

# ISP-KALISINDH PHASE-II LIFT MICRO IRRIGATION PROJECT

## **COST BENEFIT ANALYSIS**


### **PARAMETER FOR EVALUATION OF LOSSES OF FOREST**

S.No.	PARAMETER	IRRIGATION PROJECT
1	Increase in productivity attribute specified	The ISP-Kalisindh Phase-II Lift Micro Irrigation Project is conceived to cater irrigation water to 110000 Hac. Of CCA in 270 village of Gulana, Moman Badodiya, Shajapur, Shujalpur, Polayakala, Sarangpur, Pachore of District Shajapur & Rajagarh irrigation intensity will increased. Total annual benefit from increased to productivity have been worked out 4,90,000 MT Tonnes from 158130 MT Tonnes.
2	Benefits to economy	The main objective of ISP-Kalisindh Phase-II Lift Micro Irrigation Scheme is to provide benefit irrigation water in 110000 Hac. land which is mainly owned by small farmers and after completion of project assured water will be give to boost up their economy.
3	Number of population benefited	The ISP-Kalisindh Phase-II Lift Micro Irrigation Scheme is to cater irrigation Water to 110000 Hac. of CCA in 270 village of Gulana, Moman Badodiya, Shajapur, Shujalpur, Polayakala, Sarangpur, Pachore of District Shajapur & Rajagarh will be benefited by this scheme by way of irrigation so, the total population benefited through irrigation shall be nearly 1512681 & 1545814 (Shajapur & Rajagarh) respectively.
4	Employment Potential	During the construction stage temporary employment to 500 persons upto 4 year and permanent employment to 100 person shall be generated for 5 year.
5	Cost of acquisition facility on non-forest land wherever feasible	No human commodity will affected due to construction of project.
6	Loss of (a) Agriculture (b) Animal Husbandry production due to diversion	No loss of Agriculture envisaged. In fact present object of the project has been proposed for the improvement of agriculture in this area. No loss in the animal husbandry production.
7	Cost of rehabilitating the displacement person has different from	Not Applicable based on survey it was found that there were no displacement due to the project as this is the lift irrigation project and maximum of the construction activity would have been done underground.
8	Cost of supply of free fuel would to workers residing in are near forest area during period of construction.	The labour camp will be facilitated with Kerosene/LPG facilities and hence no tree cutting shall be there for fuel wood.
9	Total benefit due to project	Rs. 110586.34 lacs/year

#### **Cost benefit Analysis :-**

- (i) Total Benefit due to Project (Rs. 110586.34 Lacs)
- (ii) Total Annual Cost (Expenditure 69116.46 Lacs)
- (iii) Benefit Cost Ratio 1.60

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## COST BENEFIT ANALYSIS

### ISP-KALISINDH PHASE-II LIFT MICRO IRRIGATION PROJECT

On the basis of Guidelines for forest Land Diversion 2018


**Table A cases Under Which A cost Benefit Analysis for Forest Diversion Area Required**

S.No.	Nature of Proposal	Applicable/Not Applicable	Remarks
1	All categories of proposal involving forest land upto 20 ha. In plains and upto 5 ha in hills.	Not Applicable	
2	Proposal for defense installation purposes and of prospecting (prospecting only)	Not applicable	
3	Habitation establishment of industrial units tourist lodges, complex and other building construction	Not applicable	
4	All other proposal involving forest land more than 5 ha in hills including roads, transmission lines minor medium and major irrigation project hydro projects, mining activity, railway lines, location specific installation like micro wave station, auto repeater centers, TV towers	Applicable	These are cases where a cost benefits analyses is necessary to determine when diverting the forest land to non forest use of overall public interest. ISP-Kalisindh Phase-II Lift Micro Irrigation Scheme under this category.



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

SI No.	PARAMETER	Remarks
1	2	3
01	Ecosystem Services losses due to proposed forest diversion.	Ecosystem Services due to diversion of forest land suggested by the forest classification report of proposed KALISINDH PHASE II MICRO LIFT IRRIGATION SCHEME (PIPELINE) Cost of land <b>147.090</b> Ha x 8.03 = <b>Rs. 1181.133 Lacs.</b> Eco class III consisting of tropical dry deciduous
02	Loss of animal husbandry productivity including cost of fodder	As per the cost of benefit guidelines i.e. 10% of N.P.V. 0.803 lacs per hac. $147.090 \times 0.803 = 118.113$ lacs.
03	Cost Human Resettlement	There is no human settlement due to proposed KALISINDH PHASE II MICRO LIFT IRRIGATION SCHEME (PIPELINE) hence cost of humans resettlement is NIL.
04	Loss of public facility and administrative infrastructure (road, building, schools, dispensaries, electric lines, railways etc.) on forest land if these facilities were diverted due to the project.	There is no loss public facility and administrative infrastructure (road, building, schools, dispensaries, electric lines, railways etc.) on forest land due to construction of KALISINDH PHASE II MICRO LIFT IRRIGATION SCHEME (PIPELINE). No cost has been added on this account
05	Possession value of forest land diverted	The possession value of forest land diverted is taken 30% of N.P.V. due to loss of forest i.e.= $1181.133 \text{ lacs} @ 30\% = 354.340 \text{ lacs}$
06	Cost of suffering to oustees	Not Applicable
07	Habitat fragmentation cost	Forest land is being acquired for lying of pipeline of KALISINDH PHASE II MICRO LIFT IRRIGATION SCHEME (PIPELINE). There is no amount is taken under this account.
08	Compensatory afforestation and soil and moisture conservation cost.	The cost of @ Rs. 6.00 lacs per hac. Is taken for Compensatory afforestation and soil and moisture conservation cost. Hence amount will be $150 \times 6 = 900$ lacs
09	Total cost due to forest land diversion	Total cost due to forest land diversion for KALISINDH PHASE II MICRO LIFT IRRIGATION SCHEME (PIPELINE) will be Rs. $1181.133 + 118.113 + 354.340 + 900 = 2553.586$ lacs

  
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## **Kalisindh Phase II Micro Lift Irrigation Scheme**

### **COST BENEFIT ANALYSIS**

Total Cost due to forest land:- Rs. 2553.586 lacs

Total Benefit due to project :- Rs. 11058.34 lacs


Benefits Ratio of project :- 1.60

  
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**Table-C Existing Guidelines for Estimating Benefits of Forest  
Diversion in CBA**

S.No.	PARAMETER	IRRIGATION PROJECT
1	2	3
1	Increase in productivity attribute to the specific project	The crop production benefits due to ISP-Kalisindh Phase-II Lift Micro Irrigation Project will be Rs. 110586.34 lacs yearly in designed life of the project and water level will be increased economy growth of the project.
2	Benefit to economy due to the specific project	ISP-Kalisindh Phase-II Lift Micro Irrigation Project will trigger economic development and also influenced with irrigation facility to the land of 110000 hac. in command area. Irrigation proposed by underground pipeline system upto the 2.5 hac. chak.
3	Number of population benefited due to the specific project	After completion of project 110000 ha. Land irrigated and near above 1512681 & 1545814 (Shajapur & Rajagarh) population will be benefited and ground water level will be benefited and ground water level will be increased in surrounding area.
4	Economic benefits due to of direct and indirect employment due to the specific project	The project will be provide temporary employment to 500 person upto 4 year and permanent employment to 100 person.
5	Economic benefits due to compensatory afforestation	An economic benefits due to compensatory afforestation has considered as per the benefit C.A. guideline of ministry of N.P.V. estimation.

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# ISP-KALISINDH PHASE-II LIFT MICRO IRRIGATION PROJECT

## COST BENEFIT ANALYSIS

### PROFARMA FOR THE CALCULATION BENEFIT COST RATIO (BCR) OF ISP-KALISINDH PHASE-II LIFT MICRO IRRIGATION PROJECT

		Rs. In Lakh	
A.	Gross Receipt	Before Irrigation	After Irrigation
		(Without Project)	(With Project)
1	Gross value of farm produce	29730.5	123960
2	Dung receipts (at 30% of the fodder expenditure)	8919.15	37188
3	Total (A): Gross Receipts (1+2)	38649.65	161148
<b>B.</b>	<b>EXPENSES:</b>		
1	Expenditure on seeds	10561.25	13333
2	Expenditure on manure etc		
3	Expenditure on hired labour (human and bullock)		
4	Fodder expenses (as percentage of gross value of produce)	2883.86	12024.12
5	Depreciation on implements (2.7% of item A.1)		
6	Share and Cash Rent (5% of item A.1)		
7	Land Revenue (2% of item A.1)		
8	Total (B): Expenses (1 to 7)	13445.11	25357.12
<b>C.</b>	<b>NET VALUE OF PRODUCE</b>		
1	Total Gross receipts (Total A.3)	38649.65	161148
2	Minus Total expenses	13445.11	25357.12
3	Net Value of Produce	25204.54	135790.88
<b>D.</b>	<b>ANNUAL AGRICULTURAL TURAL BENEFITS</b>		
1	Net value after irrigation (C.3)	135790.88	
2	Minus Net value before irrigation (C.3)	25204.54	
3	Net Annual Benefits (C) : (1-2)	110586.34	
<b>D.</b>	<b>ANNUAL COSTS:</b>	440752.31	
1	Interest on capital @ 10% (Estimated total cost of the project including cost of land development)	44075.23	Lakh
2	Depreciation of the project @ 1% of the cost of project for 100 years life of the project and @ 2% for 50 years life of the project	8815.05	Lakh
3	Annual operation and maintenance charges @ Rs. 180 per ha. Of CCA 200000 Ha.	180	Lakh
4	Maintenance charges of the head works @ 1% of its cost	1925.40	Lakh (head work 1925.40 lakh)
5	Depreciation of the Pumping system@8.33% of the estimated cost of the pumping system assuming life of the system as 12 years (applicable to lift irrigation)	4967.5	Lakh (pumps 59634 lakh)
6	Depreciation of the rising mains @ 3.33% of the estimated	3385.21	Lakh (R M


	cost of the raising mains assuming life of the system as 30 years (Applicable of lift irrigation)			101658 lakh)
7	Power charges for			
	(a) Lift irrigation A Rs. 800 per ha. (Applicable to lift irrigation) for 200000 ha. @ Rs. 800 per month for 4 months.		3200	Lakh
	Electrical charges at Rs. 5 per unit		200	
	Total (G) Annual Cost (1 to 7)		69116.46	Lakh
		=	Annual Benefits	
	<b>BENEFIT COST RATIO</b>		Annual Cost (G)	

$$= \frac{110586.34}{69116.46}$$

**BENEFIT COST RATIO**

$$= 1.60$$

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