

## **CALCULATION FOR BENEFIT COST RATIO**

**Name of Scheme:** Construction of link road from Beer Bagh to Kanhal via Shiva.

<b>Total Cost of Project/ Scheme</b>	<b>1008.85 Lacs</b>
<b>Length of the Road</b>	<b>10.75 km</b>
<b>Population</b>	<b>2000 Souls</b>
<b>PCU's</b>	<b>129</b>
<b>Distance reduction</b>	<b>10.75 km</b>
<b>Saving in Vehicle Operation Cost.</b>	<b>VOC x Distance x PCU x 365</b>

As per IRC norms and guidelines of May 1998.

Assuming the vehicle operating cost at Rs. 9.00/Km/PCU

The annual saving in VOC may be quantified as under

$$\frac{9 \times 10.75 \times 129 \times 365}{100000} = 45.55 \text{ lacs}$$

### **TRAVELING TIME SAVED**

Population	2000 Souls
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Assuming 10% of the population is engaged in taking commercial activities with average time reduction of 5 min/ km with probability of securing employment at 0.65 and the current wage rate at Rs. 500/ day, the proportionate saving in travel time shall be as under: -

- (a) Manday saved  $= 0.10 \text{ of population} \times \text{time} \times \text{time reduction}$   

$$\frac{0.10 \times 2000 \times 5 \times 365 \times 10.75}{60 \times 8} = 8174.48 \text{ days}$$
- (b) Value of travel time saved  $= \frac{8174.48 \times 0.65 \times 500}{100000} = 26.56 \text{ lacs}$

Benefits an account of saving of of Doda District  
 $= 26.13 \times 10.75 = 280.90 \text{ lacs}$

Total benefit of project  $= 280.90 + 45.55 + 26.56 = 353.01 \text{ lacs}$

**Physical and Financial Phasing:**

<b>Year</b>	<b>Physical</b>	<b>Financial</b>
1 <sup>st</sup> Year	30%	302.655 lacs
2 <sup>nd</sup> Year	40%	403.54 lacs
3 <sup>rd</sup> Year	30%	<u>302.655 lacs</u>
	<b>Total</b>	<b>1008.85 lacs</b>


**Benefits: - 353.01**

<b>Particular</b>	<b>1<sup>st</sup> Year</b>	<b>2<sup>nd</sup> Year</b>	<b>3<sup>rd</sup> Year</b>	<b>4<sup>th</sup> Year</b>	<b>Total</b>
Capital cost	302.655	403.54	302.655	-	1008.85
Benefits	105.90	141.20	105.90	353.01	-
Discount factor	0.87	0.756	0.658	2.73	-
Present Worth of Cost	263.30	305.07	199.14	-	767.51
Present of Benefit	92.13	106.75	69.68	963.71	1232.27

$$\text{BCR} = \frac{\text{Present Worth of Benefit}}{\text{Present Worth of cost}} = \frac{1232.27}{767.51} = 1.60$$

**BCR = 1:1.60 OK**


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**PWD (R&B) West Sub Division**  
**Doda**




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**Doda**


**Name of Work: -** Construction of link road from Beer Bagh to Kanhal via Shiva.

S.No	Vehicle Traffic	No. per day	Factor	PUC per day.
1	Cycle	60	0.50	30.00
2	Motor Cycle	30	0.50	15.00
3	Passenger Car/ Pick up	30	1.00	30.00
4	Tractor /LCV	10	1.50	15.00
5	Truck/ Buses	10	3	30.00
6	Truck Tailor	3	3	9.00
			Total PCU per day	129.00

**Saving in Vehicle Operating Cost: -**

The above figures are as per the survey conducted by the Department. The volume of the traffic has been converted into standard passenger cars and PCU with the help of conversion factor and estimated as above.

  
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