after 50 years	Current cost involves in construction project	Net Profit in 50 Year		5%	258.125 Cr.	103.25 Cr.	154.875 Cr.
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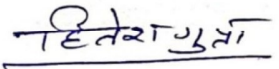
#### Summary of Cost-Benefit Analysis for the project.

Sr No.	Loss in Lac	Benefit in Lac
1.	Ecosystem Services losses = Rs. 1412.9783 Lac.	<p>Ecological gain for this project would be 126.74 lac X 0.7 X 32.3264 = 2867.9335 Lac.</p> <p><b>Benefit of Economy for the present year = 2867.9335 Lac.</b></p>
2.	Loss of animal husbandry productivity including loss of fodder = Rs. 141.2978 Lac	<p>73000 man days will be generated for unskilled/semi-skilled worker in terms of salry and Wages @ Rs. 550/day (average) = Rs. 550X73000=401.00 Lac</p> <p>Basic living amenities including alternative fuel (LPG solar cooker etc) will be supplied to labours/workers in</p>

  
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		construction period by contractor-2 years. Number of labours at peak time -225 Approx.50% labour assume to be local. Per head cost of fuel – Rs. 2.00/day for rest 112 labours. Total Cost = Rs. 2.00X112 laboursX803days = Rs. 179872.00/- of Rs. 1.798 Lac
3.	Loss of public facility = Rs. 345 Lac	
4.	Possession value of forest land diverted = Rs. 423.8935 Lac	As per detailed project report
5.	Habitat Fragmentation Cost = Rs.706.4892 Lac.	
6.	Compensatory afforestation and soil & moisture conservation cost = Rs. 55.92 Lac.	
7.	Total Cost/Loss = 1412.9783 Lac + 141.2978 Lac + 345 Lac + 423.8935 Lac + 706.4892 Lac + 55.92 Lac = 3085.5788 Lac.	Total gain/benefit from project = Rs. 2867.9335 Lac + 154.875 Lac + 401.00 +1.798 Lac = 3425.6065 Lac

**Cost Benefit Ratio = Total Benefit/Total Loss = 3425.6065/3085.5788= 1.1102 which is >1 so project is found valuable based on given .above described criteria.**

  
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