COST BENEFIT ANALYSIS

(As per Government of India MOEF & CC guideline No. 7-69/2011-FC (Pt.) on Dated-01st August, 2017)

Name of Project:- Rehabilitation and Up - gradation of Four Lane with paved shoulder from Varanasi to Hanumanha section of NH-7 passing through Varanasi, Chandauli and Mirzapur district in the state of Uttar Pradesh.

Table-B: Estimation of cost of forest diversion

S. No	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion	Density of forest area to be diverted density 0.4 and eco class is 3 accrue over a period of 100 years. The value will reduce with density, for example, if density is 0.4, a project which requires deforestation of 1 hectare of forest the value will work out at Rs. 803000 Value per hectare = 8.030 lacs Forest area for diversion = 131.0175 Ha **Environmental loss = 1052.07052 Lacs** (131.0175 X 8.03)
2	Loss of animal husbandry productivity, including loss of fodder	10 % of NPV **105.207 Lacs**
3	Cost of human resettlement	Nil
4	Loss of public facilities and administrative infrastructure (Roads, building, schools, dispensaries, electric lines, railways etc,) on forest land or which would require forest land if these facilities were diverted due to the project.	Public facilities and administrative infrastructure like roads, buildings, schools, dispensaries, electric lines, railways etc. are not going to be affected due to the project and therefore the loss on this account will be 'NIL'
5	Possession value of forest land diverted	30 % of NPV = 315.621 Lacs
6	Cost of Suffering to oustees	Since there are no ousters, because of the proposed forest area, the social cost of rehabilitation of ousters is Nil.
7	Habitat Fragmentation Cost	Nil
8	Compensatory Aforestation and soil & moisture conservation cost	CA has been proposed in double D-graded forest land. Therefore, about this CA scheme estimate will be provided by Dy.CF Mirzapur Total Financial Outlay for C.A = 381.272 Lacs

प्रादेशिक

प्रभागीय वनाधिकारी
मीरजापुर - वन प्रभाग
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Manager (Tech.)
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Table-C – Existing guidelines for estimating benefits of forest-diversion in CBA

<table>
<tr><th>S. No</th><th>Parameters</th><th>Nature of proposal – Roads</th></tr>
<tr><td>1</td><td>Increase productivity attributable to the specific project</td><td>The project road will result in development of areas establishment of various small, medium and large scale industries due to better transport facilities of goods and materials.
The above benefit in term of rupees is about 1565.00 lacs per year</td></tr>
<tr><td>2</td><td>Benefits to economy due to the specific project</td><td>Due to the proposed project 40% travel time will be saved, Fuel and maintenance of vehicles will be reduced at about 35%. It will provide safe and faster transport link between important cities like Aurangabad, Nagpur, and Mumbai and serve better connectivity to Industrial growth center. Traffic and Tourism of area will be uplifted approximately 20%. The above benefit in term of rupees is about 2885.00 lacs per year</td></tr>
<tr><td>3</td><td>No. of population benefited due to specific project</td><td>All those who are traveling on the road can save on fuel and time, reducing pollution and carbon emissions. For those residing in the region will be less exposed to noise and air pollution.
The above benefit in term of rupees is about 1480.00 lacs per year</td></tr>
<tr><td>4</td><td>Economic benefits due to of direct and indirect employment due to the project</td><td>Details of employment (Per Year)
<table>
<tr><th>S.</th><th>Types of Job</th><th>(A) Temporary (During Construction Period)</th><th>(B) Permanent (After constructio n work)</th><th>Total</th></tr>
<tr><td>1</td><td>Skilled</td><td>20000</td><td>160</td><td>20160</td></tr>
<tr><td>2</td><td>Semi Skilled</td><td>35000</td><td>110</td><td>35110</td></tr>
<tr><td>3</td><td>Non skilled</td><td>65000</td><td>140</td><td>65140</td></tr>
<tr><td>4</td><td>Total</td><td>120000</td><td>410</td><td>120410</td></tr>
</table>
Total financial cost (Per Year)
<table>
<tr><th>S.</th><th>Types of Job</th><th>Person required (A+B)</th><th>Rate (in rs)</th><th>Total</th></tr>
<tr><td>1</td><td>Skilled</td><td>20160</td><td>1000</td><td>20160000</td></tr>
<tr><td>2</td><td>Semi Skilled</td><td>35110</td><td>600</td><td>21066000</td></tr>
<tr><td>3</td><td>Non skilled</td><td>65140</td><td>400</td><td>26056000</td></tr>
<tr><td>4</td><td>Total</td><td>120410</td><td></td><td>67282000</td></tr>
</table>
Total cost of (a + b) works out to Rs. 67282000 Per year. (672.82 lacs)</td></tr>
<tr><td>5</td><td>Economic benefits due to compensatory Aforestation</td><td><u>20% of total Amount in CA Estimate</u>
20% of CA (<u>381.272 X 20 %</u>) = 76.254 lacs in 50 years
For 1 year- 1.525 lacs (76.254/50)</td></tr>
</table>

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Manager (Tech.)

Analysis

Table-B: Estimation of cost of forest diversion

Parameters	Amount (in lacs)
1. Ecosystem services losses	1052.070
2. Loss of animal husbandry	105.207
3. Cost of human resettlement	NIL
4. Loss of public facilities	NIL
5. Possession value of forest land diverted	315.621
6. Cost of Suffering to oustees	NIL
7. Habitat Fragmentation Cost	NIL
8. Compensatory Aforestation cost	381.272
Total	**2060.963**

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

Parameters	Amount (in lacs)
1. Increase productivity attributable to the specific project	1565.000
2. Benefit to economy	2885.000
3. Population benefit	1480.000
4. Employment potential	672.820
5. Economic benefits (Due to compensatory Aforestation)	001.525
Total	**6604.345**

Ratio

Benefit – Cast (6604.345 – 2060.963 = 4543.382 Lacs (Per year total benift for 131.0175 Ha.)

For 1 Hact – 34.677 lacs/Year [Total benefit / Total Effected area (4543.382 / 131.0175)]

Benefit Ratio (Per year) - 1 : 34.677 (1 hact. Forest area : 34.677 lacs)

Note: While calculating cost ratio as above, only parameters of evaluation of loss of forests and parameters of evaluation of benefits approved by the government of India in the guidelines Chapter II (2.6) are taken into consideration. Other costs such as project cost, cost of medicinal plant garden, Land acquisition, Pre construction activities etc. are not considered.

Date 25.06.2018

Place:- Varanasi

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