

## COST BENEFIT ANALYSIS

### PART-A

Category of proposals for which cost Benefit Analysis is applicable for the proposed Gauge Conversion of existing Railway line from Meter Gauge to Broad Gauge between Akola-Khandwa Railway stations.

Sl.No.	Nature of proposal	Applicable/Not Applicable	Remarks
1)	All categories of proposals involving forest land up to 20 Ha. in plains and up to 5 Ha. in hills.	Not Applicable	Nil
2)	Proposals for defence installation purposes and oil prospecting (prospecting only).	Not Applicable	Nil
3)	Habitation, establishment of industrial units, tourist lodges/complex and other building construction.	Not Applicable	Nil
4)	All other proposals involving forest land more than 5Ha. in hills including roads, transmission lines, minor, medium and major irrigation projects, hydel projects, mining activities. Railway lines, location specific installation like Micro-wave station, auto repeater centre, TV towers etc.		The diversion of forest land involved is only 21.49 hectare for Gauge Conversion of existing Meter gauge Railway line.
5)	Proposals for renewal of mining lease for forest land.	Not Applicable	Nil

  
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## COST BENEFIT ANALYSIS

### PART-B

**PARAMETER FOR EVALUATION OF FOREST HAS BEEN ACCORD FOR A PERIOD OF 99 YEARS AS PER GOVERNMENT DIRECTIVES:**

**Project:** Proposed Gauge Conversion of existing Railway line from Meter Gauge to Broad Gauge between Akola-Khandwa Railway stations.

Total length of this Railway line 8.10 Km have passing through Reserve/Protected forest area under Bhainsa reserved forest division, District-Khandwa and Burhanpur and total forest land to be diverted for this rail line in 21.49 hect. under range-Barukheda of Khandwa district and Amlakhurd of Burhanpur district.

Sl.No.	Parameters	Road, Tr. Line & Railway line
1)	<p>Forest loss calculations, loss of value of timber, fuel wood and minor forest produce on an annual basis, including loss of man-hours per annum of people who diverted live hood and wages from the harvest of these commodities.</p> <p>Present NPV for 1 Ha of forest land: = 6.26 Lakh Present NPV for 21.49 Ha of forest land: = 21.49 x 6.26 Lakh = 134.5274 Lakh</p> <p>Rate of C.A. for 1Ha of forest land: = 4.1035 Lakh Value of C.A. for 21.49 Ha of forest land: = 21.49 x 4.1035 Lakh = 88.1842 Lakh</p> <p>Double the amount of C.A.: = 2 x 88.1842 Lakh = 176.3684 Lakh</p> <p>Total Loss: = (134.5274 + 176.3684) Lakh = 310.8958 Lakh</p>	
2)	<p>Loss of animal husbandry productivity including loss of fodder.</p> <p style="text-align: center;"> उप मुख्य इंजिनियर निर्माण / व.म.रे / अकोला Deputy Chief Engineer Construction South Central Railway Akola</p>	<p>Productivity of animal husbandry will not affect. Although, minor loss of fodder may occur for animal due to deforestation for Railway line. This may be Rs.5000 per hectare per year due to hilly terrain.</p> <p>Hence effective loss due to loss of fodder for 99 years.</p>

**COST BENEFIT ANALYSIS**

		$\approx \text{Rs. } 5000 \times 21.49 \times 99$ $= 10637550$ ( say 106.38 Lakhs)
3)	Cost of human resettlement	There is no inhabitant as per record in Railway line corridor forest land. Hence, there would be no loss due to human resettlement.
4)	Loss of public facilities and administrative infrastructure ( roads, buildings, schools, dispensaries, electric line, Railway etc.) on forest land or which would require forest land if these facilities were diverted due to this project.	<p>No administrative infrastructure such as roads, buildings, schools, dispensaries, electric line etc. are affected due to diversion of forest land to this project. There will be no loss involved on this account.</p> <p>The GC Railway line will provide additional facilities better connectivity to local resident which will give opportunity to development of area.</p>
5)	Environmental losses (soil erosion effect on hydrological cycle, wild life habitat, microclimate, upsetting of geological balance).	<p>Environmental losses are quantified as follows:-</p> <p>Total PF area proposed for diversion <math>\approx 21.49</math> hector.</p> <p>Environmental value of one hectare of fully stocked forest density 1.0 (Rs. in Lakh) for a period of 99 years is <math>= 126.74</math> Lakhs.</p> <p>Considering density of the proposed PF <math>= 0.6</math></p> <p>Therefore, total environmental loss for a period of 99 years is worked out as <math>= 126.74 \times 0.6 \times 21.49 \times \text{Rs. } 1,00,000</math>.</p> <p><math>= 16,34,18,556</math> (say 1634.1856 Lakhs)</p>
6)	Suffering of outers	Not applicable since there will be no displacement of people.
<b>Total cost ( calculated for 99 years )</b>		<b><math>= 2051.461</math> Lakh</b>

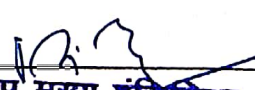
  
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## COST BENEFIT ANALYSIS

### PART-C

#### PARAMETERS FOR EVALUATION OF FOREST NOT WITH STANDING LOSS OF FOREST

Sl.No.	Parameters	Descriptions
1)	Increase in productivity attributable to the specific project.	The Railway line project includes accessibility to the region. This will help in both economic and social development.
2)	Benefits to the economy	Improving the accessibility shall help in regional economic development.
3)	Nos of the population benefitted	Entire population of district – Khandwa and Burhanpur, tehasil-Khandwa and Pandhana of Khandwa district and tehasil-Nepanagar of Burhanpur district are benefitted directly. Hence total nos. of 35 Lakhs population will be benefitted by the proposed GC Railway line.
4)	Economic benefits due to of direct and indirect employment due to this project.	This project will provide rail link between Khandwa and Akola will provide rail connectivity between industrial centers in the South and Western India with all-weather system of mass transport of goods and encourage industrialization, accelerating the regional development with passenger traffic of South and Western region. This rail line encourages the tourist activity. This project is helpful for development of small and medium scale industries.
5)	Economic benefits due to compensatory afforestation.	The GC Railway line will provide facilities better connectivity for small and medium scale industry, trade and employment to the population, hence the overall economic activities will improve.

  
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## COST BENEFIT ANALYSIS

### CALCULATION OF BENEFIT/COST RATIO:

#### Monetary return of the project for 99 years

- 1) The total projected earning as per PECT survey has been projected at Rs 2059.956 Lakhs per annum.

Therefore, the projected monetary return of the project for 99 years.

$$= 2059.956 \times 99 \times 1,00,000 = \text{Rs } 20393573800$$

(say Rs 203935.738 Lakhs).

**Cost Benefit Ratio** = Monetary return of the project for 99 years /

Environmental loss for a period of 99 years.

$$= 203935.738 / 2051.461$$

$$= 99.41 : 1.$$

Date: 14.06.2021.

Place: AKOLA.

  
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Title of the project: Proposed Gauge Conversion of existing Railway line from Meter Gauge to Broad Gauge between Akola-Khandwa Railway stations.

File No: Dy.CE/C/AK/AMX-KNW/FOREST.