

**Mahanadi (Barmul)-Rushikulya-Godavari (Dowlaiswaram) Link Project**

**SALIENT FEATURES**

<b>1</b>	<b>Name of the Project</b>	Mahanadi (Barmul) - Rushikulya-Godavari (Dowlaiswaram) Link Project
<b>2</b>	<b>Estimated cost</b>	Rs. 54019 Crore
<b>3</b>	<b>Purpose</b>	Diversion of 10105 Mm <sup>3</sup> of Mahanadi water to meet enroute irrigation, domestic and industrial needs in Odisha and Andhra Pradesh states and to deliver a quantum of 5046 Mm <sup>3</sup> at upstream of the Dowlaiswaram barrage on the Godavari river to meet part requirement of Godavari delta. (Additional 1454 MCM water to be diverted through this link from MSTG contribution to ensure 6500 MCM reaching Godavari)
<b>4</b>	<b>Quantum of water diversion (Mm<sup>3</sup>)</b>	10105
<b>5</b>	<b>En route irrigation/utilisation</b>	
	a) In Odisha state	
	i) C.C.A. (ha)	256770
	ii) Annual irrigation (ha)	351786
	iii) Annual utilisation (Mm <sup>3</sup> )	3184
	b) In Andhra Pradesh state	
	i) C.C.A. (ha)	107189
	ii) Annual irrigation (ha)	91110
	iii) Annual utilisation (Mm <sup>3</sup> )	606
	c) Total	
	i) C.C.A. (ha)	363959
	ii) Annual irrigation (ha)	442894
	iii) Annual utilisation (Mm <sup>3</sup> )	3790
<b>6</b>	<b>Domestic water supply (Mm<sup>3</sup>)</b>	310
<b>7</b>	<b>Industrial water supply (Mm<sup>3</sup>)</b>	390
<b>8</b>	<b>Transmission losses (Mm<sup>3</sup>)</b>	569
<b>9</b>	<b>(i) Diversion to Godavari river (Mm<sup>3</sup>) from Mahanandi</b>	5046
	(ii) From MSTG contribution (Mm <sup>3</sup> )	1454
	(iii) Total (Mm <sup>3</sup> )	6500

<b>10</b>	<b>Barmul Dam</b>	
	i) State	Odisha
	ii) District	Nayagarh/Cuttack
	iii) Latitude	20° 30' 44" N
	iv) Longitude	84° 52' 34" E
	v) River	Mahanadi
	vi) Catchment area (km <sup>2</sup> )	122454
	vii) Full reservoir level proposed by NWDA (m)	80.00
	viii) Minimum draw down level (m)	66.00
	ix) Storage at FRL (Mm <sup>3</sup> )	1835
	x) Live storage (Mm <sup>3</sup> )	965
	xi) Dead storage (Mm <sup>3</sup> )	251
	xii) Length of the Dam (m)	850
	xiii) Maximum height of the Dam(m)	25
	xiv) Type of Dam	Concrete
	xv) Reservoir submergence at FRL 80 m (ha)	21262
	xvi) No. of villages coming under submergence	93
	xvii) Population affected (2011 Census) Nos.	58000
	Source : NECTAR Final Report(August 2018)	
<b>11</b>	<b>Salia dam</b>	
	i) State	Odisha
	ii) District	Khurda
	iii) Latitude	19° 48' N
	iv) Longitude	85° 05' E
	v) River	Salia
	vi) Catchment area (km <sup>2</sup> )	248.64
	vii) Full reservoir level Originally (m)	58.52
	viii) Full reservoir level proposed by NWDA(m)	62.32
	ix) Length of the Dam (m)	423.65
	x) Maximum height of the Dam(m)	32.92
	xi) Type of Dam	Earth dam(Zonal section)
	xii) Reservoir submergence at FRL 62.32 m (km <sup>2</sup> )	12.34
	xiii) Maximum Water Level (m)	61.80
	xiv) Minimum draw down level (m)	48.82
	xv) Gross storage at FRL (Mm <sup>3</sup> )	59.868
	xvi) Live storage (Mm <sup>3</sup> )	52.08
	xvii) Dead storage (Mm <sup>3</sup> )	7.788
	xviii) Reservoir submergence at FRL (km <sup>2</sup> )	9.84
<b>12</b>	<b>Ong dam</b>	
	i) State	Odisha
	ii) District	Bargarh
	iii) Latitude	21° 05' 29"N
	iv) Longitude	83° 03' 06"E
	v) River	Ong

	vi) Catchment area (km <sup>2</sup> )	2321
	vii) Full reservoir level (m)	219.00
	viii) Lenth of the Dam (m)	7480.00
	ix) Maximum height of the Dam(m)	30.00
	x) Type of Dam	Rolled homogeneous earth-fill type
	xi) Reservoir submergence at FRL (Ha)	5100.00
<b>13</b>	<b>Tel Integrated Project</b>	
	i) State	Odisha
	ii) District	Nabarangapur
	iii) Latitude	19° 49' 24"E
	iv) Longitude	82° 19' 32"N
	v) River	Tel
	vi) Catchment area (km <sup>2</sup> )	480
	vii) Full reservoir level (m)	500.00
	viii) Lenth of the Dam (m)	3682.00
	ix) Maximum height of the Dam(m)	87.00
	x) Type of Dam	Earthen dam
	xi) Reservoir submergence at FRL (Ha)	1330.00
<b>14</b>	<b>Upper Udanti Project</b>	
	i) State	Odisha
	ii) District	Nuapada
	iii) Latitude	20° 06' 44"N
	iv) Longitude	82° 24' 06"E
	v) River	Udanti
	vi) Catchment area (km <sup>2</sup> )	1027
	vii) Full reservoir level (m)	299.00
	viii) Lenth of the Dam (m)	500 (Approx.)
	ix) Maximum height of the Dam(m)	38.00
	x) Type of Dam	Earthen dam
	xi) Reservoir submergence at FRL (Ha))	1788.00
<b>15</b>	<b>Uttei Roul Project</b>	
	i) State	Odisha
	ii) District	Kalahandi
	iii) Latitude	83° 34' 05"E
	iv) Longitude	20° 10' 30"N
	v) River	Uttei River
	vi) Catchment area (km <sup>2</sup> )	415
	vii) Full reservoir level (m)	270.00
	viii) Reservoir submergence at FRL (Ha)	854.00
<b>16</b>	<b>Khadaga Project</b>	Odisha
	i) State	Kandamal
	ii) District	20° 24' 09"N
	iii) Latitude	83° 42' 11"N
	iv) Longitude	Khadaga

	v) River	1804		
	vi) Catchment area (km <sup>2</sup> )	177.00		
	vii) Full reservoir level (m)	214.00		
	viii) Lenth of the Dam (m)	9.00		
	ix) Maximum height of the Dam(m)	Concrete		
	x) Type of Dam	44.82		
	xi) Reservoir submergence at FRL (Ha)			
<b>17</b>	<b>Salki Project</b>			
	i) State	Odisha		
	ii) District	Kandhamal(Phulbani)		
	iii) Latitude	20° 33' 24"N		
	iv) Longitude	84° 11' 33.729"E		
	v) River	Salki		
	vi) Catchment area (km <sup>2</sup> )	1285		
	vii) Full reservoir level (m)	460.00		
	viii) Reservoir submergence at FRL (Ha)	981.00		
<b>18</b>	<b>Dowlaiswaram barrage</b>			
	i) State	Andhra Pradesh		
	ii) District	East Godavari		
	iii) Latitude	16° 55" N		
	iv) Longitude	81° 45' E		
	v) River	Godavari		
	vi) Catchment area (km <sup>2</sup> )	314685		
	vii) Pond level (m)	13.64		
<b>19</b>	<b>Link Canal particulars</b>			
	i) Hydraulic particulars of link canal	Designed	Bed	Full
		discharge	width	supply
				depth
		(cumec)	(m)	(m)
	a) From Barmul to Rushikulya river (Upto 225.050 km)	763.48	69.00	7.00
	b) From Rushikulya to Sarada river (Upto 661.100 km)	501.05	42.00	7.00
	c) From Sharada to Godavari river (Upto 844.600 km)	359.36	28.00	7.00
	d) Toposheets covered (1:50000)	73D/15, 73D/14,73H/3,8, 74E/5,1,2,		
		74A/14,10,11,12,8, 74B/9,5,6,2,		
		65N/14,15,11,12,8,4, 65O/1,2,		
		65K/14,15,11,7,8,4, 65G/16		
	ii) Bed slope of canal	1 in 20 000		
	iii) Length of canal including tunnel (km)	844.595		

	a) In Odisha state (km)	318.600
	b) In Andhra Pradesh state (km)	526.000
	iv) Proposed tunnel length (km)	
	a) At RD 24.475 km to 25.225 km	0.750
	b) At RD 634.050 km to 639.450 km	5.400
	v) Open canal (km)	838.445
	vi) Offtake level of link canal (m)	75.060
	vii) FSL at tail end (m)	14.505
	viii) Type of canal	Lined canal, trapezoidal section with bottom corners rounded.
	ix) Side slopes	1.5 H : 1 V
	x) Cross drainage works	
	a) Aqueducts	25
	b) Syphon aqueducts	28
	c) Super passages	14
	d) Undertunnels	44
	e) Cross regulators	19
	f) Escapes	7
	g) Level crossing	2
	xi) Cross masonry works	
	a) Single lane road bridges	83
	b) Double lane road bridges	31
	c) Railway bridges	7
<b>20</b>	<b>Total cost (Rs. Crore)</b>	
	Unit - I Head works	4888
	Unit-II Conveyance system	48081
	Unit - III Power component	1050
	<b>Total</b>	<b>54019</b>
<b>21</b>	<b>B.C. ratio</b>	
	a) Annual benefits (Rs. Crore)	6058
	b) Annual cost (Rs. Crore)	2909
	c) B.C. ratio	2.08
	d) IRR	15.60%