

COST BENEFIT ANALYSIS FOR DIVERSION OF 1.7587 Ha FOREST LAND
(under Hazaribagh East Forest Division) UNDER GIRIDIH DISTRICT,
JHARKHAND.

Table -A: Estimation of cost of forest diversion

S.No	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion	Assuming NPV @ Rs 6,26,000/- per ha for proposed diversion of 1.7587 ha Forest Land, the economic value of loss of eco-system due to diversion of Forest Land shall be $(1.7587 \times 6,26,000/-)$ = Rs 11,00,946/-
2	Loss of animal husbandry productivity, including loss of folder.	Assuming Rs 2,958/ha, for diversion of 1.7587 ha Forest Land the loss of animal husbandry / productivity will be $1.7587 \times 2,958 =$ Rs 5202/- or on higher end 10% of NPV will be Rs. 1,10,095/-
3	Cost of human resettlement	Since the area proposed for diversion is notified as Protected Forest & deemed forest. There is no displacement of peoples in forest area, hence there would be no cost 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 the project	Since the area proposed for diversion is notified as Protected Forest & deemed forest. The Public facilities such as Roads, Buildings, Schools, and Dispensaries etc are not located within the Forest Land proposed for diversion. Hence there is no such infrastructure loss at all.
5	Possession value of forest land diverted	Cost component as possession value of land 30% of the NPV for diversion of 1.7587 ha Forest Land will be Rs 3,30,284/-
6	Cost of suffering to oustees	Since the area proposed for diversion is notified as Protected Forest & deemed forest. There will be no displacement of people in Forest Area, hence there would be no cost of suffering to oustees.
7	Habitat Fragmentation Cost	As per thumb rule assuming 50% of NPV for diversion of 1.7587 ha Forest Land, the Habitat Fragmentation Cost would be Rs 5,50,473/-
8	Compensatory afforestation and soil & moisture conservation cost	Area of compensatory land will be 3.5174 Ha & to be incorporated by DFO/HZB/East in Part-II of the Forest Diversion Proposal.

Table B: Existing guidelines for estimating benefits of forest-diversion in CBA

S	Parameters	Remarks
1	Increase in productivity attribute to the specific project	DFCC project is expected to increase GDP by 1.5 %. Saving of Rs 7,13,83,168/- due to modal shift from Road to Rail.
2	Benefits to economy due to the specific project	<p>Reduce unit cost of transportation resulting in market competitive rail tariff for customer and reduce transit time.</p> <p>Establishment & Development of industrial corridors & logistics hubs along DFCC alignment.</p> <p>Expansion & modernization of Ports due to improvement in connectivity.</p> <p>Modal Shift of freight from road to the low carbon-intensive mode-rail transport.</p> <p>Developing more Economic Zone.</p> <p>The DFCC project would generate direct and indirect source of employment. As a result of opportunities in Public Private Partnership in Railways projects.</p> <p>opportunities for construction (equipment, machinery & manufacturing) industry.</p> <p>Reduction in Green House Gas Emission, as per detailed study on a Green House Gas(GHG) emissions forecasting for 30 years period cumulative GHG emissions over the 30-year period in the case of no-DFC scenario would have been 582 million ton CO₂, while in the DFC scenario it would be 124.5 million ton CO₂. This</p>

		demonstrates that DFCC implementation will lead to saving of 457.5 million ton CO2 in 30 years period in Freight Transportation. Hence there would a potential for earning of Rs. 29,03,09,25,000/- in 30 years.
3	No of population benefited due to specific project	The project connects 6 states; West Bengal, Jharkhand, Bihar, Uttar Pradesh , Haryana and Punjab under Eastern Corridor besides connecting with western corridor with access to 4 states.65 Million Population would be benefited.
4	Economic benefits due to of direct and indirect employment due to the project	16.5 lakh man days will be benefited in terms of Salary and Wages @ Rs 266/day = Rs 43,89,00,000/- Establishment & Development of industrial corridors & logistics hubs along DFCC alignment. Expansion & modernization of Ports due to improvement in connectivity. Developing more Economic Zone. The DFCC project would generate direct and indirect source of employment. As a result of Opportunities in Public Private Partnership in Railways projects. Opportunities for construction (equipment, machinery & manufacturing) industry.
5	Economic benefits due to Compensatory afforestation	To be incorporated by DFO/HZB/East in Part-II of the Forest Diversion

Summary of Cost-Benefit Analysis for the Project.

Sl.	Cost (in Lakhs)	Benefit (in Lakhs)
1	Ecosystem Service Loss Rs 11,00,946/-	16.5 lakh man days will be benefited in terms of Salary and Wages @ Rs 266/day = Rs 43,89,00,000/-
2	Loss of Animal Husbandary including Fodder Rs 1,10,095/-	Basic living amenities including alternative fuel (LPG, Solar Cooker etc) will be supplied to labours/workers. Construction period-3.5 years Number of labors at peak time – 2500 Per head cost of fuel –Rs.20 Total cost- Rs. 6,38,75,000/-
3	Possession Value of Forest Land 3,30,284/-	To be incorporated by DFO/HZB/East in Part-II of the Forest Diversion
4	Habitat Fragmentation Cost Rs 5,50,473/-	Increase in Productivity-Due to DFCC project GDP growth is expected to increase by 1.5 %.
5	-----	<p>Benefits to Economy due to Project</p> <p>A. (i). Cost of Freight through of one Truck from Dankuni to Ludhiana = Rs.63,000/- (ii) Assuming that One Rake of DFC can accommodate capacity of 1200 trucks. Cost of one Trainload Freight = Rs.42,16,832/- (iii) Cost of Freight through 1200 Trucks = 63,000 x 1200= 7,56,00,000/ Total saving=(75600000-4216832)=Rs.7,13,83,168/-</p> <p>(B) Savings has to be co-related with proposed traffic projections of EDFC. DFCC project is expected to increase GDP by 1.5 %. Carbon emission reduction would help DFCCIL to claim carbon credits, DFCC implementation will lead to saving of 457.5 million ton CO2 in 30 years period in Freight Transportation. One ton of Carbon Emission is equal to One Carbon Credit (DFCCIL to be registered for Carbon Emission Reduction Certificate). Assuming reduction of 457.5 million ton reduction in emissions, there would a potential for earning of Rs 457 Millions USD in 30 years. ie 457000000/- USD in 30 Year or Rs29243430000/-INR in 30 Year Hence Rs.97,47,81,000/ earning per year</p>

$$\frac{\text{Cost Benefit Ratio} = \text{Benefit}}{\text{Loss}} = 1,54,89,39,168 / 20,91,798 = 740.48$$


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Dedicated Freight Corridor Corporation of India Limited
भारत सरकार (रेल मंत्रालय) का उपक्रम
A Govt. of India (Ministry of Railways) Enterprises
कोलकाता / KOLKATA