


BENEFIT COST ANALYSIS
PART-A

Category of proposals for which Cost Benefit Analysis are applicable for
"Construction of New B.G. Railway Line from Chhotaudepur to Dhar Project [157 km]"
[Proposal No. FP/MP/RAIL/154962/2022, Dated 29.04.2022]

No.	Nature of Proposal	Applicable / Not Applicable	Remarks
1	All categories of proposals involving forest land up to 20 hectares in plains and up to 5 hectare in hills	Not applicable	Nil
2	Proposal 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 forestland more than 20 hectares in plains and more than 5 hectares in hills including roads, transmission lines, minor, medium and major irrigation projects, hydro projects, mining activity, railway lines, location specific installations centre, TV towers etc.	Applicable	These are cases where a cost benefit analysis is necessary to determine whether diverting the forest land to non-forest use is in the overall public interest.
5	Proposal for renewal of Mining lease for forest land.	Not applicable	Nil

Place:- Vadodara
Date:- 14.03.2024


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BENEFIT COST ANALYSIS
PART-B

PARAMETER FOR EVALUATION LOSS OF FOREST HAS BEEN ACCORD FOR A PERIOD OF 50 YEARS AS PER GOVERNMENT DIRECTIVES

Project :- Construction of New B.G. Railway Line from Chhotaudapur to Dhar Project.

Total length of B.G. railway Line passing through Reserve forest area under Alirajpur District- Alirajpur	:-	1.19 Km
Total length of B.G. railway Line passing through Reserve forest area under Dhar District- Dhar	:-	23.309 Km
Total area of PF proposed for diversion from Alirajpur Forest Division	:-	6.654 Hectare
Total area of PF proposed for diversion from Dhar Forest Division	:-	237.385 Hectare

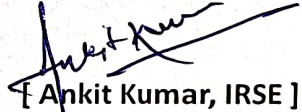
(Total length of B.G. railway Line passing through Reserve forest area under Alirajpur & Dhar forest division is 24.21 Km and Total area of PF proposed for diversion from Alirajpur & Dhar forest division is 244.039 Hectare)

No.	Parameters	Read, Tr. Line & railway Line
1	<u>Forest Loss calculations</u> 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 derived livelihood and wages from the harvest of these commodities. Present NPV for 1 ha of forest land Present NPV for 244.039 ha forest land	= 9.57780 Lakh = 244.039 X 9.57780 Lakh = 2337.3567 Lakh
2	Loss of animal husbandry productivity, including loss of fodder.	Loss = 5 Tonne/hectare/year @ Rs. 125 per Tonne = 5 x 125 x 244.039 = Rs. 1,52,524.38 = 1,52,524.38 x 50 (For 50 years) = Rs. 76,26,219/- (or) = 10% of environmental cost (NPV) = 2337.3567 Lakhs x 10/100 = Rs. 233.73567 Lakhs Taking higher of the values i.e. Rs. 233.73567 Lakhs.
3	Cost of human resettlement	There is no human inhabitant as per record in railway line corridor forest land. Hence,

X

		there would be no loss due to human resettlement.
4	Loss of public facilities and administrative infrastructure (Roads, Building, Schools, Dispensaries, Electric lines, Railways etc.) on forest land, which would require forest land if these facilities were diverted due to this project	<p>No administrative infrastructure such as road, buildings, schools, dispensaries, electric line, railway etc. are affected due to diversion of forest land to this project. There will be no loss involved on this account.</p> <p>The new Railway line will provide additional facilities better connectivity to local resident which will give opportunity of development in area.</p>
5	Possession value of forest land diverted	<p>Per hectare rate along alignment = 40 Lakhs For diverted land area in hectare = 40×244.039 Ha = 9,761.56 Lakhs (or) = 30% of environmental cost (NPV) = $30/100 \times 2337.3567$ Lakhs = Rs. 701.20701 Lakhs Considering higher of the above values i.e. Rs. 9,761.56 Lakhs</p>
6	Cost of suffering of outsees.	Not applicable.
7	Habitat Fragmentation Cost	<p>= 50% of NPV applicable as thumb rule. = $2337.3567 \times 50\%$ = Rs. 1168.67835 Lakhs</p>
8	Compensatory afforestation and soil & moisture conservation cost	<p>Approximate CA cost per ha with 10 years maintenance (considering cost escalation is = 4 Lakhs (or) CA cost = $4 \times (244.039 \times 2)$ = 1952.312 Lakhs</p>

Total cost (Environmental Loss) (A) = Rs. 15453.64272 Lakhs


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BENEFIT COST ANALYSIS

PART-C

PARAMETERS FOR EVALUATION OF FORESTS NOT WITHSTANDING LOSS OF FOREST

No.	Parameters	Remarks
1	Increase in productivity attribute to the specific project	This railway project will improve accessibility to the region, which will help in socio-economic development.
2	Benefits to Economy due to the specific project	Improving the accessibility shall help in regional economic development.
3	No. of population benefited due to the specific project	Entire population of Alirajpur & Dhar District i.e 14,00,000 souls shall be benefited from the project.
4	Economic benefits due to centres, TV towers etc. Direct and indirect employment due to the specific Project.	This project will provide rail link in between Vadodara and Indore which will improve the connectivity in between the cities in the golden quadrilateral and central India. This will also give locals people, living in the vicinity of this railway line, to visit nearby bigger big cities and easily gain from the opportunities available in big cities. The underdeveloped districts of Alirajpur, Chotaudepur will get direct connectivity with big cities like vadodara. This project is helpful for establishment and development of small and medium scale industry and to stop migration of people in search employment. 400000 man days benefit due to employment = INR 500 per day =400000 x 500 = 20,00,00,000/- or 2000 Lakhs
5	Economic benefits due to compensatory afforestation	CA will be taken up in 488.078 Ha. of land having a minimum density of 0.7. The ecological value for 50 years period for the density of 1.0 is Rs. 126.74 Lakhs per hectare as per forest act 1980. Therefore, ecological gain would be Rs. 43,301.304 Lakhs

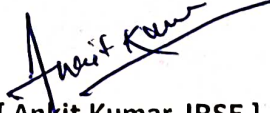
Total benefit (B) = 45301.304 Lakhs

Benefit to cost ratio = (B) / (A)

$$= 45301.304/15453.64272$$

$$= 2.93 (>1)$$

The benefit to cost ratio being greater than 1 (i.e. 2.93) the project is found to be viable as per the analysis/ described criteria.


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