

Salient features

1	Name of the project	Bedti – Varadalink project		
2	Type of Project(Irrigation or Multipurpose)	Irrigation		
3	General			
3.1	River Basin	Link-I	Link-II	
(a)	Name	Bedti basin	Bedti basin	
(b)	Located in			
(i)	States	Karnataka	Karnataka	
(ii)	Country	India		
3.2	Name of	Link-I	Link-II	
(a)	River	Bedti	Bedti	
(b)	Tributary	i. Pattanadahalla, /Sonda ii. Shalamalahalla / Sonda	Bedti	
(c)	State	Karnataka	Karnataka	
3.3	State(s) / District(s) / Taluka(s) in which the following are located	Link-I	Link-II	
(a)	Reservoir(Barrage/ Weir)	Pattanada- halla (confined to the river bank)	Shala- malahalla (confined to the river bank)	Suremane (confined to the river bank)
	State	Karnataka		Karnataka
	District	Uttara Kannada		Uttara Kannada
	Taluka	Sirsi	Sirsi	Yellapura

(b)	Head works	Pattanada-hallaweir	Shalama-lahallaweir	Suremane Barrage
	State	Karnataka		Karnataka
	District	Uttara Kannada		Uttara Kannada
	Taluk	Sirsi	Sirsi	Yellapura
(c)	Command Area	Raichur district of Karnataka		
(i)	Enroute command	---Nil----		
(ii)	Tail end command in Tungabhadra sub-basin	Left bank command of Tungabhadra Project		
	State	Karnataka		
	District	Raichur		
	Taluk	Manvi, Sirwar, Devadurga, Raichur		
3.4	Village near the Head works	Link-I		Link-II
		Pattanada-hallaweir	Shalamalahallaweir	Suremane barrage
		Siralbail in Sirsitaluk	Hulgol in Sirsitaluk	Suremane in Yellapur taluk
3.5	Location of Head works			
(a)	Latitude	14 ⁰ 40' 15''	14 ⁰ 42' 26''	14 ⁰ 52' 53''
(b)	Longitude	74 ⁰ 41' 18''	74 ⁰ 48' 31''	74 ⁰ 47' 13''
(c)	Earthquake Zone No.	Seismic Zone-II as per the zoning map of India (IS: 1893-2002, Part-1).		
3.6	Project area reference to:			
(a)	Survey of India Topo-sheets (1:50000)	48 J/10	48 J/14	48 J/13

(b)	Index Plan	Plate No. 1.2		
3.7	Access to the Project	Link-I	Link-II	
(a)	Airport:Hubli	119 km	70 km	
(b)	Rail head:	Haveri 72 km	Hubli 70 km	
(c)	Road head	NH-48: (72km) (Bengaluru - Mumbai)	NH-48:(70km)(Bengaluru - Mumbai)	
		NH-66: (110km) (Mangaluru to Mumbai)	NH-66: (99 km) (Mangaluru to Mumbai)	
		NH-52: (49km) (Ankola to Hubli)	NH-52: (70km) (Ankola to Hubli)	
(d)	River port	-	-	
(e)	Sea port	Karwar:49 km	Karwar: 99km	
4	Interstate aspects of the project			
(a)	Catchment area of the basin (Sq.km)			
	Bedti basin	3902		
	Tungabhadra sub basin	47827		
	Tungabhadra sub basin up to Tungabhadra dam site	28179		
(b)	Catchment area up to the diversion sites (Sq.km)	Pattanada-hallaweir	Shalama-lahallaweir	Suremane barrage
		52.80	169.42	2078
(c)	Submergence due to project at FPL (ha)	17.88	88.53	54.38
	a) Forest (limited river course)	12.43	88.53	54.38
	b) Other land	5.45	0.00	0.00
(d)	Committed utilisation within the state(MCM)	Irrigation +domestic+Industrial+ Environmental		
		Link-I		Link-II

i.	Upstream projects (u/s of diversion site)	3.17	15.05	399.00
ii.	Downstream projects(d/s of diversion site for environment)	0.36	0.72	15.00
(e)	Proposed annual utilisation and area benefitted by the project	Link-I		Link-II
	Irrigation			
i	Enroutestabilisation	Nil		
ii	Tungabhadra LBC	Area (ha)		Utilisation (MCM)
	Kharif	Link-I	Link-II	Link-I Link-II
		60300	44600	274 202
	Total	104900		476
iii	Transmission losses	10 MCM		
	Total annual utilisation (Sum of i to iii)	104900		476
5	Estimated life of the project (years)	100 years		
6	Irrigation (ha.)			
(a)	Culturable command area (CCA)	104900(under the TBLBC command)		
(b)	Annual Irrigation			
	(i) Kharif	104900		
	(ii) Rabi	-		
	(iii) Perennial	-		
	(iv) Gross irrigated area (GIA)	104900		
	(v) Intensity of CCA irrigation	100		

	$\frac{(GIA)}{CCA} \times 100\%$	
(c)	District(s) benefitted (if the district benefitted is predominantly tribal or drought prone, it may be indicated against each district).	District
		Talukas
		Raichur(droughtprone)
		Manvi, Sirwar, Devadurga, Raichur
(d)	Cost per hectare of gross area irrigated	Rs. 2.686lakh
(e)	Cost per 1000 m ³ of gross/live storage	(No storages are proposed)
(f)	Cost per 1000 m ³ of water delivered at the (Canal head/outlet)	Rs.0.538lakh
(g)	Water utilisation	(Link- I+ Link- II) 524 MCM
7	Flood control	Not applicable
8	Water supply	
8.1	Domestic	
(i)	Names of villages served	To be identified
(ii)	Size of populationserved	395372
(iii)	Quantum of water made available (MCM)	14
(iv)	Quantum of water per capita/day (litre)	70
8.2	Industrial	
(i)	Quantum of water made available (MCM)	24
9	Project performance	Diversion of surplus water of west flowing Bedti river during monsoon period from the proposedweirs/barrage for augmenting irrigation under existing Tungabhadra LBC command.
10	Hydrology	

10.1	Catchments	Pattanadahalla weir	Shalamalahalla weir	Suremanebarrage
10.1.1	Catchment area up to diversion sites (Sq.km)	52.80	169.42	2078
10.1.2	Catchment area (Sq.km) classification according to mode of precipitation			
(a)	Rain fed	52.80	169.42	2078
(b)	Snow fed	Nil		
10.2	Precipitation (mm)			
10.2.1	Catchment up to diversion site (Record:1970-2016)	Monsoon Rainfall (weighted)		
		Pattanadahalla weir	Shalamalahalla weir	Suremanebarrage
(a)	Average	4401	2520	1169
(b)	Maximum	8755	3824	1630
(c)	Minimum	2782	1506	566
10.2.2	In the vicinity of command area	District Raichur (IMD 1951 - 2000)		
(a)	Average annual	750.5		
(b)	Kharif	652.5		
(c)	Rabi	98.1		
(d)	Monthly mean ETo (varies from)	108.1 mm to 234.0 mm		
(e)	Annual Eto	1883.1 mm		
10.3	Gross annual yield calculated up to the diversion sites (MCM)	Pattanadahalla weir	Shalamalahalla weir	Suremanebarrage
(a)	Maximum	519	645	2646
(b)	Minimum	133	162	307
(c)	Average	238	373	1213
(d)	Annual yield at			

(i)	50 % dependability	226	365	1247
(ii)	75 %dependability	184	286	583
(iii)	90 % dependability	172	244	391
10.4	Climatic data (Command)			
10.4.1	Name of station(s) and period of record	Period of record		
(a)	Raichur	1981 to 2010		
10.4.2	Data	Maximum	Minimum	
(a)	IMD Observatory at Raichur			
	a) Air temperature (°C)	40.4	16.6	
	b) Humidity (per cent)	74.0	23.0	
	c) Wind speed (kmph)	16.8 (1961-90)	8.7 (1961-90)	
10.5	Seismic co-efficient	Zone-II		
10.6	Utilisation within the state (MCM)	514 MCM (10 MCM- Transmission losses)		
10.6.1	Water availability (State's share in case of interstate river)	524 MCM at 75% dependability (Link- I+ Link- II)		
10.6.2	Committed irrigation utilization upto diversion sites (MCM)			
(a)	Upstream projects	Pattanadahalla weir	Shalamalahalla weir	Suremanbarra ge
	Projects completed			
	Major	-	-	-
	Medium	-	-	-
	Minor	1	3.1	33.84
	Project under construction	-	-	2.00
	Future projects	-	-	
	Medium	1.4	4.51	191.05
	Minor			114.13
	Total	2.4	7.61	341.02
10.6.3	Proposed utilization by the project	As mentioned in 4 (e) above		

11	Floods near the head works site			
11.1	Historical maximum flood discharge at headworks (m ³ /sec)	Not observed		
11.2	Design flood (m ³ /sec)	824	1567	5639
11.3	Proposed diversion from the weirs / barrage (Peak discharge)(m ³ /sec)	20.25	54.98	69.4
11.4	River flows (minimum observed) (m ³ /sec)	0	0	0.07 (May,1975)
12	Reservoir			
12.1	Water level (El-m)			
(a)	Maximum Water Level (MWL)	501.00	470.50	429.44
(b)	Full Pond Level (FPL)	499.00	468.00	426.00
(c)	Top Bund Level	503.00	472.50	431.20
(d)	Dead Storage Level (DSL)	491.00	458.00	420.00
(e)	River bed level	491.00	458.00	419.50
12.2	Capacity (MCM)			
	At Full Pond Level	0.54	4.32	2.71
12.3	Flood absorption capacity (MCM)			
(a)	Below FPL	Confined to river banks only, no flood is anticipated		
(b)	Between FPL and MWL	Confined to river banks only, no flood is anticipated		
12.4	Sedimentation			
(a)	Average annual sedimentation inflow in Bedti basin @ 398.61m ³ /Sq.km of area as per KPCL (m ³)	21047	67533	828312
(b)	Encroachment of live storage (percent)	Under sluices are provided for removal of silt accumulated and for release of ecological flow		
(c)	New zero elevation (El-m)	Not applicable		

13	Land requirement (ha)		Link-I	Link-II
	(i) Pondage /Head works / Plant and colony	Pattanadahalla& Shalamalahalla		Surema- ne
	a) Forest	104.96		60.38
	b) Other land	12.45		0.00
	c) Total	117.41		60.38
			Link-I	Link-II
	(ii) Conveyance system			
	a) Forest	26.72		50.77
	b) Other land	17.33		20.74
	c) Total	44.05		71.51
	(iii)No. of villages affected	Nil		
14	Head works			
			Link-I	Link-II
	Details of weir/barrage	Pattanadahalla weir	Shala- mala- hallaweir	Surema- ne barrage
(a)	Type of structure	Concrete	Con- crete	Con- crete
(b)	Length (m)	145.00	202.00	165.00
(c)	Full pond level (El-m)	499.00	468.00	426.00
(d)	Crest level (El-m)	499.00	468.00	421.00
(e)	River bed level (El-m)	491.00	458.00	419.50
15	Conveyance System	Bedti – Varada link project		
			Link-1	Link-II
15.1	Purpose	Irrigation		
15.2	Type	Diversion tunnel/canal/raising main		
	Flow/Lift	Lift and flow		
	Lined / Unlined	Lined		
15.3	Design data		Link-1	Link-II
		Interconnec- ting System	Shala- mala-	Surema- ne to

			halla to Varada	Dharma
	Discharging capacity of the link(m ³ /sec)	20.25	54.98	69.4
	i)Tunnel			
	(a)Length (km)	6.5	6.7	4.23
	(b) Diameter (m)	4.5	6.9	7.3
	(c) Bed slope	1:3000	1:4000	1:4000
	(d) Inlet level at entry (El-m)	492.000	570.000	599.000
	(e) Outlet level at exit (El-m)	489.783	568.267	597.871
	(f)Type of Tunnel	Modified Horse-shoe section		
	(g) Designed discharge (m ³ /sec)	22.33	60.5	76.30
	(h) Velocity (m/sec)	1.62	1.81	1.91
	ii) Canal			
	(a)Length (km)	0.40	1.73	-
	(b)Full supply level at head (El-m)	492.000	570.000	-
	(c) Bed width at head/tail (m)	7.10	11.00	-
	(e) Side slope at head/tail	1.5:1	1.5:1	-
	(f) Bed slope	1:10000	1:10000	-
	(g) Maximum discharge capacity at head/tail (m ³ /s)	22.30	60.50	
	(h) Total number of canal structures (for which head loss is considered)	Nil	Nil	
	(i) Total assumed head losses across the structure (m) including bed slope	-	-	
	iii) Raising Main	Link-1		Link-II
	(a) Lift – Static head (m)	107.5		185.5 (120+65.5)
	(b) Length of pipeline(km)	10.15		22.3
	(c) Designed discharge (m ³ /s)	60.5		76.4

	(d) Diameter of pipe (m)/no's	2.75 x5		2.75x6	
	(e) Number of pumps including one standby	10		13	
	(f) Total electric power required (MW)	122		266.5 (169+97.5)	
	(g) Total energy required (MU)	137.90		181.3 (109.6+71.7)	
16	Cost (Rs. lakhs)	Unit-I	Unit-II	Unit-III	Total
	Link-I	4894	55972	33760	94626
	Link-II	10206	100183	76747	187136
	Total	15100	156155	110507	281762
17.	Benefits/Revenue	Annual Benefits			
	Item	Rs lakh			
		Link-I		Link-II	Total
	Irrigation	48364		35772	84136
	M&I	15736		11248	26984
	Irrigation cess	995		736	1731
	Pisciculture	6356		4623	10979
	Animal husbandry	708		545	1253
	Total	72159		52923	125083
18	Benefit cost ratio				
	Irrigation	Link-I	Link-II	Combined	
	(a) BC Ratio	4.47	1.82	2.77	
	(b) IRR	38.65	18.85	26.45	