

COST BENEFIT ANALYSIS

for forest land diversion in accordance with the MoEF & C.C. guideline dated 1.8.2017

Name of Project :- Diversion of forest land for laying of underground gravity water 50 mm to 1600 mm dia P.C.C. P. / B. W. S. E/ H.D. P. E. type pipeline for Agricultural irrigation from Urmodi Maan Irrigation Project in drought prone 21 villages in Tal. Maan , Dist, Satara , Pipeline passing through Forest land in charge of Satara Forest Department in Satara Dist.

TABLE A

S no	Name of project	Area in Ha	Remarks
4	Diversion of forest land for laying of underground gravity water 50 mm to 1600 mm dia P.C.C. P. / B. W. S. E/ H.D. P. E. type pipeline for Agricultural irrigation from Urmodi Maan Irrigation Project in drought prone 21 villages in Tal. Maan , Dist, Satara	28.297 ha	Cost benefit analysis is necessary to determine when diverting the forest land to non forest use in the overall public interest



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TABLE B

COST BENEFIT ANALYSIS REPORT -for forest land diversion in accordance with the MoEF & C C guideline dated 1.8.2017

Table B -Estimation of losses for forest diversion for laying of underground gravity water 50 mm to 1600 mm dia P.C.C. P. / B. W. S. E/ H.D. P. E. type pipeline for Agricultural irrigation from Urmodi Maan Irrigation Project

Forest losses as per parameters in 'Table -B'.

(See Statement II)

S. No	Parameters	Remarks
1	Ecosystem services losses due to proposed forest diversion	Total net present value for 28.297ha. of forest land will be Rs. 271.02 lakh.
2	Loss of animal husbandry productivity, including loss of fodder	Nil
3	Cost of Human resettlement	Nil
4	Loss of public facility and administrative infrastructure (Road, School, dispensaries, electric line, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project.	Nil
5	Possession value of forest land diverted	Total maximum Net Present Value of the forest land comes to Rs. 81.31 lakh
6	Cost of suffering to oustees	Not applicable
7	Habitat fragmentation cost.	Not applicable
8	Compensatory afforestation and soil & moisture conservation cost	C. A. cost will be Rs. 220.40 Lakh.
Total Estimation of losses for forest diversion		Rs. 572.73 lakh



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Table C

Evolution of Benefit from the project as per parameters in Table C-

for forest land diversion in accordance with the MoEF & C C guideline dated 1.8.2017

Table C – Estimation of Benefits for forest diversion for laying of underground gravity water 50 mm to 1600 mm dia P.C.C. P. / B. W. S. E/ H.D. P. E. type pipeline for Agricultural irrigation from Urmodi Maan Irrigation Project

Benefit from the project as per parameters in Table C- (See Statement II)

S. No	Parameters	Remarks
1	Increase in productivity attribute to this project	
	a) Net Increase in Agricultural produce for 50 years	a) Rs. 584100.00 lakh
	b) Animal Husbandry produce for 50 years	b) Rs. 338.00 lakh
2	Benefit to Economy due to specific project	Rs. 292050.00 lakh
3	No of population benefited due to specific project	Rs. 240625.00 lakh
4	Economic benefit due to direct & indirect employment to to this project	
	a) Employment generated during construction / laying of pipeline	a) Rs 2473.59 lakh
	b) Employment generated after Completion of project.	b) Rs. 66,375.00 lakh
5	Economic benefits due to Compensatory Afforestation	Rs. 13,551.43 lak
	Total Estimation of Benefits for forest diversion	Rs. 1,199513.02 lakh

CALCULATION OF BENEFIT COST RATIO

A) Total Estimation of losses for forest diversion as per Table B = Rs. 572.73 lakh


B) Total Estimation of Benefits for forest diversion as per Table C = Rs. 1,199513.02 lakh

Benefit Cost Ratio

= 2094.38

Considering the cost of laying of pipeline + estimation of forest loss table B

(8245.305 lakh + 572.73 L = 8818.035 L)Then Benefit cost ratio will be =136.03


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Statement I

Evolution of forest losses as per parameters in 'Table -B'.
in accordance with the MoEF & C C letter no-7-69/ 2011-FC(pt), Dated 1.8.2017

Parameter 1- Ecosystem services losses due to proposed forest diversion.

Total forest land to be diverted 28.297 ha. Net Present Value for 1.00 ha. of forest land to be diverted @ Rs. 9,57,780/ (Eco Class III Open Forest) per ha. hence total net present value for 28.297 ha of forest land will be Rs.=271.02 lakh.

28.297 X 9,57,780/ 27,102,301/ Rs. 271.02 lakh

Parameter 2- Loss of animal husbandry productivity ,including loss of fodder.

Proposed proposal is for diversion of forest land for laying of underground gravity water 50 mm to 1600 mm dia. P.C.C. P. / B. W. S. E/ H.D. P. E. Type pipeline for Agricultural irrigation from Urmodi Maan Irrigation Project

"As work will be underground gravity water supply pipeline, as this project dose not involve loss of animal husbandry productivity inducing loss of fodder. Hence there will be no loss on account for the same

Parameter 3- Cost of Human resettlement.

Proposal will be underground gravity water supply pipeline & as this project dose not need of resettlement of human/ families , Hence there will be no loss on account for the same.

Parameter 4 -Cost of public facility & administrative infrastructure (Road, School, dispensaries, electric line, railways, etc.) on forest land, which would require forest land if these facilities were diverted due to the project.

"As work will be underground gravity water supply pipeline & as this project dose not need to divert public facilities & administrative infrastructure Road, School, dispensaries, electric line, railways, etc.) on forest land due to this project. Hence there will be no loss on account for same .

Parameter 5 - Possession value of forest land diverted

As per the possession value of forest land 28.297 ha. to be diverted estimated to be 30% of the Net Present Value calculated (Eco Class III Open Forest) The total maximum Net

Present Value of the forest land comes to Rs. 8,130,690./ Hence Possession value comes out to Rs. 81.31 Lakh.

30%	27,102,301/	8,130,690/	Rs. 81.31 lakh
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Parameter 6- Cost of suffering to oustees

Proposal will be underground gravity water supply pipeline & as this project dose not involve any rehabilitation, Hence there will be no loss involve for the same.

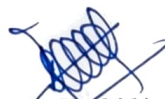
Parameter 7- Habitat fragmentation cost.

Proposed work will be underground gravity water supply pipeline & as this project dose not involve any habitat fragmentation. Hence there will be no loss involve for the same.

Parameter 8- Compensatory afforestation and soil & moisture conservation cost

As the project required forest land 28.297 ha. And this project being implemented by state Govt. under Central Govt. Project project BALIRAJA JALSANJIVANI SCHEME the Compensatory afforestation will be taken on the 28.297 ha alternative revenue land provided by District Collector Satara . The compensatory afforestation will be raised and maintained for period of 10 years at the cost of User Agency. calculated prevailing wage rates of Forest Dept. And which comes out to be Rs.773318/ per ha. And hence the operational cost will be Rs. 220.40 Lakh.

28.297 ha	X	Rs. 7,73,318 . per ha.	2,20,39,560/	Rs. 220.40 lakh.
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Statement II

Evolution of Benefit from the project as per parameters in Table C-
in accordance with the MoEF & C.C letter no-7-69/2011-FC(p), Dated 1.8.2017

Parameter 1- Increase in productivity attribute to this project

a) Net Increase in Agricultural produce for 50 years in 8 villages
 $5310 \text{ ha} \times 2.20 \text{ lakh/ha} \times 50 \text{ y} = \text{Rs. } 584100.00 \text{ lakh}$

B) Animal Husbandry produce for 50 years = 338.00 lakh
 Rs. 338.00 lakh

Parameter 2- Benefit to Economy due to specific project

This project will be laying of underground pipeline for irrigation to agricultural land in villages of drought prone area. It is assumed that there will be overall benefit to the economy at 50% of increase in the agricultural output worked out under parameter 1 (a)

50% 584100.00 lakh 292050.00 lakh

Parameter 3- No of population benefited due to specific project

In all 7 villages are to be benefited in the command area due to pipeline for irrigation project. The total population of these villages is 57,449. Assuming 6 members per family, total no of families benefited will be 9625. Assuming an increase in income per family Rs. 50,000/per. To the population on this account for 50 years for 9625 families will be Rs. 240,625 lakh

$9625 \times 0.50 \text{ lakh} \times 50 \text{ years} = 240,625.00 \text{ lakh}$

Parameter 4 Economic benefit due to direct & indirect employment to this project

(a) Employment generated during construction / laying of pipeline. General ratio of labour component cost to material component cost of 30:70. Hence employment generated during construction of the project. Total cost of project is 8245.305 lakh and the labour component will be about 30% of total cost is Rs. 2473.59 lakh

30% 8245.305 lakh 2473.59 lakh

(b) Employment generated after completion of project.


It has been assured from the statistics available from the irrigation project in operation that labour component of 50 man days/ha/year is generated in the field and agro based industries. In case of this project ICA of the project is 5310 ha in 8 villages assuming wage rate Rs.500/per day the employment potential that will be created during 50 years will be Rs. 66375.00 lakh

$5310 \times 50 \text{ MD/ha} \times \text{Rs. } 0.005 \text{ L/per MD} \times 50 \text{ y} = 66375.00 \text{ lakh}$

Parameter 5- Economic benefits due to Compensatory Afforestation

In this project the Compensatory afforestation will be taken on the 28.297 ha. The economic benefits realized from this project are calculated over the period of 50 years. As NPV cost Rate Rs 957780/per ha. Which comes out to Rs -13,551.43 lakh

$28.297 \times 9.578 \times 50 = 13,551.43 \text{ lakh}$


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