

# Benefit cost ratio for major project for NH-43Ext. Package – V (KM – 43+00 to KM – 77+00) Forest proposal

Table A: Cases under which cost benefit analysis for forest diversion required.


S. no.	Nature of Proposal	Applicable / Not applicable	Remarks
1	All categories of proposals involving forest land upto 20 hectares in plains and upto 5 hectares in hills	Not Applicable	Not Applicable
2	Proposal for defence installation purposes and oil prospection (prospecting only)	Not Applicable	Not Applicable
3	Habitation, establishment of industrial units tourist lodges/ complex and other building construction	Not Applicable	Not Applicable
4	All other proposal involving forest land more than 5 hectare in hills including roads, transmission lines, minor, medium and major irrigation project , hydel project mining activities , railway lines, location specific installations like micro wave stations, auto repair centres, T.V. towers etc.	Applicable	<i>B. C. Ratio has been calculated as per forest guide line.</i>


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**Table B: Estimation of Cost of forest diversion**


S. No.	Parameters	Applicable / Not applicable	Costs
1	Ecosystem services losses due to proposed forest diversion.	Applicable	Rs. - 3327.170
2	Loss of animal husbandry productivity including loss of fodder	Applicable	Rs. - 332.717
3	Cost of human resettlement	N/A	Nil
4	Loss of public facilities and administrative infrastructure (Roads, building, school, dispensaries, electric lines, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to project	N/A	Nil
5	Possession value of forest land diverted	Applicable	Rs. - 998.151
6	Cost of suffering to oustees	N/A	Nil
7	Habitat Fragmentation cost	Applicable	Rs. - 1663.585
8	Compensatory afforestation and soil & moisture conservation cost	Applicable	Rs. - 6654.340
<b>Total</b>			<b>Rs. - 12975.963</b>
<b>Estimation of Cost of forest diversion (Say)</b>			<b>Rs. - 12976.000</b>
<b>Rate/Hect.</b>			<b>Rs. - 406.771</b>


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**Table C: Existing guidelines for estimation benefits of forest diversion in CBA**

S. no.	Parameters	Applicable/ Not Applicable	Cost
1	Increase in productively attribute of the specific project	Applicable	Rs. - 33271.700
2	Benefits to economy due to specific project	Applicable	Rs. - 332.717
3	No. of population benefits due to specific project	Applicable	Rs. - 40.709
4	Economic benefits due of direct and indirect employment due to project	Applicable	Rs. - 42.709
5	Economic benefits due to compensatory afforestation	Applicable	Rs. - 33271.700
Estimation benefits of forest diversion Total (A)			Rs. - 66959.536
Estimation of Cost of forest diversion (Say) (B)			Rs. - 12976.000
Benefits Cost Ratio: (A / B)			Rs. - 5.160

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## Cost Benefit Analysis Guidelines for Forest land diversion 2017

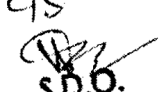
S.no.	Nature of Proposal	Applicable / Not applicable	Remarks
1	All categories of proposals involving forest land upto 20 hectares in plains and upto 5 hectares in hills		These proposal may be considered on a case basis and value judgement
2	Proposal for defence installation purposes and oil prospection (prospecting only)		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 tourist lodges/ complex and other building construction		These activities being detrimental to protection and conservation of forest, as a matter of policy, such proposals would be rarely entertained
4	All other proposal involving forest land more than 5 hectare in hills including roads, transmission lines, minor, medium and major irrigation project , hydel project mining activities , railway lines, location specific installations like micro wave stations, auto repair centers, T.V. towers etc.		These are cases where a cost benefit analysis is necessary to determine when diverting the forest land to non-forest use in the overall public interest.


**Table B: Estimation of Cost of forest diversion**

S.no.	Parameters	Remarks
<b>1</b>	<b>Ecosystem services losses due to proposed forest diversion.</b>	Economic value of loss of eco-system services due to diversion of forest shall be the net present value (NPV) of the forest land being diverted as prescribed by the central Government (MoEF&CC). <b>Note: in case of National parks the NPV shall be ten (10) times are normal NPV</b> and in case of Wildlife Sanctuary the NPV shall be the five (5) time the normal NPV or otherwise prescribed by the ministry or any other competent authority.
<b>2</b>	<b>Loss of animal husbandry productivity including loss of fodder</b>	To be quantified and expressed in monetary terms or 10% of NPV applicable whichever is maximum
<b>3</b>	<b>Cost of human resettlement</b>	To be quantified and expressed in monetary terms as per approved R&R plan
<b>4</b>	<b>Loss of public facilities and administrative infrastructure (Roads, building, school, dispensaries, electric lines, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to project</b>	To be quantified and expressed in monetary terms on actual cost basis at the time of diversion.
<b>5</b>	<b>Possession value of forest land diverted</b>	30% of environmental costs (NPV) due to loss of forest of circle rate of adjoining area in the district should be added as a cost component as possession value of forest land whichever is maximum
<b>6</b>	<b>Cost of suffering to oustees</b>	The social cost of rehabilitation of ousters (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 ousters should have earned in two years had he not been shifted.
<b>7</b>	<b>Habitat Fragmentation cost</b>	While the relationship between fragmentation and forest goods and service is complex, for the sake of simplicity the cost due to fragmentation has been pegged at 50% of NPV applicable as the thumb rule.
<b>8</b>	<b>Compensatory afforestation and soil &amp; moisture conservation cost</b>	The actual cost of compensatory afforestation and soil & moisture conservation and its maintenance in future at present discounted value

**Table C: Existing guidelines for estimation benefits of forest diversion in CBA**

<b>S. no.</b>	<b>Parameters</b>	<b>Remarks</b>
<b>1</b>	<b>Increase in productivity attribute of the specific project</b>	To be quantified & expressed in monetary terms avoiding double counting
<b>2</b>	<b>Benefits to economy due to specific project</b>	The incremental economic benefits in monetary terms due to the activities attribute to the specific project
<b>3</b>	<b>No. of population benefits due to specific project</b>	As per the Detailed project report
<b>4</b>	<b>Economic benefits due of direct and indirect employment due to project</b>	As per the Detailed project report
<b>5</b>	<b>Economic benefits due to compensatory afforestation</b>	Benefits from such compensatory forestation accruing over next 50 years monetised and discounted to the present value should be, included as benefits of compensatory afforestation. *For benefits of CA the guideline of the Ministry for NPV estimation may be consulted.

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**Note-1:: 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 environmental 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.

**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 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 environmental costs due to loss of forests.

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