

Godavari (Inchampalli) - Krishna (Pulichintala) link project

SALIENT FEATURES

S.No.	TITLE	FEATURES			
1.	Purpose	Diversion of 4370 Mm ³ out of the waters available in Godavari at the proposed Inchampalli dam to meet the requirements of the commands under Inchampalli right bank canal, NSLBC before and after Tammileru and NSRBC through Pulichintala proposed project.			
2.	Water use pattern	Unit: Mm³			
	Command area	Irrigation	M & I	Transmission losses	Total
i)	IRBC	470	33	36	539
ii)	NSLBC	491	52	38	581
iii)	NSLBC (lift)	891	115	72	1078
iv)	NSLBC beyond Tammileru	190	13	16	219
v)	NSRBC	1623	171	128	1922
vi)	Enroute	-	29	2	31
	Total	3665	413	292	4370
3.	Head works	Inchampalli Dam		Pulichintala Dam	
A.	Location				
i)	River	Godavari		Krishna	
ii)	Location	Mahadevpur mandal, Karimnagar district		Rajupalem mandal, Guntur district	
iii)	Catchment area (Km ²)	269000		20028 (d/s of NS dam)	
B.	Controlling level/ capacity				
i)	MWL (m)	112.77		53.34	
ii)	FRL / FPL (m)	112.77		53.34	
iii)	MDDL (m)	106.98		42.7	
iv)	DSL (m)	103.62		38.7	
v)	Gross storage (Mm ³)	10374		1296	
vi)	Live storage (Mm ³)	4285		1026	
vii)	Dead storage at DSL	4452		270	

	(Mm ³)			
4.	Submergence details	Inchampalli Dam	Pulichintala Dam	Total
i)	Submergence (ha)			
	Forest	21734		
	River portion	21830		
	Other lands	48991	14399	
	Total	92555	14399	106954
ii)	Villages affected	229	16	245
iii)	Families affected	20017	5000	25017
iv)	Population affected	100080	25000	125080
v)	Forest land	21734	-	21734
5.	Design features			
A.	Head works	Inchampalli Dam	Pulichintala Dam	
	Overflow section (Spillway)			
i)	Type of spillway	Ogee		Ogee
ii)	Length of spillway (m)	1075.50		466.30
iii)	Max. height above deepest foundation (m)	49.00		21.00
iv)	No. of gates	48.00		
v)	Type of gate	Radial		Radial
vi)	Size of gate (m x m)	18.00 x 15.24		13.72 x 13.41
vii)	TWL (m)			
	a) Maximum	98.00		
	b) Minimum	78.00		
viii)	Type of energy dissipation	Solid roller bucket		
	Non-overflow section	Left side	Right side	
i)	Type	Masonry	Masonry	Masonry
ii)	TBL (m)	119.00	119.00	56.40
iii)	Deepest foundation level (m)	98.33	89.54	22.60
iv)	Length at top (m)	49.00	371.00	274.30
	Earth & Rock-fill dam			
i)	Type		Zonal	Zonal
ii)	Length at top (m)	-	205.00	859.50

iii)	Top width (m)	-	12.00	6.00
iv)	Dyke			
	a) Number	1	-	
	b) Total length (m)	430.00		
	c) Maximum height (m)	12.00		
B	Conveyance system			
	Reach (km) /Section	Normal cut reaches	Deep cut reaches	
	At head			
i)	Discharge (Cumec)	304.00	304.00	
ii)	Bed width (m)	33.40	30.75	
iii)	FSD (m)	6.00	6.75	
iv)	Bed slope	1/20000	1/20000	
v)	Side slope	1.5 : 1	0.5 : 1	
vi)	Manning's 'n'	0.018	0.018	
vii)	Velocity (m/sec)	1.104	1.183	
	At tail			
i)	Discharge (Cumec)	187.00	187.00	
ii)	Bed width (m)	17.80	17.90	
iii)	FSD (m)	6.00	6.75	
iv)	Bed slope	1/20000	1/20000	
v)	Side slope	1.5 : 1	0.5 : 1	
vi)	Manning's 'n'	0.018	0.018	
vii)	Velocity (m/sec)	1.030	1.101	
	Tunnel (From 186.6-199.1)			
i)	Discharge (Cumec)	275.00		
ii)	Diameter (m)	13.00		
iii)	Bed slope	1 in 6000		
iv)	Manning's 'n'	0.014		
v)	Velocity (m/sec)	2.266		
C	Powerhouse			
	Feature	Dam powerhouse	Canal powerhouse	
i)	Location	Inchampalli dam toe	Link canal fall	
ii)	Static head available	34.77 m	9m at each of the three falls	
iii)	Type of turbines	Kaplan	Tubular	
iv)	Effective capacity	825 MW	9 MW; 3 plants	

v)	Unit size	13 x 75 MW	3 x 3 MW	
vi)	Size of powerhouse	346 m x 24 m	26m x 14.5m	
vii)	Dia of penstocks	7 m	2.85 m	
D	Lifting arrangements			
	Feature	On NSLBC feeder branch canal	At Pulichintala	
i)	Static lift (m)	38.66	12.63	
ii)	Operational head (m)	43.96	18.07	
iii)	Capacity required (MW)	71	41	
iv)	Unit size (MW)	5.9	2.4	
v)	Size of pump house (m x m)	112.0 x 14.0	152.0 x 14.0	
vi)	Suction pipe dia (m)	3.25	3.25	
vii)	Delivery pipe dia (m)	2.00	2.00	
viii)	Delivery mains (m)	2.25	2.25	
ix)	Power required (MU)	178.00	107.00	
6.	Benefits			
A	Irrigation	CCA (ha)	Annual irrigation (ha)	Water use (Mm³)
i)	Bringing new areas into irrigation under IRBC and NSLBC beyond Tammileru	85230	109345	660
ii)	Taking over the existing commands under NSLBC & NSRBC	360069	504097	3005
	Total	445299	613442	3665
B	Municipal & Industrial water needs			
i)	Population served (Nos)	5169098 (2050 AD)		
ii)	Municipal water needs (Mm ³)	176		
iii)	Industrial water needs (Mm ³)	237		
C	Power generation			
i)	Dam powerhouse (MU)	2744		
ii)	Canal powerhouse (MU)	110		
	Total	2884		

7.	Estimated cost Year 2003-04	
i)	Unit-I :Head works	306 crore
ii)	Unit-II :Conveyance system	4252 crore
iii)	Unit-III :Powerhouse	53 crore
iv)	Unit-IV :Lifting arrangements	409 crore
	Unit-V :On farm development	26 crore
	Total	5046 crore
v)	Benefit cost ratio	3.41
vi)	Internal rate of return (%)	19.26
vii)	Cost of diversion of one m ³ of water (Rs)	11.55