

## प्रारूप-29

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### Cost Benefit Ratio Calculation Performa

Name of Project- 4x3 MW Tankul Small Hydro Power Projects.  
Tehsil- Dharchula Distt.- Pithoragarh.

SI No.	Particulars	Amount in Lacs	Remarks
1	Total Cost ( Investment incurred)		
(A)	Construction cost of the project	11842.76	Total Project Cost Rs. 11842.76 lakhs
(B)	N.P.V.Amount to be deposited @ 8.97 Lakhs/ha	65.69	
(C)	Substitute / Alternate plantation cost to be deposited	58.24	Plantation of 19 Ha. Of land
(D)	Cost of trees that will be cut	0.72	
(E)	Other cost if any, Actual as per crop/ tree compensation of Pvt. Land	As per actual	
	Grand Total		
2.	Benefits		The scheme is expected to generate 69.66 million units per annual (with 95% Plant availability) on average with a plant load factor of 67% Its life period 35 years.
2.1	i. Direct Economic Benefits	2160000.00	Average Rs.7500.00 per person per month for 24 Members.
2.2	ii. Social Benefits		Approximately 20000 people of Tribal villages located at indo-china- Nepal border area shall get quality power supply including army and defence personnel.
2.3	iii. Ecological Benefits		Nos. of Trees of different species shall be planted as compensatory afforestation under Forest Conservation Act 1980.

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प्रभागीय वनाधिकारी

प्रभागीय वन अधिकारी  
पिथौरागढ़ वन प्रभाग

## COST BENEFIT ANALYSIS

Guidelines for forest diversion-2017

Project Name:- 4x3 MW Tankul Small Hydro Power Projects.

**Table B : Estimation of cost of Forest Diversion**

Tehsil- Dharchula

Distt.- Pithoragarh.

S.No	Parameters	Estimated Cost
1	Ecosystem services losses due to proposed forest diversion.	The estimated NPV (Economic value of loss of ecosystem services) of the 9.397 ha forest land is <b>Rs. 65.69 lakhs.</b>
2	Loss of animals husbandry productivity including loss of fodder.	10% of 65.69= <b>Rs. 6.569 lakhs.</b>
3	Cost of human resettlement	There is no displacement due to the project. Therefore the cost of human settlement is <b>Rs 0.00</b>
4	Loss of public facilities and administrative infrastructure (Roads, Buildings, Schools, Dispensaries, Electric lines, Railways etc.) on which would require forest land if these facilities were diverted due to the project.	No loss of public facilities and administrative infrastructure due to the project. Therefore loss is <b>Rs. 0.00</b>
5	Possession value of forest land diverted.	30% of NPV 65.69= <b>Rs. 19.707 lakhs.</b>
6	Cost of Suffering of oustees.	No suffering of oustees. Therefore the cost of suffering to oustees is <b>Rs. 0.00.</b>
7	Habitat Fragmentation Cost	50% of the NPV 65.69= <b>Rs. 32.845 lakhs.</b>
8	Compensatory afforestation and soil & moisture conversation cost.	The estimated cost of raising the CA in 18.794 ha is <b>Rs. 32.51 lakhs</b> for 10 years. Considering rate 12% for future 50 years the present value is <b>Rs. 100.46 lakhs.</b>
Total Environmental loss		<b>Rs. 225.271 lakhs.</b>

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Project Name:- 4x3 MW Tankul Small Hydro Power Projects.

**Table C: Estimation benefits of cost of Forerst Diversion.**

Tehsil- Dharchula

Distt.- Pithoragarh.

Sl. No	Parameters	Estimated Cost
1	Increase in productivity attributable to the specific project	Annual energy available for sale from the project is 69.66 MU cost of generation is 3.48 per unit. Annual revenue by sale of energy is Rs. 2424.17 lakhs. Total sale of energy during 35 years of life of project is Rs. 84845.95 lakhs. Total profit from project after deducting loan & other expenditures is <b>Rs. 17500.00 Lakhs.</b>
2.	Benefits to Economy due to the specific project.	Project will enhance the agriculture, commercial and industrial activities 4 times of energy generation= 2424.17 x 4 = <b>Rs. 9696.68 lakhs.</b>
3	No. of population benefited due to the specific project.	About 6000 people will be benefitted directly and people of Uttarakhand state will be benefitted indirectly form the construction of the project.
4	Economic benefits due to of direct and indirect employment due to the project.	About 5840 man days (16x365) employment will be generated directly. Tanking Rs. 300 minimum wages 5840x300= <b>Rs 17.52 lakhs.</b>
5	Economic benefits due to compensatory afforestation.	The annual value of timber and fuel-wood, carbon, NTFP, eco- tourism, fodder and watershed services form CA is Rs. 44467/ annum. Considering discounting rate of 4% of future 50 years, the present value= <b>Rs 3.03858 lakhs.</b>
Total Benefits derived from the project		<b>Rs. 27217.24 lakhs.</b>

**Benefit cost ratio =27217.24/ 225.271=120.82**

It is clear from above analyses that construction of 4x3 MW Tankul Small Hydro Power Projects. Is more beneficial the Environmental lossess.

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