

## CALCULATION FOR BENEFIT COST RATIO

**Name of Scheme:** Construction and Upgradation of Bijarni to Lal Draman link road.

<b>Total Cost of Project/ Scheme</b>	<b>994.00 Lacs</b>
<b>Length of the Road</b>	<b>9.60 km</b>
<b>Population</b>	<b>3000 Souls</b>
<b>PCU's</b>	<b>154</b>
<b>Distance reduction</b>	<b>9.60 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. 7.00/Km/PCU  
 The annual saving in VOC may be quantified as under

$$\frac{7 \times 9.60 \times 154 \times 365}{100000} = 37.77 \text{ lacs}$$

### **TRAVELING TIME SAVED**

<b>Population</b>	<b>3000 Souls</b>
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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: -

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

$$\frac{0.10 \times 3000 \times 5 \times 365 \times 9.60}{60 \times 8} = 10950.00 \text{ days}$$

$$(b) \text{ Value of travel time saved} = \frac{10950 \times 0.65 \times 500}{100000} = 35.58 \text{ lacs}$$

Benefits an account of saving of Doda District  
 $= 26.13 \times 9.60 = 250.84 \text{ lacs}$

Total benefit of project  $= 250.84 + 37.77 + 35.58 = 324.19 \text{ lacs}$

**Physical and Financial Phasing:**

Year	Physical	Financial
1 <sup>st</sup> Year	30%	298.20 lacs
2 <sup>nd</sup> Year	40%	397.60 lacs
3 <sup>rd</sup> Year	30%	298.20 lacs
Total		994.00 lacs

**Benefits:** - 324.19

Particular	1 <sup>st</sup> Year	2 <sup>nd</sup> Year	3 <sup>rd</sup> Year	4 <sup>th</sup> Year	Total
Capital cost	298.20	397.60	298.20	-	700.00
Benefits	97.26	129.67	97.26	324.19	-
Discount factor	0.87	0.756	0.658	2.73	-
Present Worth of Cost	259.43	300.58	196.21	-	756.22
Present of Benefit	84.62	98.03	63.99	885.04	1131.68

$$\text{BCR} = \frac{\text{Present Worth of Benefit}}{\text{Present Worth of cost}} = \frac{1131.68}{756.22} = 1.496$$

**BCR = 1:1.496 OK**

Asstt. Executive Engineer  
PWD (R&B) West Sub Division  
Doda

*(Signature)*  
JE

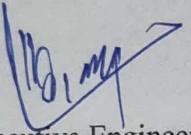
*(Signature)*  
Executive Engineer,  
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Doda

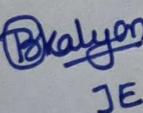
**Name of Work: -** Construction and Upgradation of Bijarni to Lal Draman Link Road.

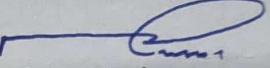
S.No	Vehicle Traffic	No. per day	Factor	PUC per day.
1	Cycle	60	0.50	30.00
2	Motor Cycle	40	0.50	20.00
3	Passenger Car/ Pick up	50	1.00	50.00
4	Tractor /LCV	10	1.50	15.00
5	Truck/ Buses	10	3	30.00
6	Truck Tailor	3	3	9.00
			Total PCU per day	154.00

**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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**FINANCIAL VIABILITY**  
**EXISTING LEVEL OF EARNAGE ESTIMATED BENEFITS**  
**SAVING PRODUCES OF DODA DISTRICT.**

S.No	Commodity	Price for tones procedure	Prod. 000. Qtl.	% prod. for marketing surplus 000. Qtl.	Qty. of prod. for marketing	Add. Benefit 2% of Col.6	Total marketing Col. 6+7	Total earning (Rs. in lacs)
1	Rice	18050	300.00	60	18.00	3.60	183.60	3313.0
2	Maize	29050	450.00	60	270.00	5.40	275.40	8000.0
3	Wheat	10750	180.00	60	108.00	2.16	110.16	1184.0
4	Other cereal Millets	7000	12.50	50	6.25	0.125	6.375	44.62
5	Pulses	31100	35.00	50	17.50	0.35	17.85	555.00
6	Horticulture produces	15131	130.00	60	78.00	1.56	79.56	1203.0
7	Oil seeds	2300	10.20	80	8.16	0.163	8.323	191.00
8	Vegetable produce & Food crop	--	--	--	--	--	--	--
9	Fish	32000	0.25	100	0.25	0.005	0.255	8.16
10	Forest extracts	--	5070.0	80	4056.00	--	--	4056.0
11	Khadi & Village	--	2400.0	82	1968.00	--	--	1968.0
12	Raw silk	1000000	0.02	100	0.02	0.0004	0.0204	20.40
				<b>Total(A)</b>	<b>20542.00</b>			

Total length of road in Distt. Doda = 786.00 km - 'B'

$$\text{Total earning on account of project} = \frac{A \times C}{B}$$

$$= \frac{20542 \times 9.60}{786}$$

$$= 26.13 \times 9.60 = 250.84 \text{ lacs}$$

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