

Name of Project: - Construction of 63.1 Km Bhanupali-Bilaspur-Beri new Railway line project (Portion of Project in State of Punjab). Phase-II, from Km. 20.000 to 23.950 on New Rail Line and from Km. 92.100 to Km. 96.200 (on existing Sirhind- Nangal Dam Rail line as a part of Bhanupali Station )

**Cost Benefit Ratio Chart**

Block: - Anandpur Sahib

District: -Rupnagar

SL. No.	Particulars	Amount in Lakh (Rs.)	Remarks
<b>1</b>	<b>Total cost (Investment incurred)</b>		
(A)	Construction Cost of the Project	42275.77	Estimated cost from Ch. Km 20.000 to 23.950
(B)	N.P.V. amount to be deposited @ Rs 8.03 lakh / Ha for 35.9767 hectare	288.89	As per details from Rupnagar forest division
(C)	Compensatory afforestation Substitute / Alternative plantation cost to be Deposited – for 35.9767 ha. affected Forest land. Total area required for CA = 2 x 35.9767 = 71.9534 ha. @ Rs. 4.87 Lakh per ha. Cost of CA = 71.9534 x 4.87 = Rs. 338.66 lakh	350.41	
(D)	Addition CA for Tail Plants per tree Total cost Rs. 676 x 74550 = Rs. 50395800	503.95	
(E)	Cost of Tree guard for tail plants Total cost Rs. 1800 per tree x 18000 nos. of plants	324.00	
(F)	Application processing fee of case Rs. 2000.00	.02	
(G)	Marking and assessment of trees Total cost Rs. 15.00 / tree x 8488 nos. = Rs. 127320.00	1.27	
(H)	Other utility / vehicle charges LS	20.00	
(I)	Environmental losses; (Soil erosion, effect on hydrological cycle, wildlife habitat, microclimate upsetting of ecological balance) Density of forest area = 0.3 (avg). Value per hectare = Rs. 38.02 lakh (@ Rs.126.74 lakh per hectare for density 1.0). Forest land = 35.9767 ha. Environmental loss = 38.02 x 35.9767 = Rs. 1367.83 Lakh	1367.83	
(J)	Cost of supply of free fuel-wood to workers residing in or near forest area during the period of construction. Construction period – 3 years Number of labours at peak time – 400 nos Per head cost of fuel – Rs. 20 per day Total cost = Rs. (400x20/100000) x 365 x 3 in lakh	87.60	
(K)	Cost of Greenhouse gas emitted during construction – 4.17 lakh ton CO <sub>2</sub> is likely to be emitted due to the use of construction materials; Monetary value as per Certified Emission Reduction (CER) rates @ Rs. 367.89/tCO <sub>2</sub> = 4.17 x 367.89	1534.1	
(L)	Other cost if any – (For 0.5 ha. @ Rs. 4.87 lakh per ha. for road side / blank patches plantation, etc = 0.5 x 4.87 lakh)	2.435	
(M)	Cost of Green Mission Punjab Forest @ Rs. 50.00 per square mtr. Total Cost = Rs. (50 x 359767) = Rs. 17988350.00	179.88	
	<b>Total</b>	<b>46936.155</b>	

  
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2	Benefits from 3.950 km of Railway line. Taking age of Railroad as 100 Years	Estimated benefits / per year in Rs lakh	Total benefit during the life of the created development in Rs lakh
2.1	<p>Direct Economic Benefits -</p> <p>a) from Passenger traffic – for proposed running of intercity express train between New Delhi - Beri</p> <p>Benefit @ fare Rs. 426 per passenger for 51830 passengers annually for AC Class = Rs. 2,20,79,580.</p> <p>Benefit @ fare Rs. 127 per passenger for 673790 passengers annually for II Class = Rs. 8,55,71,330.</p> <p>Benefit @ fare Rs. 112 per passenger for 65700 passengers annually for Unreserved Class = Rs. 73,58,400.</p> <p>Total benefits = Rs. (22079580+85571330+7358400) = Rs. 11,50,09,310.</p> <p>Pro rata basis benefits per year for 3.950Km = Rs. 115009310 x 3.950/63.1 = Rs. 7199473.45</p>	72	6840
	<p>b) Benefit for proposed running of 2 pairs of MEMU between Nangal Dam to Beri.</p> <p>Benefits @ fare Rs. 14 for 1000 passenger per day per MEMU annually</p> <p>Total benefit = Rs. (14 x 1000 x 2 x 365) = Rs. 10220000</p> <p>Pro rata basis benefits per year for 3.950Km = Rs. 10220000 x 3.950/63.1 = Rs. 639762.28</p> <p>(Cost for 95 years i.e. excluding construction period of 5 years.)</p>	6.40	608
	<p>c) Goods traffic – Anticipated inward goods traffic like coal, gypsum, Iron core, fly ash, Sugar, Wheat, Rice etc.</p> <p>Benefit of Inward traffic @ Rs. 833.37 lakh per year.</p> <p>Anticipated Outward goods traffic like Cement, Maize, and Vegetable etc.</p> <p>Benefit of Outward traffic @ Rs. 1411.16 lakh per year.</p> <p>Pro rata basis benefits per year for 3.950Km = Rs. (1411.16+833.37) x 3.950/63.1 = Rs. 140.50 lakh</p> <p>(Cost for 95 years i.e. excluding construction period of 5 years.)</p>	140.50	13348.45
	<b>Total direct benefits</b>		<b>20796.45</b>



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2.2	<p><b>Social Benefits:-</b></p> <p>a. Direct Employment - Benefit of employing labours (permanent) for annual maintenance and operation staff. Manpower employed = 17 no @ Rs. 40000 per month (average) Cost of 95 years i.e. excluding construction period of 5 years (as the total project of 23.950 km including Himachal Pradesh State will be completed in 5 years)</p>	81.60	7752
	<p>b. Direct Employment (during construction period) = 225 Nos @ Rs. 20000 per month (average). Cost for 3 years of construction period</p>	540	1620
	<p>c. Indirect employment due to business development e.g. market, tourist, transportation etc. = 68 ( 4 times of direct employment assumed ) @ 10000/- per month for a period of 95 years (as the total project of 23.950 km including Himachal Pradesh State will be completed in 5 years)</p>	81.60	7752
	<p>d. Social upliftment of each class of society in entire project area = 18085 persons from villages in project area @ Rs. 8000 per month for a period of 95 years. Rs 8000 per month is extrapolated from Gross National Income per capita assuming 2.5% of it may be contributed due to the project (Source-Human Development report, 2015 by UNDP). Productivity is likely to increase due to improvement in educational and health facility and most importantly mobility and accessibility. (3617 family will be benefitted by assuming 5 persons per family )</p>	3472.32	329870.40
<b>Total Social benefits</b>			<b>346994.4</b>

2.3	<p><b>Ecological Benefits</b></p> <p>Railway will provide an alternate and reliable mode of transport with lesser pollution. Saving of carbon emissions compared to existing route (by NH-205) will be 223.8 tCO<sub>2</sub> per year. Rate of carbon credit @ 367.89 CO<sub>2</sub>Rs. /tonne CO<sub>2</sub>. Hence savings of CO<sub>2</sub> in monetary terms for 95 years.</p>	0.82	77.9
			77.9
	<b>Total</b>		<b>367868.75</b>
	Cost-Benefit Ratio = Benefits/Investment =	7.84	

  
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