

Cost-Benefit analysis

Name of the project: Diversion of 575.07 ha Forest land for construction of dam across Markandeya River and ancillary infrastructure in Forest lands of Gokak, Godachinamalki, Konnur and Mavanura Villages in Gokak and Hukkeri Taluks, Belagavi District for storing 6 TMC of Water under Ghatti-Basavanna Drinking water supply Project by Karnataka Neeravari Nigam, Govt. of Karnataka.

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: Calculation of the cost

(Parameters for Evaluation of Loss of Forests)

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Quantum of Forest applied for: 575.07 Ha.

Life of Project: 50 years.

Division: KNNL, GRBCC Div. No. 3, Gokak.

Sl. No	Parameter	Criteria	Cost per Year (lakhs)	Cost for 50 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 (Tropical Dry deciduous Forest- Open Type) Present NPV for 575.07 Ha forest land = $575.07 \times 9,57,780 = 55,07,90,544.6/-$	5,507.90	2,75,395
2	Loss of animal Husbandry Productivity, Including loss of Fodder.	10% of the NPV	550.79	27,539.50
3	Cost of Human resettlement	As per the Detailed project report	1,770	
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	1,652.37	82,618.50
6	Cost of suffering to oustees	The Social Cost of rehabilitation of oustees @3,50,000 p.a. X 70 Families X 1.5 times	367.5	18,375
7	Habitat Fragmentation Cost	50% of the NPV	2,753.95	1,37,697.5
8	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 689.1 Ha forest land x 18,36,000 = 1,26,51,87,600/-	12,651.88	6,32,594
Total			25,254.39	11,75,989.5

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 50 years (lakhs)
1	Increase in Productivity attribute to the Specific project	Not Applicable for Drinking water projects	-	-
2	Benefits to economy due to the Specific project	Not Applicable for Drinking water projects	-	-
3	No of Population Benefited due to specific project	In Gokak Taluk villages as per 2011 Census	6,12,163	
4	Economic benefits due to of direct and indirect employment due to this project	Total employment =3,00,000 (Per day wages as per minimum wages notifications 2021-2022)	-	
		36,000 skilled employees X Rs. 734/- (per day) X 30 days X 12 months = Rs. 9,51,26,40,000/-p.a.	95,126	47,56,300.00
		2,64,000 unskilled employees X Rs. 553/- (per day) X 30 days X 12 months = Rs. 52,55,71,20,000/- p.a.	5,25,571	2,62,78,550.00
5	Economic benefits due to Compensatory afforestation	*Value of Carbon sequestration per Ha/year = Rs. 1,150/- (per Ha/Yr) X 689.1 Ha = Rs. 7,92,465/-	7.92	396.00
		#Value of Bio-Prospecting per Ha/year =Rs.25,553/- (per Ha/Yr) X 689.1 Ha = Rs. 1,76,08,572.3/-	176.08	8,804.00
		#Value of NTFP Ha/year=Rs.7,631/-(per Ha/Yr) X 689.1 Ha = Rs. 52,58,522.1/-	52.58	2,629.00
		#Value of Eco-tourism Ha/year =Rs.65,113/-(per Ha/Yr) x 689.1 Ha = Rs. 4,48,69,368.3/-	448.69	22,434.50
		*Value of fodder Ha/year =Rs.12,535/- (per Ha/Yr) X 689.1 Ha =Rs. 86,37,868.5/-	86.37	4,318.50
		#Value of Flagship species Ha/year=Rs.2,58,400/- (per Ha/Yr) X 689.1 Ha = Rs.17,80,63,440/-	1780.63	89,031.50
		#Value of Ecological services of forests per Ha/Year=Rs.1,44,332/- (per Ha/Yr) X 689.1 Ha =Rs. 9,94,59,181.2/-	994.59	49,729.50
Total			6,24,244	3,12,12,193

Note-* Revision of Rates of NPV Applicable For Different Class/Category of Forests, November 2014, Forest Survey of India.

Supplementary report in IA No. 826 in IA No. 566 regarding Calculation of Net present Value (NPV) payable on use of Forest land of Different types for Non forest purposes, January 2007
By Central Empowered Committee.

Calculation of Benefit/Cost Ratio

Total Benefits (As per II calculations) = Rs. 3,12,12,193 Lakhs

Total Losses (As per I calculations) = Rs. 11,75,989.5 Lakhs

Hence, Benefit/Cost Ratio ————— = 26.54

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


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