

GOVERNMENT OF ODISHA



DEPARTMENT OF WATER RESOURCES

ANNUAL REPORT 2016

LOWER INDRA MECHANICAL DIVISION
LOWER INDRA IRRIGATION PROJECT
DAM SITE, TIKHALI

CONTENTS

Sl. No.	Subject	Page No.
A	Project at a glance	03-04
B.	Salient Features of LIIP.	04-09
c	Brief Description on Works and Organization Chart of Lower Indra Mechanical Division	10-15

INTRODUCTION

- The State of Odisha is very rich in Water Resources and optimum tapping of the same is yet to be done for irrigation. As a result of which frequent drought is encountered with varying magnitude of miseries.
- Nuapada & Bolangir districts are located in such chronically drought prone area of K B K districts predominately inhabited by Scheduled Castes and Schedule Tribes with poor economic condition.
- In order to improve the socio-economic condition of the inhabitants of these districts and eradicate frequent drought situations, Govt. of Odisha have proposed to construct Lower Indra Irrigation Project under **Accelerated Irrigation Benefit Programme (A.I.B.P.)**.

The Lower Indra Irrigation Project constructed across river Indra, a tributary of river Tel, is a Major Irrigation Project in Mahanadi Basin. The Dam is located near a village named Dargaon in Khariar block of Nuapada district at a distance of 17 km from Khariar town towards Nuapada.

The Project envisages construction of Head Works (One centrally located Spillway, Earth Dam And 3 Dykes) and Canal System (Left Main Canal and Right Main Canal with its off taking canals) to cover CCA 29,900 hectare. The project on completion will create ultimate irrigation potential of 38,870 ha. The project was approved by Planning Commission in the year 1998-99 vide letter No.2 (326) / 97-I & CAD Dt. 04.02.99 for Rs.211.70 crore. The revised estimated cost of the project is Rs.1182.23 crore (2008 price level) and approved by Planning Commission vide letter no. No.2 (326) / 2003 - WR Dt. 02.12.2009. The latest estimated cost of Rs 1624.49 crore (2012 price level) has been approved by Planning Commission. Administrative Approval has been accorded by DoWR Odisha vide ltr. No 17028 dtd 17.07.2014. The project was taken up under AIBP during 1999-00 and is likely to be completed by 03/2017.

2. The major components of the project:

Head Works (unit-I)

- A Central Spillway (159.00 Mtr. length of Water Way)
- Earth Dam
 - Left side- 225.00M
 - Right side- 3396.00 M
 - 3621.00 M
- Three numbers Dykes (2392 Mtr.)
 - 660.00 M
 - 542.00 M
 - 1190.00 M
 - 2392.00 M
- Two numbers Head Regulators: Left & Right Head Regulators.

Distribution System

(C.C.A. = 29,900 Ha)

- Left Main Canal = 49.38 KM
- Right Main Canal = 08.22KM
- Branch Canal = 29.76KM(2 nos)
- Distributary = 92.92KM(10 nos)
- Minors and Sub- Minors= 348.68KM

A. Salient Features of the Lower Indra Irrigation Project

I. GENERAL

1. State	Odisha
2. District	Nuapada
3. Village	Dargoan
4. River	Indra (a tributary of Tel River)
5. Basin	Mahanadi
6. Location	Longitude-.82°38'45"E Latitude- 20°23'30"N.
7. Top sheet No.	64 L / 11
8. Nearest Railway station	Kantabanji (Distance – 53 KM)

II. HYDROLOGY

1. Catchment area	1093 sq.km.
2. Maximum annual rainfall	1638 mm.
3. Mean Annual rainfall	1116 mm.
4. 75% dependable annual rainfall	1070 mm.
5. 75% dependable annual runoff	288.21 Mcum.
6. 75% dependable annual runoff with 10% u/s Reservation.	259.39 Mcum
7. Run off factor	28.90%
a. Gross utilization	325.53 Mcum.
b. Evaporation Losses	51.78 Mcum.

1. T.B.L.	268.50 M
2. F.R.L./ M.W.L	265.00 M
3. D.S.L.	251.00 M
4. Free Board	3.50 M
5. Deepest Bed Level	231.00 M

IV. RESERVOIR CAPACITIES AND SUBMERGENCE

1. Gross storage at FRL	321.635 Mcum
2. Dead Storage	7.383 Mcum.

3. Live storage between FRL/ DSL	314.252 Mcum.
4. Submergence at FRL	4766 Ha.
5. Affected Persons Enumerated.	9415 Nos.of Affected Persons (S.T.-1314 families, S.C.- 359 families, Gen.-1918 families)
6. No.of villages affected submerged)	31(12 fully submerged + 19 partly submerged)
7. Transmission Line affected	2 km
8. Road communication submerged	6 Km (N.H.353)
9. Tribal population affected	2940 Nos. (Reservoir 938.54 Ha)
10. Forest area affected	1042.97 Ha (Dam Basin 16.02 Ha.) (Dyke Basin 11.15 Ha.) (Canal system 49.38 Ha) (Borrow Area 27.88 Ha.)
11. Agriculture Land affected under canal system;	888.00 Ha
12. Length of Reservoir periphery	91.60 Km
V. DAM	
A. MAIN DAM	
1. Type	Earth Dam
2. Length	3780 M
3. Max height above deepest section	22.00 M
4. Top Width	6.00 M
5. Dykes	Length/ Maximum Height
I	660M/ 16.50 M

II	542/ 13.70 M
III	1190 M / 11.00 M
6. Total length of Dykes	2392 M
B. <u>SPILLWAY</u>	
1. Location	Centrally located
2. Type	Ogee type
3. Length	159.00 M [Water way]
4. No.of Bays	9 nos.
5. Size of Gates	15.00M x 9.00 M
6. Crest level of Spillway	R.L.256.00 M.
7. Type of gates	Radial
8. Design flood	6831 Cumecs
VI. DETAILS OF COMMANDS	
1. G.C.A.	37,389 Ha.
2. C.C.A. R.M.C System : 3,452Ha)	29,900 Ha(L.M.C system : 26,448 Ha &
3. District wise C.C.A.	Nuapada 13,500 Ha (90 villages) Bolangir 16,400 Ha (122 villages)
4. Assembly Segment wise	
a) Khariar Constituency	13,500.00 Ha
b) Kantabanji Constituency	9,350.70 Ha
c) Titilagarh Constituency	<u>7,049.30 Ha</u>
Total :	29,900.00 Ha
5. Village covered under ayacut	212 nos. Nuapada dist. 90 nos & Bolangir dist. 122 nos.
6. Intensity if irrigation	

a) Khariff	90%
b) Rabi	40%
c) Annual	130%

VII. CANAL SYSTEM

1. Length of Main Canal

L.M.C 49.38 Km

R.M.C 8.220 km

2. Design Discharge

L.M.C. 35.24 Cumecs

R.M.C. 0 4.51 Cumecs

3. No. and Size of Head Regulator Vents

L.M.C. 4 Nos x 1.200 M x 1.50 M

R.M.C. 1 No x 2.00 M x 2.10 M

4. Sill level of Head Regulator

L.M.C. 248.25 M

R.M.C. 249.30 M

5. F.S.L. at canal head

L.M.C. 250.45 M

R.M.C. 250.700 M

6. Bed Width

L.M.C. 16.50 M

R.M.C. 0 4.00 M

7. Full supply depth

L.M.C. 2.20 M

R.M.C. 1.40 M

8. Off taking points

L.M.C. RD 511 M of Dyke No.III

R.M.C. RD 1920 M of Main Dam

VII. ENVIRONMENT & ECOLOGY:

1. Cost of catchment management Plan	13,70,45,406/-
2. Cost of Compensatory afforestation	2.43.58.736/-
3. Cost of Wild life Management	1,30,29,050/-
4. Cost of Canal Bank Plantation	<u>1,54,33,860/-</u>
Total	18,98,67,052/-

IX. TOTAL PROJECT COST

a) Original Project Cost

Unit – I	Rs. 134.68 Cr
Unit – II	<u>Rs 77.02 Cr</u>
Total	Rs. 211.70 Cr

b) Revised Project Cost(1st)

Unit – I	Rs. 309.88 Cr
Unit – II	<u>Rs 211.25 Cr</u>
Total	Rs. 521.13 Cr

c) Revised Project Cost(2nd)

Unit – I	Rs. 728.85 Cr
Unit – II	<u>Rs. 453.38 Cr</u>
Total	Rs.1182.23 Cr

d) Revised Project Cost (3rd) Rs.1624.49 Cr . (Unit I- 965.81Cr. + Unit II- 658.68 Cr.)

X. BENEFITS

B. C. Ratio @ 10% interest

1.24 (3rd Revised)

Internal rate of return

13.00

XI. RESERVOIR DETAILS:

	<u>R.L.in M</u>	<u>Area in Ha.</u>	<u>Capacity in M.Cum.</u>
F.R.L	265.00	4766.32	321.64
R.L	263.00	3891.40	233.28
R.L	261.00	3103.60	168.31
R.L	258.00	2040.88	89.22
D.S.L.	251.00	324.40	7.38

XII. Original Target Date of Completion:

Year 2004-2005.

XIII . Extended date of Completion:

June 2012.

XIV. Probable date of Completion:

March-2017

Brief Description on Works and Staff Position of this Lower Indra Mechanical Division:

Lower Indra Mechanical Division is situated at Damsite, Tikhali in the District of Nuapada. There are three nos. of Sub-Divisions functioning under Division namely L.I. Mechanical Sub-Division No.- I, L.I. Mechanical Sub-Division -II and L.I. Mechanical Sub-Division -III. It is about 25 kms away from Khariar, & 65kms from Kantabanji railway station.

This Division started functioning on 21.12.2001 to execute Mechanical nature of works for Lower Indra Irrigation Project.

This Division started functioning since 21.12.2001 on redeployment. This Division is assigned with the Gate works i.e. construction of Spillway Radial gates as well as installation of Distributory / Minor / Sub-Minor Gates of both LMC and RMC of this Project. Most of Civil Canal structures are in progress and installation of Gates will be taken up after getting requisition from the concerned Civil Divisions.

In addition to that Division is also looking after Power Supply and illumination works at Damsite, Tikhali. This Division is also entrusted with maintenance of external water supply works and electrical works of both colony and office premises.

ORGANIZATION SETUP

This Division is headed by an Executive Engineer under the Administrative control of Chief Construction Engineer, Lower Indra Irrigation Project. The Executive Engineer is assisted by One Deputy Executive Engineer and two nos. of Assistant Executive Engineers. Besides, other important technical staffs are Junior Engineer-4nos.

This Division has three nos. of Sub-Divisions with 13 Nos. of AE/JEs as per sanctioned strength but only one DEE, one AEE and three nos. of contractual JEs are working at present. The details of Staff Position are as detailed below:

PRESENT STATUS OF LOWER INDRA MECHANICAL DIVISION, DAMSITE, TIKHALI

STAFF POSITION

TECHNICAL HEAD

SANCTIONED STRENGTH

1. Executive Engineer (Mechanical)	1No.
i. Er. Prabin Kumar Tripathy	
2. Deputy Executive Engineer (Mechanical)	1No.
i. Er. Ladi Ramesh	
3. Assistant Executive Engineer (Mechanical)	2Nos.
i. Er. Tapan Kumar Haldigundi	
ii. Vacant	
4. Assistant Engineer (Mechanical)	2Nos.
i. Vacant	
ii. Vacant	
5. Junior Engineer/ (J.E.)	14 Nos.
i. Er. Iswar Kumar Behera, JE(Mechanical).	
ii. Er. Trilochan Behera, JE(Mechanical).	
iii. Er. Narendra Pratap Singh, JE(Civil).	
iv. Er. Sailesh Das , JE(Civil). (Working on deputation under EE, L.I.Canal Division no.-I)	
v. Vacant	10 Nos.

NON-TECHNICAL STAFF (MINISTERIAL STAFF)

	<u>SANCTIONED STRENGTH</u>
1. HEAD CLERK	01No.
i. Sri Banamali Majhi	
2. SENIOR CLERK	02Nos.
i. Vacant	
ii. Vacant	
3. JUNIOR CLERK	07Nos.
i. Sri Pradeep Kumar Naik	
ii. Vacant	06 Nos.
4. DRAFTSMAN	01 No.
i. Vacant	
5. STENOGRAPHER	01 No.
i. Vacant	
6. TRACER	01 No.
i. Vacant	
7. FERROPRINTER	01 No.
i. Vacant	
8. DAFTARI	01 No.
i. Sri Naba Santa	
9. PEON	10Nos
i. Sri Damu Muduli .	
ii. Sri Lachhaman Majhi .	
iii. Sri Paramananda Majhi.	
iv. Sri R.Gopal Reddy	
v. Sri Dinabandhu Pradhan	
vi. Sri Lokanath Sahu	
vii. Vacant	04 Nos.
10. NIGHT WATCH MAN CUM SWEEPER	4Nos
i. Sri Baidyanath Chhati.	

- ii. Sri Damu Jhadia.
- iii. Vacant

02 Nos.

WORKCHARGED STAFF

- i. Dharanidhar Pradhan. (Crane Operator)
- ii. Dambarudhar Pradhan . (Crane Operator)
- iii. Y.Rama Rao .(Asst.Pump Driver)
- iv. Malati Khila . (Khalasi)
- v. Radha Khilla . (Khalasi)
- vi. Bhramarabar Samal (Watchman)
- vii. Gobardhan Sahu (Watchman)
- viii. Hemant Kumar Barik . (Watchman)
- ix. Sudhakar Behera . (Watchman)
- x. Sarat Naik (Watchman)
- xi. Dinabandhu Samal (Watchman)
- xii. Bholeswar Sahoo (Watchman)
- xiii. Sukhdas Bhotra (Helper-Grade-III)
- xiv. Balaram Naik (Helper-Grade-III)
- xv. Prakash Chandra Nayak (Helper-Grade-III)
- xvi. Haladhar Tanti (Watchman(Working on deputation under CE,LIIP,Nuapada)
- xvii. Dhanu Tanti(Watchman)
- xviii.Dhoba Gouda(Watchman)
- xix. Nilakantha Majhi(Watchman)

Spillway Gate Works:

The Spillway Gate Works have been awarded to M/s OCC Ltd for an Agreement value of Rs 1671.86 Lakhs vide Agreement No. 01F2/05-06 and also supplementary Agreement No.-01 of Agreement No. 01F2/05-06 has been made with M/s OCC for Rs 1, 20, 43,663/- towards two nos. of Working Platforms and Earth Filling in downstream area of Spillway after Tender Committee approval and deviation thereof by CE, LIIP, Nuapada. M/s OCC Ltd. has till date availed payment of Rs. 1544.43 Lakhs against work done by them.

The Fabrication of all 09 Sets of all Radial Gates of size 15x9 Mtrs have been completed and are also transported to site. The anchorages along with Trunnion Girder erection have already been placed in position in all bays except Pier no.4 and erection of 1st Stage embedded parts are in progress in other bays.

Erection of Radial Gates with hoisting arrangement in Bay Nos.-08 & 09 has been taken up and erection of skin plates of Radial Gate in Bay No-7 is in progress. However, the erection of working platform, second stage embedded parts and sill beam has been taken up in the rest of the Bays.

Left Head Regulator Gate Works

The Left Head Regulator Gate Works have been awarded to M/s OCC Ltd for an Agreement value of Rs 54,15,611/- vide Agreement No. 02F2/05-06 and M/s OCC has availed payment of Rs 27,80,447/-. There are four sets of Service Gates of size 1.2x1.5 Mtr and one set of Stoplog Gate with monorail arrangement. The erection of a Gates have been completed.

Right Head Regulator Gate Works

The Right Head Regulator Gate Works were completed during 2008. There is one Service Gate and one Emergency gate of Size 2.00x2.10 Mtr.

Ongoing Agreements:

Sl. No	Name of work	Name of Agency	Agrt.No	Date of commencement	Stipulated date of compl / EOT sanctioned	Agrt. Value Rs in Lakhs	Value of work done upto July-2016 Rs in Lakhs
1	Design, drawing, fabrication, supply, transportation, erection, testing, commissioning including shop and field painting of 9 (nine) sets of radial gates of size 15mx9m including embedded parts for both Radial and Stop log gates, hoist bridge, hoisting arrangement and its appurtenant etc for lifting of the radial gates and one set of stop log gates (six segments),lifting beam, Gantry crane of 40 ton capacity for operation of stop log gate for spillway of Lower Indra Irrigation Project.	M/s OCC Ltd	01F2/05-06	21.07.2005	20.07.2007	1671.86 + Supplementary Agreement 120.43	1544.43
2	"Fabrication, Supply, Transportation and Erection of Cross Regulator, Head Regulator & Escape Gates (18 Nos.) at different locations of both LMC and RMC of LIIP".	M/s S.B.S Industries, Chauliaganj, Cuttack	03P1/2016-17	20.07.2016	19.10.2016	165.66	Nil

