

COST BENEFIT ANALYSIS FOR BATTISA NALLAH MINOR IRRIGATION PROJECT

ANNEXURE - VI (b)

PARAMETERS FOR EVALUATION OF LOSSES OF FORESTS

Sl. No.	Parameters	Minor Irrigation Project
1.	Loss of value of timber, fuel wood and minor forest produce on an annual basis, including loss of man hours per annum of people who are deprived livelihood and wages from the harvest of these commodities.	Loss of timber, fuel wood and minor forest including N.P.V, and compensatory forestation in 91.202 ha x 8.53 lacs per ha = 777.953 lacs. Loss of man hours per annum : 84 families x 2 = 168 x 100 = 16800 mandays (which are not fully dependent on forest, they earn livelihood from agriculture for 4 months, NREGS for 3 months). for remaining 16800 mandays @ 183.00 = Rs. 30.744 lacs. Hence Total estimated loss = 808.697 lacs
2.	Loss of animal husbandry productivity, including loss of fodder.	Productivity of live stock will not be affected due to construction of the Dam.
3.	Cost of human resettlement.	Resettlement of 84 families = 224.89 Lacs
4.	Loss of public facilities and administrative infrastructure (Roads, buildings, schools, dispensaries, electric lines, railways etc.) on forest land, or which would require forest land if these facilities were diverted due to the project.	Cost of LT lines in 3 km = 500.00 Lacs Cost of 3 Nos. GLR = 25.00 Cost of Road for 6 km = 1000.00 Lacs Cost of 2 Nos. Primary schools = 38.14 Lacs Total cost of public facilities = 1563.14 Lacs
5.	Environmental losses: (Soil erosion, effect on hydrological cycle, wildlife habitat, micro2 climate, upsetting of ecological balance).	Total forest land proposed for diversion = 91.202 ha. Environmental value of one hectare of fully stocked forest (density 1.0) for a period of 50 years = 126.74 lacs Therefore, considering density of forest = 0.8 total environmental loss for a period of 50 years is worked out as = 91.202 x 0.8 x 126.74 = 9247.15 lacs
6.	Suffering to oustees.	Considering Annual income of a house hold as Rs 27000 per annum (As decided by Government of India for BPL families) , 1.5 times income for two years i.e 54000 x 1.5 multiplied by 84 (The No. of families likely to be displaced) comes out to be Rs. = 68.04 lacs
	TOTAL LOSS (Calculated for 50 years)	= 11911.92 Lacs

COST BENEFIT ANALYSIS FOR BATTISA NALLAH MINOR IRRIGATION PROJECT
PARAMETERS FOR EVALUATION OF BENEFIT, NOTWITHSTANDING LOSS OF FOREST

Sl. No.	Parameters	Minor projects
1.	Increase productivity attributable to the specific project	This project is meant for agriculture in 900 ha. And drinking water for 31 villages and 2 towns of Sirohi District. Benefits in Monetary terms is attached in separate sheet.
2.	Benefits to economy	
3.	No. of population benefited	
4.	Employment potential	
5.	Cost of acquisition of facility on non-forest land where feasible	No acquisition of facilities is required other than shown in Annexure VI (B)
6.	Loss of (a) agricultural & (b) non-forest land wherever feasible	Agriculture facility will increase due to construction of dam, net increase in agriculture is shown on sheet attached.
7.	Cost of rehabilitating the displaced persons as different from compensatory amounts given for displacement	This is a minor irrigation project hence no such cost will arise.
8.	Cost of supply of free fuel- wood to workers residing in or near forest area during the period of construction	No free fuel would be required for workers as labour will be engaged by contractor. No departmental labour will be engaged.



COST BENEFIT ANALYSIS FOR BATTISA NALLAH MINOR IRRIGATION PROJECT

BENEFITS OF THE PROJECT IN MONETARY TERMS

Monetary return of the Project for 50 years

1	Annual increase in agricultural production and farm produce after construction of the project = 779.19 Lacs Total increase in production in 50 years = 50x 779.19	38959.50	Lacs
2	Indirect Benefits, increase in employment, increase in water table of near by villages 31200 mandays per year, 1560000 mandays in 50 year @189 = Rs. 2948.00 Lacs	2948.00	Lacs
3	Benefit on account of water supply to the 31 villages and two towns Population of 183281 with present demand of 10100 KLD i.e. Rs. 10.10 lacs per day (assuming Rs 0.10 per litre) Monetary benefit of drinking water for 50 years = 184325.00 Lacs	184325.00	Lacs
	Total Benefits	226232.50	Lacs
	Less Cost of construction of the project (-)	22805.00	Lacs
	Net monetary Benefit	203427.50	Lacs

Calculation of Benefit Cost Ratio = **203427.50/11911.92**

Benefit Cost Ratio = **17.08 : 1**


 Executive Engineer
 Water Resources Division
 Sirohi

BATTISA NALLA MINOR IRRIGATION PROJECT

BENEFIT COST RATIO

STATEMENT - II

CCA (Ha)		900.00
Canal Irrigation (Ha)	0.00	450.00
Cost of Head works (in Lacs)		5235.00

Annual Receipt **Amount**

A. Before Canal Rehabilitation 127.45

B. After Canal Rehabilitation 906.64

C. Net Benefits (B - A) 779.19

Capital Cost or Project Cost

Total Cost of Project

1 Cost of the Project (Rs.)(cost of head work-share cost(16055-10820)) 5235.00

2 Land development charges @2000 per ha. Of 20% ICA 450.00 1.80

Total :- 5236.80

Annual Cost

1 Interest at 10% on the project cost including Land development charges 523.68

2 Depreciation of the project @ 2% of the Total capital cost 104.74

3 O&M Expenses @ Rs. 352/-ha.
As per practice in department 1.58

4 Maintainance Cost @ 1% of Head works 52.35


Total :- 682.35

BENEFIT COST RATION @ 10% INTEREST

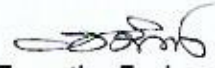
NET BENEFITS 779.19

ANNUAL COST 682.35

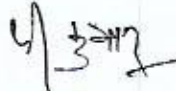
1.14 : 1


Assistant Engineer

Water Recourses, Sub Dn., Sarupganj


Executive Engineer


WR, Dn. Sirohi

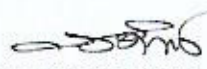

(डॉ. प्रकाशकुमार)
उप निदेशक कृषि
एवं पदेन
परियोजना निदेशक, आल्पा
सिरोही

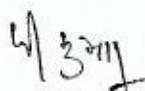
BATTISA NALLA MINOR IRRIGATION PROJECT

STATEMENT - I

	Before Project Commencement	After Project Commencement
ICA (in Ha.)		450.00
Category	Amount (Rs. Lacs)	
(A) Gross Receipt		
(1) Gross value of farm produce for grain	193.45	1124.99
(2) Dung receipts @ 30% of the fodder expenditure	8.71	33.75
Total (A) :-	202.16	1158.74
(B) Expenses		
(1) Expenditure on seeds	16.99	20.16
(2) Expenditure on manures & Fertilizers	13.81	35.00
(3) Depreciation on implements @ 2.7% of the gross value of produce	5.22	30.37
(4) Share and cash rent @ 5% / 3% of the gross value of produce.	9.67	33.75
(5) Expenditure on hired Bullock on labour for 4500/- per Ha.	0.00	20.25
(6) Fodder expenditure @ 15% / 10% of the gross value of produce	29.02	112.50
(7) LAND REVENUE @ Rs. 15/- per Ha. (As per state revenue rates)	0.00	0.07
Total (B) :-	74.71	252.10
Net Receipts = Total (A) - Total (B)	127.45	906.64


 Assistant Engineer
 Water Resources Sub Dn., Sarupganj


 Executive Engineer
 WR, Dn. Sirohi


 (डॉ. प्रकाशकुमार)
 उप निदेशक कृषि
 एवं पदम
 परियोजना निदेशक, आत्म
 सरोही

BATTISA NALLA MINOR IRRIGATION PROJECT

PERFORMA FOR BEFORE COMMENCEMENT OF PROJECT FOR RABI CROPS

Table - 1

Existing Cropping Pattern

S. No.	Season Crop	Well/Tubewell Irrigated		Irrigated by Canal Network		Unirrigated having Crops		Unirrigated having No Crops		Total	
		%CCA	Area (Ha.)	%CCA	Area (Ha.)	%CCA	Area (Ha.)	%CCA	Area (Ha.)	%CCA	Area (Ha.)
i	Wheat	31.05	279.45	-	-	12.92	116.28	-	-	43.97	395.73
ii	Gram	2.76	24.84	-	-	0.76	6.84	-	-	3.52	31.88
iii	Mustrated	0.69	6.21	-	-	1.37	12.33	-	-	2.06	18.54
iv	No Crops	-	-	-	-	0.15	1.35	21.00	189.00	21.15	190.35
Grand Total :-		34.50	310.50	-	-	15.20	136.80	21.00	189.00	70.70	636.30

Note : The datas of present irrigation area have been considered as per revenue department records.

Assistant Engineer
Water Resources Sub Dn., Sarupanj

Executive Engineer
Water Resources Dn., Sirahi

Deek Check.

(सं. प्रकाश कुमार)
उप निदेशक कृषि

मुख्य पद
सहायक निदेशक, आर
मिर्जापुर

BATTISA NALLA MINOR IRRIGATION PROJECT
PERFORMA FOR BEFORE COMMENCEMENT OF PROJECT IN RABI CROPS

Table -2

Estimated value of production & cost of inputs (Irrigated & Unirrigated Area)

CCA 900 Ha

S. No.		Crop	Area (Ha.)					Rate				Cost / Value in Lacs			
			Well/ Tubewell Irrigated	Irrigated by Canal Network	Unirrigated having Crops	Unirrigated having No Crops	Total	Avg. Yield	Total Yield	Production	Seeds	Fertilizers	Production	Seeds	Fertilizers
										Qtl/Ha.	Qtl	per Qtl			
i		Wheat	279.45	0.00	116.28	0.00	395.73	28.00	11080.44	1530.00	3875.00	3150.00	169.53	15.33	12.47
ii		Gram	24.84	0.00	6.84	0.00	31.68	15.00	475.20	3313.00	4960.00	2430.00	15.74	1.57	0.77
iii		Mustrated	6.21	0.00	12.33	0.00	18.54	14.00	259.56	3150.00	500.00	3095.00	8.18	0.09	0.57
iv		No Crops	---	0.00	1.35	189.00	190.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Grand Total :-			310.50	0.00	136.80	189.00	636.30	---	11815.20	---	---	---	193.45	16.99	13.81

mm
 Assistant Engineer
 Water Resources Sub Dn., Sarupganj

mm
 Executive Engineer
 Water Resources Dn., Sirahi

Doak cheer

4/3/11

(*डॉ. प्रकाश प्रताप*)
उप निदेशक कृषि
एन एन
 वसिष्ठनाथ नरेश्वर, आगरा
 सिरोही

BATTISA NALLA MINOR IRRIGATION PROJECT

PERFORMA FOR AFTER COMMENCEMENT OF PROJECT IN RABI CROPS

Table - 3

Proposed Cropping Pattern

CCA: 900 Ha

S. No.	Season Crop	Well/Tubewell Irrigated		Irrigated by Canal Network		Unirrigated having Crops		Unirrigated having No Crops		Total	
		%CCA	Area (Ha.)	%CCA	Area (Ha.)	%CCA	Area (Ha.)	%CCA	Area (Ha.)	%CCA	Area (Ha.)
i	Wheat	31.05	279.45	7.50	67.50	2.00	18.00	---	---	40.55	364.95
ii	Gram	2.76	24.84	2.50	22.50	7.34	66.06	---	---	12.60	113.40
iii	Mustarated	0.69	6.21	1.00	9.00	2.40	21.60	---	---	4.09	36.81
iv	Fennel	0.00	0.00	22.50	202.50	0.00	0.00	---	---	22.50	202.50
v	Tomato	0.00	0.00	16.50	148.50	0.00	0.00	---	---	16.50	148.50
Grand Total :-		34.50	310.50	50.00	450.00	11.74	105.66	---	---	96.24	866.16

Assistant Engineer
Water Resources Sub Dn., Sarupanj

Deek cher.

(डॉ. प्रकाश कुमार)

अव निदेशक कृषि
मुख्य पथ
परिचालन निदेशक, आन्ध्र
प्रदेश

Executive Engineer
Water Resources Dn., Sirohi

BATTISA NALLA MINOR IRRIGATION PROJECT **PERFORMA FOR AFTER COMMENCEMENT OF PROJECT IN RABI CROPS**

Table -4

Estimated value of production & cost of Inputs (Irrigated Area)										CCA		900 Ha		
S. No.	Crop	Area (Ha.)					Avg. Yield	Total Yield	Rate			Cost / Value in Lacs		
		Well/ Tubewell Irrigated	Irrigated by Canal Network	Unirrigated having Crops	Unirrigated having No Crops	Total			Production	Seeds	Fertilizers	Production	Seeds	Fertilizers
i	Wheat	279.45	67.50	18.00	---	364.95	Qlt/Ha.	Qlt	per Qlt	per Ha.	per Ha.			
ii	Gram	24.84	22.50	66.06	---	113.40	28.00	10218.60	1530.00	3875.00	4150.00	156.34	14.14	15.15
iii	Mustarated	6.21	9.00	21.60	---	36.81	15.00	1701.00	3313.00	4960.00	2430.00	56.35	5.62	2.76
iv	Fennel	0.00	202.50	0.00	---	202.50	14.00	515.34	3150.00	500.00	3095.00	16.23	0.18	1.14
v	Tomato	0.00	148.50	0.00	---	148.50	10.00	2025.00	8500.00	100.00	4200.00	172.13	0.20	8.51
Grand Total :-		310.50	450.00	105.66	-	866.16	375.00	55687.50	1300.00	15.00	5010.00	723.94	0.02	7.44
							---	70147.44	---	---	---	1124.99	20.16	35.00

Chm
 Assistant Engineer
 Water Resources Sub Dn., Sarupanj

SRM
 Executive Engineer
 Water Resources Dn., Sirohi

Deek check

4/3/11

(है. प्रकाश कुमार)
 उप निदेशक कृषि
 निदेशक
 कृषि विभाग, जिला अफसर, अजमेर
 अजमेर