Proposal for approval of Revised parameters for constructing Khoh Minor Irrigation Project

A- ORIGINAL PROPOSAL

Khoh minor irrigation project is situated near village Khoh. It is approachable from village Kalaguda on sapotra Daulatpura road. This is 6 Kms from village Kalaguda. Catchament area of dam is 132.08 Square Kms . Most of of catchment area is hilly and it can be classified as good. Out of 132.08 Sq. Km catchment area 111.36 sq Km is free. Average monsoon rain fall is 837.48 mm. On above average rain fall yield is calculated on 50% dependability, it comes to 20.057 Mcum or 708.30 Mcft in which dead storage is 6.543 M.Cum(231.06 Mcft) and live storage capacity is 13.514 M.cum (477.23 Mcft)and by this flow irrigation of 1370.70 ha. of land was proposed to be irrigated.

Administrative sanction of project was conveyed by the Chief Engineer, Water Resources Raj. Jaipur vide F2(12)As/I/Cell/06/1183 dated 14.12.07 for amounting to Rs. 1468.40 lacs. Technical estimate of dam was sanctioned by the Addl.Chief Engineer Water Resources Zone Jaipur vide No. 1007dated 27-05-2008 amounting to Rs.488.59 lacs

Forest clearance was issued by the Forest Department vide their letter No. 6B/Raj/02/18/2005 dated 21-11-2006 An Amount of Rs. 182.51 lacs has been with Forest department as compensation in month of March. 2009

Acquisition of land coming under submergence was acquired and award of 80% was issued by Land Acqusition Officer which is 110.00 lacs and amount transferred to L.A.O. for payment to farmers.

Tender for above work was sanctioned and alloted to lowest contractor M/s Shekhar Const. Co. and has executed the work of amounting to Rs. 152.00 lacs. Total expenditure incurred on the project up to date is 452.05 lacs. The Original parameters of the Project are enclosed.

Revised Water Yield on 10 year rain fall data basis

As per revised guidelines the yield is to be worked out on 10 year rain data and as per State Water Policy reservation of water for drinking purposes as downstream utilization is to be kept.

The yield for 10 years rainfall data has been got updated for the period 2001-10 by ID & R Unit which is 10.33 M.Cum. The status of storage shall be as under:-

Live Storage	3.787 M.cum	(133.8 Mcft)
Dead Storage	6.543 M.cum	(231.00 Mcft)
Gross Storage	10.33 M.cum	(364.8 Mcft.)

The dead storage is too high due to governing command levels in the project area. Utilisation of dead storage will be as under:-

i)	Drinking purposes	36 Mcft.
ii)	D/S utilization in river	36 Mcft.
iii)	Remaining dead storage	159 Mcft.

From the above live storage, the CCA to be benefitted from the Project is 541 Ha against the original of 1370.70 Ha.

A- Alternative proposals for construction of dam for revised yield

Proposal-I With reduced height of dam for revised yield

In this proposal the height of the dam is propsed to be reduced as per availability of revised yield on the basis of 10 years rain fall data. Due to reduction of height of the dam the over flow portion of the dam is also to be lowered which involves rock excavation because there is no other site for overeflow. In the main nalla the construction of weir is also not feasible due to existing poor strata in the nallah portion. In this proposal the major variation in the cost of the project shall be reduction in the earth work of dam and increase in rock excavation. The revised likely cost of the project shall be as under:

1. Additional cost of overflow due to rock excavation 244.99 lacs
2. Saving in Earth work due to revised height of dam(-) 59.11 lacs
3. Reduction in cost of canal due to less CCA (-) 63.64 lacs

   Thus Additional Cost is 122.24 lacs

   Likely revised cost 1590.64 lacs
4. CCA to be benefitted 541 Ha.

The cost of the project for revised storage 364.8 Mcft. and the CCA 541 Ha works out even more than the original project cost in which the storage was 20.057 M.cum (708.30 Mcft) with CCA 1370.70 Ha. **The proposal as such on revised height of the dam with the revised yield is not justified as the cost is too high.**

Porposal-II Keeping original parameter of dam with reduced CCA as per Revised yield.

In the proposal-I, the increase in the cost is due to involvement of huge excavation for overeflow portion. Therefore in ths proposal-II it is to propose to keep the parameters of dam as per original estimate and to curtail the canal network as per availability of water for irrigation keeping the provision for drinking water and d/s utilization. The cost of this proposal has been evaluated as Rs. 1410.35 lacs (Annexure-I) The CCA to be benefitted shall now be 541 Ha. The BC ratio has been worked out by WRD and is 1.52:1 As such the construction of the project is justified.

However. to utilize the extra storage created the project is proposed to be constructed in two phases below:

Phase-I a) Construction of dam as per original parameters

b) Construction of canal network restricted for the CCA as per

revised yield on 10 years rainfall data basis for 541 Ha. During good rain years the extra storage will be filled up in the dam and shall be utilized as carry over for the next year. The B.C.Ratio of this phase has been worked out as 1.52:1

Phase-II On continuous availability of water more than the yiel work out on the basis of 10 years rain fall data basis the canal shall be extended to bring additional area under command to make full utilization of storage created.

As per site conditions, the other economic proposals are not feasible.

Recommendations:

It is to submit that an expenditure of Rs. 452.05 lacs (including Forest compensation of Rs. 182 lacs and land compensation of Rs. 110 lac) has already been incurred on this Project. Besides the construction work of earthen dam, sluice and bye wash of the project has already been allotted to the contractor with an amount of Rs. 627.00 lacs against which an amount of Rs. 152.00 lacs has been paid for ongoing wokrs. Presently the work is held up due to pending decision of revised storage/parameters of dam.Therefore in view of the on going project and expenditure already incurred on the work, it is submitted that the project may kindly be allowed to continue with Proposal No.II in two phases as proposed above.

EncL 1) comparative statement of cost

2) Hydraulic parameter for Proposal I & II

3) B.C.Ratio

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KHOH MINOR IRRIGATION PROJECT

sil Sapotra

District Karauli

General Abstract

o.	Name of Head	As per Sanctioned Estimate	Revised Parameters	
			Proposal-I	Proposal-II
1	**Direct Charges**			
	HEAD WORKS			
	A-Preliminary	518465	518465	518465
	B-Land	39609230	39609230	39609230
	C-Works	49846457	68434457	52465733
	K-Building	2000000	500000	500000
	L-Earth Work	0	0	0
	M-Plantation	20000	200000	200000
	P-Maintenance	518465	518465	518465
	O-Miscellaneous	518465	518465	518465
	R-Communication	1200000	1200000	1200000
	Total I-Head works	94411082	111499082	95530358
	Main Canal & Branches			
	A-Preliminary	523910	523910	523910
	B-Land	4600000	3700000	3700000
	D-Regulator	300000	300000	300000
	F-Cross Drainage Works	4818746	4818746	4818746
	G-Bridge	2383100	2383100	2383100
	L-Earth Work	9646000	9646000	9646000
	L1 -Lining	0	0	0
	U-Distributaries and Minors	10513269	4149470	4149470
	V-Drainage	1000000	300000	300000
	M-Plantation	50000	50000	50000
	O-Miscellaneous	0	0	0
	P-Maintenance	278111	189464	189464
	Total Main Canal & Branches	**33213136**	**26060690**	**26060690**
	Establishment	5480185	5592112	5592112
	Ordinary T&P	944110	1114990	955303
	Suspnse	0	0	0
	SPI.T&P	500000	500000	500000
	Receipts	0	0	0
	Total Direct Charges	**133699815**	**144766774**	**127871463**
	Indirect Charges			
	Captilisation of Abustment of Land	1336998	1439998	1278715
	Audit & Accounts Charges 1%	1336998	1439998	1278715
	Total Indirect Charges	**2673996**	**2879997**	**2557430**
	Total Cost of Project	**136373811**	**147646870**	**131195883**
	Escalation charges for year three year @ 7.5% p.a.	10440000	11373515	9839691
	Grand Total	**146813811**	**159020385**	**141035574**
	Say	**1468.4**	**1590.2**	**1410.35**

KHOH MINOR IRRIGATION PROJECT

Tehsil- Sapotra | District Karauli

Technical Details

S.No.	Name of Head	As per Sanctioned Estimate	Revised Parameter	
			Proposal I	Proposal-II
1	Gross catchment area	132.08 sq.Km	132.08 sq.km	132.08 sq.km
2	Intercepted catchment area	20.72 sq Km	20.72 sq.Km	20.72 sq.Km
3	Free Catchment area	111.36 sq.Km	111.36 sq.Km	111.36 sq.Km
3	TBL			
	Earthen Top	EL 63.20	E.L.60.5M	EL 63.20
	Parapet Top	EL 64.30	EL 61.60 M	EL 64.30
5	MWL	62.30 M	E.L.59.60 M	62.30 M
6	FTL	59.50 M	EL56.80 M	59.50 M
7	Free Borad	1.90 M	1.90 M	1.90 M
8	Flood Lift	2.80 M	2.80 M	2.80 M
9	Location			
	Latitude	26°12'13"	26°12'13"	26°12'13"
	Longitude	76° 42'00"	76° 42'00"	76° 42'00"
10	Average Annual Rainfall	837.48mm	574.40mm	574.40mm
11	Expected Annual Yield 50% Dependibility	20.80 M.cum	10.33M.cum	10.33 M cum
	Expected Annual Yield 75% Dependibility	12.83 M.cum	—	—
12	Gross Storage Capacity	20.057 M.cum	10.33M cum	10.33 M.cum
13	Dead Storage	6.543 M.cum	6.543M.cum	6.543 m.CUM
14	Live Storage	13.514 M.cum	3.787M cum	3.787M.cum
15	Total Length of the dam(earthen	765 M	765 M	765 M
16	Top Width of Earthen Dam	6 M.	6 M.	6 M.
17	Design Discharge	1671 cumecs	1671 cumecs	1671 cumecs
18	Length of Waste weir	328 M	328 M	328 M
19	Maximum Height of dam	24.84 M	24.84 M	24.84 M
20	U/S & D/S slopes of dam	3:1 & 2.25:1	3:1 & 2.5:1	3:1 & 2.5:1
21	Sill Level	51.20 M	51.20 M	51.20 M
22	Gross Command area	1523 Ha	1523 Ha	1523 Ha
23	CCA	1370.70 Ha	541 Ha	541 Ha
24	No. of Village benefitted			
	Direct by Flow Irrigation	5	2	2
	Indirect	10	8	8
25	Submergence Area at FTL	213 Ha	213 Ha	213 Ha
26	Intensity of Irrigationk	70%	100%	100%
27	Cost of Project	1468.40 Lacs	1590.20 lacs	1410.35lacs
28	BC Ratio	1.97:1	—	1.53:1