GOVT. OF MADHYA PRADESH

FOREST DEPARTMENT
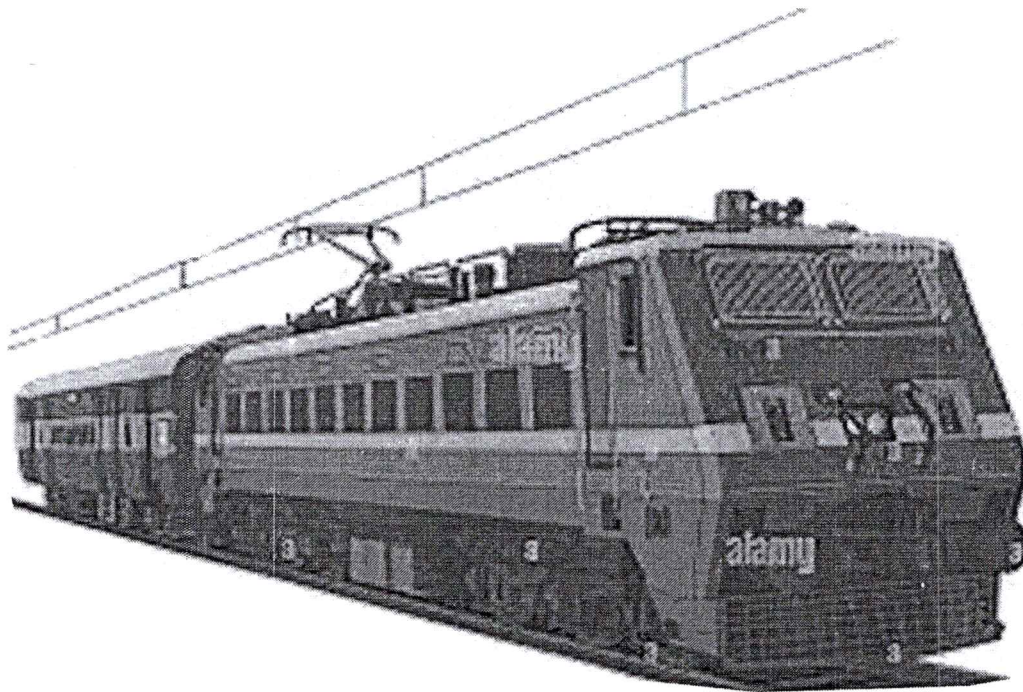
COST BENEFIT ANALYSIS
(Considering 50 Year Period)

REWA-SIDHI-SINGRAULI NEW BG RAIL LINE PROJECT
Proposal No. FP/MP/RAIL/33238/2018
Applied Forest Area in Sidhi Division 34.32 hect.

Submitted by
Divisional Forest Officer
Forest Division Sidhi (M.P.)

PARAMETER FOR EVALUATION OF FORESTS

S.No.	Parameters	Nature of proposal		
		Road, Electric or railway line	Minor Irrigation Project Quarrying stones metal	Medium and major Irrigation hydroelectric large mining & other miscellaneious projects.
1	2	3	4	5
1	Loss of value of timber fuel wood and minor forest produce on an annual basis including loss of Man- hours, wages from the harvest of these commodities.	19664120	-	-
2	Loss of animal husbandry productivity, including loss of fodder.	514800	-	-
3	Cost of human resettlement	1500000	-	-
4	Loss of public facilities and administrative infrastructure (Roads, buildings, school, dispensaries, Electric lines, Railway, etc.) on forest land on which would be required forest land if these facilities were diverted due to the project.	NIL	-	-
5	Environmental losses (soil erosion, effect of hydrological cycle, wildlife, habitate, Microclimatic upsetting of Ecological balances)	260983000	-	-
6	Suffering of oustees	NIL	-	-
	Total	282661920		-

Range Officer
Range Bahari

Sub Divisional Officer
Sub Division Sidhi

Divisional Forest Officer
Forest Division Sidhi (M.P.)

EVALUATION OF LOSS OF FOREST
(W.r.t. Ammexure-II of cost benefit analysis proforma)

CALCULATION DETAILS

S.N.	Project	Rail line Project
1	2	5
1	Forest land needed	34.32 hact.
2	Average quality of forest	IVB
3	Average density of forest	0.7
4	Total Nos of trees (As per enumeration list)	16574
5	Estimated total volume	558.027
6	Estimated timber volume	259.320
7	Estimated Fuel volume	298.707

A. ITEM - 1   EVALUATION OF LOSS OF TIMBER, FUEL, MINOR FOREST PRODUCE, MANDAYS AND EXPECTATION OF POTENTIAL VALUE OF SOIL

(a) Value of timber @ 45000 per cum   :   259.320 x 45000   =   11669400

(b) Value of fuel @ 2700 per cum   :   298.707 x 2700   =   806509

(c) Value of minor forest produce   :   Averae Revenue per hect. x Area applied for
                                             614 x 34.32   =   21072

(i) Total Annual Revenue from m.f.p. in the division = 486.73 lakhs

(ii) Total forest area in the division = 79269.818 hect.

(iii) Average annual Revenue per hect. from m.f.p. is Rs. 614 per hect.

(d) Value of Mandays   :   Mandays per hect. x Area applied x Dailywages
                                             305 x 34.32 x 371 = 3883480

(i) Cost of coup working
(34.32x558.027 cum)
@ 6915 cum = 3858757
there fore per hect. cost Rs. 112435/-
Mandays = cost per hect/Dailywages
371 = 303

(ii) Cost m.f.p. collection per hect
Mandays = cost per hect/dialywages
= 614/371= 2 mandays
Total Mandays= 305

(e) (I) Expectation or potential value of soil   :

Co   = R/1.0 Pn-1
Where R = Upset price of forest growth i.e. Rs. 12475909
P   = Rate of interest 4 %
N   = Period of rotation = 40 years
Reciprocal value of = 1/1.0Pn-1 = 0.2632
i.e. Co   = Upset price x Reciprocal Value
            Rs. 12475909 x 0.2632 = Rs. 3283659

(ii) Revenue obtained from Intermediate yeld   : Nil

Note Calculation of rotation of thining is not prescribed in working plan of SCI working circle

(iii) Fire protection Charges   :   Nil

TOTAL ITEM-I (a+b+c+d+e)   Rs. 11669400+806509+21072+3883480+3283659 = 19664120

B. ITEM - 2 LOSS OF VALUE OF FODDER (GRASS)

(i) Estimated quantity of grass   :   Average production x Area applied
(in MT) based on consideration   3 x 34.32 = 102.96 Tons
that on closure an area is capable of yielding an
average 2 to 4 MT of Grass per hect.

(ii) Loss of value of fodder (Average local market   Estimated Qty x Market rate
rate Rs. 5000/per MT)   102.96 x 5000 = 514800

C.   ITEM. 3   Cost of human resettlement
The forest land rehabilitation of the displaced one person, Hence the Cost of human Settlement is
1500000 acarding with guideline of human settlement package

D.   ITEM. 4   LOSS OF PUBLIC FACILITIES AND ADMINISTRATIVE IONFERACTURE :
Loss of Forest road Nil

E.   ITEM. 5   VALUATION OF ENVIRONMENTAL LOSSES :

Environmental loss for	=	Standard		Area		Actual
Over a period of 50 years		Loss per	x	applied	x	density
		Hect in a		for		in the
		fully stocked				area
		forest (Density)				for

= 126.74x34.324x0.6
= 2609.83 lacs

Environmental losses per annual   =   52.19 lac

F.   ITEM. 6   SUFFERING OF OUSTEE   =   NIL

Range Officer   Sub Divisional Officer   Divisional Forest Officer
Range Bahari   Sub Division Sidhi   Forest Division Sidhi (M.P.)

Calculation of compensation for forest land proposed to be transferred for use by Rewa-Sidhi-Singrauli New BG Rail Line.

Amount of compensation has been derived as per instructions contained in Govt. of India Ministry of Environment forest and climate change (FC Division) memo No. 6-MPRO16/2023-BHO dated 22.06.2023

1.0 Expe: calculation or potential value of soil :

Co	=	R/1.0P-1
Where R	=	Upset price of forest growth i.e. Rs. 12475909
P	=	Rate of interest = 4%
N	=	Period of rotation = 40 years
Reciprocal value of i.e. Co	=	Upset price x Reciprocal value Rs. 12475909 x 0.2632 Rs. 3283659

2.0 Value of standing growth is 12475909
(As given in enclosed rough working sheet)

3.0 Potential revenue form minor forest produce etc.

C	=	25RA
Where	=	Revenue per hect.
	:	25 x 614 x 34.32 = 526812

4.0 fire protection charges - Nil

5.0 Rehabilitation Charges :
(As per instructions contained in the Govt. of MP Forest Departments Memo No. 572 Dated 07.02.2002)

As per enclosed project Report Rs.   Project cost of compensatry afforstation Rs. 14327940

6.0 NPV   46576015

7.0 Total compensation: i.e. (1+2+3+4+5+6)   =   77190335

1.0	Potential value of soil	Rs.	3283659
	Cost of standing growth	Rs.	12475909
	Potential Revenue from M.F.P.	Rs.	526812
	fire protection charges	Rs.	Nil
	Rehabilitation Charges :	Rs.	14327940
	NPV	Rs.	46576015
	Total	-	**77190335**

Range Officer
Range Bahari

Sub Divisional Officer
Sub Division Sidhi

Divisional Forest Officer
Forest Division Sidhi (M.P.)

COST BENEFIT ANALYSIS

Project Details

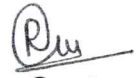| 1	Short narrative of the proposal and project/scheme for which the forest land is required	Construction of new B.G. rail line from Sidhi to Singrauli =75.75 Km.
2	Cost of Project Sidhi-Singrauli	Rs. 1703.71 crore.
3	Justification for locating the project in forest area	As per techno economic survey the short and feasible alignment connecting obligatory points has been selected.
4	Employment likely to be generated.	iii) Temporary man days: Approx 1.0 lacs. iv) Permanent:5000
5	Para-wise breakup of the land required	176.24 Hectare

PARAMETERS FOR EVALUATION OF LOSS OF FORESTS

1	Loss of value of timber, fuel wood and minor forest produce on annual basis, including loss of man hours per annum of people who derived livelihood and wages from the harvest of these commodities.	No valuable species are found in the area there is no loss of timber/fuel wood.
2	Loss of animal husbandry, productivity including loss of fodder.	Nil
3	Cost of Human resettlement	No human settlement is involved in connection with forest area.
4	Loss of public facilities and administrative infrastructure (roads, buildings, schools, dispensaries, electric lines, railway etc.) on forest land or which would require forest land if these facilities were diverted due to the project.	No such losses.
5	Environmental losses (soil erosion effect on hydrological cycle, wild life habitant. Microclimate upsetting of ecological balance)	Nil
6	Suffering to ousters -	There will be no ousters from the forest are due to the formation of road and line.

Dy. Chief Engineer Construction Sidhi
West Central Railway.

PARAMETERS FOR EVALUATION OF BENEFIT, NOT WITHSTANDING LOSS

S.No.	Parameters	
1	Increase in productivity attribution to the specific project.	After construction of Lalitpur-Singrauli project Sidhi district will be linked with Rewa, Sidhi and Singrauli districts. To link coal reserves from Singrauli fields with major power projects and industrial centers in the North and Western India with shortest distance. Transportation of Coal, Cement, Agriculture products, exploiting the minerals & forest resources of the will be done by construction of this rail link.
2	Benefits to economy	To open up the backward area of Vindhya Pradesh by providing rail link to North Central part of India with shortest distance and thus accelerating the general development of backward and poor community of Bundelkhand and Vindhya region. To provide a cheap, reliable and all weather system of mass transport of goods and encourage industrialization.
3	No. of population benefited	Approximate 15 lakh
4	Employment potential	i) Temporary man days: Approx 1.0 lacs. ii) Permanent:5000
5	Cost of acquisition of facility on non-forest land wherever feasible	Nil
6	Loss of (a) Agriculture & (b) Animal husbandry production due to diversion of forest land.	Nil
7	Cost of rehabilitating the displaced persons as different from compensatory amounts given for displacement.	Nil
8	Cost of supply of free fuel wood to workers residing in or near forest area during the period of construction.	Nil

Dy. Chief Engineer Construction Sidhi
West Central Railway.