

### Cost-Benefit analysis

**Name of the project:** Diversion of 61 ha of forest land for construction of Tumkur Branch Canal of Upper Bhadra Project.

**Table A: Category of proposals for which Cost Benefit Analysis are applicable**

Sl.No.	Nature of proposal	Applicable/ Not applicable	Remarks
1	All categories of proposals involving forest land up to 20 Ha in Plains and up to 5 Ha in hills.	Not Applicable	Nil
2	Proposals for defense installation purposes and oil prospecting (Prospecting only)	Not applicable	Nil
3	Habitation, establishment of industrial units, tourist lodges/complex and other building constructions.	Not applicable	Nil
4	All other proposals involving forest land more than 20 Ha in plain and more than 5 Ha in hills including roads, transmission lines, minor medium and major irrigation projects, hydel projects, mining activities, Railway lines, location specific installation like Micro-wave station, auto repeater center, TV towers, etc.	Applicable	These are cases where a cost benefit analysis is necessary to determine whether diverting the forest land to non-forest use is in the overall public interests.
5	Proposal for renewal of Mining Lease for forest land.	Not Applicable	Nil

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**Table-B: Estimation of Cost of Forest Diversion**

Sl. No	Parameter	Criteria	Cost per Year (lakhs)	Cost for 30 years (lakhs)
1	Ecosystem services losses due to proposed forest diversion	Economic Value of loss of eco-system services due to diversion of forest shall be the Net Present Value (NPV) of the forest land being diverted as prescribed by the Central Government (MoEF&CC). Present NPV for 1 Ha of forest land = 9,57,780/- Present NPV for 61 Ha forest land = 61 Ha. X 9,57,780/- = 5,84,24,580/-	584.24	17,527.2
2	Loss of animal Husbandry Productivity, Including loss of Fodder.	10% of the NPV	58.424	1,747.26
3	Cost of Human resettlement	No R&R involved in the project	-	-
4	Loss of public facilities and administrative infrastructure (roads, building, schools, dispensary, electric lines, railways, etc)	No loss public facilities involved in the project	-	-
5	Possession Value of Forest land Diverted	30% of the NPV	175.272	5,258.16
6	Cost of suffering to oustees	No R&R involved in the project	-	-
7	Habitat Fragmentation Cost	50% of the NPV	292.12	8,763.6
5	Compensatory afforestation and Soil & moisture conservation cost	Rate of C.A. for 1 Ha of forest land = 18,36,000 (as per Karnataka Forest Dept SR for the year 2022-23) Value of C.A. for 61 Ha forest land x 18,36,000 = 11,19,96,000/-	1,119.96	33,598.8
<b>Total</b>			<b>2,230.016</b>	<b>66,900.48</b>

**Table-C: Calculation of the Benefits**

(Parameters for Evaluation of Benefits)  
(Not withstanding loss of forest)

Sl. No	Parameter	Criteria	Cost per Year (lakhs)	Cost for 30 years (lakhs)
1	Increase in Productivity attribute to the Specific project	Net value of the Produce=Total gross receipts-Total Expenses	1,41,391	42,41,730
2	Benefits to economy due to the	Net annual Benefits	1,62,511	48,75,330

Sl. No	Parameter	Criteria	Cost per Year (lakhs)	Cost for 30 years (lakhs)
	Specific project			
3	No of Population Benefited due to specific project	In 8 Taluks as per 2011 Census	18,86,977 People	
4	Economic benefits due to of direct and indirect employment due to this project	Total employment =800 (Per day wages as per minimum wages notifications 2021-2022)		-
		40 skilled employees X Rs. 734/- (per day) X 30 days X 12 months = Rs. 1,05,69,600/-p.a.	105.70	3,171
		760 unskilled employees X Rs. 553/- (per day) X 30 days X 12 months = Rs. 15,13,00,800/- p.a.	1513.00	45,390
5	Economic benefits due to Compensatory afforestation	Value of Carbon sequestration per Ha/year = Rs. 1,20,780/- (per Ha/Yr) X 61 Ha (forest land) = Rs. 73,67,580/-	73.67	2,210.1
		Value of Bio-Prospecting per Ha/year =Rs.25,553/- (per Ha/Yr) X 61 Ha (forest land) = Rs. 15,58,733/-	15.59	467.7
		Value of NTFP Ha/year=Rs.7,631/- (per Ha/Yr) X 61 Ha (forest land) = Rs. 4,65,491/-	4.65	139.5
		Value of Eco-tourism Ha/year =Rs.65,113/- (per Ha/Yr) x 61 Ha (forest land) = Rs. 39,71,893/-	39.72	1,191.6
		Value of fodder Ha/year =Rs.7,631/- (per Ha/Yr) X 61 Ha (forest land) =Rs. 4,65,491/-	4.65	139.5
		Value of Flagship species Ha/year=Rs.2,58,400/- (per Ha/Yr) X 61 Ha (forest land) = Rs.1,57,62,400/-	157.62	4,728.6
		Value of Ecological services of forests per Ha/Year=Rs.1,44,332/- (per Ha/Yr) X 61 Ha (forest land) =Rs. 88,04,252/-	88.04	2,641.2
<b>Total</b>			<b>3,06,697</b>	<b>92,00,910</b>

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### Calculation of Benefit/Cost Ratio

Total Benefits (As per II calculations) = Rs. 92,00,910 Lakhs

Total Losses (As per I calculations) = Rs. 66,900.48 Lakhs

Hence, Benefit/Cost Ratio  $\frac{92,00,910}{66,900.48} = 137.53$

Thus, the project gives positive Benefit/Cost Ratio with minimal environmental losses.

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