



सत्यमेव जयते

**Government of India
Ministry of Jal Shakti
Department of Water Resources
River Development &
Ganga Rejuvenation**

**POLAVARAM PROJECT AUTHORITY
HYDERABAD**



**ANNUAL REPORT
2018-19**



Gate Fabrication Yard on right bank of Spill Channel

From CEO's Desk

It gives me immense pleasure to present the Annual Report of Polavaram Project Authority for the year 2018-19. In 2014, Polavaram Irrigation Project was declared as a National Project as per the Section 90, Part IX of the Andhra Pradesh State Reorganisation Act, 2014.

The Annual Report for the year 2018-19 comprising of six chapters, presents a comprehensive overview of the PPA, its mandated functions under the Act, activities undertaken and performance of the Authority during the year. On behalf of Government of India, Polavaram Irrigation Project is being executed by the Water Resources Department of Government of Andhra Pradesh. The execution of civil works of all the components of the project, Land acquisition and Rehabilitation and Resettlement activities are being carried out by WRD, GoAP. The Authority has played a vital role in coordinating and steering all the organisations associated with various aspects of the project viz. WRD, CWC, WAPCOS, CSMRS, CWPRS etc. towards speedy implementation of the project.

During the year, the Authority meeting was held in December 2018, wherein important administrative, financial and technical issues were deliberated at length and decisions taken. Three Dam Design Review Panel (DDRP) meetings were held which provided much needed and valuable technical support on complex technical designs and execution matters in order to expedite the pace of construction activities of the project.

During the year, Government of India released an amount of Rs. 1385 Cr to the State Government of Andhra Pradesh as reimbursement. The overall progress of the work was 68% till end of FY 2018-19. The project has been conferred with the "*Best implementation of Water Resources Project*" award by Central Board for Irrigation and Power, New Delhi on 4th January, 2019. The project also received two awards from Guinness Book of World Records for "*Largest continuous concrete pour*" and "*Most concrete pour in 24 hours*" with a record of 32,315.5 cubic meter in 24 hours on 7th January, 2019.

The performance of the Authority during the year has been quite encouraging. In this regard, the support and cooperation of Ministry of Jal Shakti, DoWR, RD & GR, Government of India and Water Resources Department, Government of Andhra Pradesh in the functioning of PPA is gratefully acknowledged. The strength of the PPA lies in its human resources and their commitment to excel. Despite constraints, the members, officers and staff of the Authority have worked diligently during the year in taking forward the activities of the Authority and the Polavaram Irrigation Project, which is gratefully acknowledged.



(J. Chandrashekhar Iyer)
Chief Executive Officer

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Abbreviations used in the Report

AIBP	Accelerated Irrigation Benefit Program
APRA,2014	Andhra Pradesh Reorganization Act 2014
APPCB	Andhra Pradesh Pollution Control Board
AP	Andhra Pradesh
AD	Assistant Director
BCM	Billion Cubic Meter
CEA	Central Electricity Authority
CWC	Central Water Commission
CEO	Chief Executive Officer
CPIO	Central Public Information Officer
CDO	Central Design Organisation
CSMRS	Central Soil and Material Research Station
CCA	Culturable Command Area
Cr	Crore
CE	Chief Engineer
CWES	Central Water Engineering Service
CPES	Central Power Engineering Service
DDRP	Dam Design Review Panel
DoWR, RD &GR	Department of Water Resources, River Development and Ganga Rejuvenation
E & M	Electro-Mechanical
ECRF	Earth cum Rockfill Dam
EL	Elevation
FRL	Full Reservoir Level
GWDT	Godavari Water Dispute Tribunal
GoI	Government of India
GRMB	Godavari River Management Board
GoAP	Government of Andhra Pradesh
GCA	Gross Command Area
GIA	Gross Irrigation Area
ha	Hectare(100m * 100m)
IA	Interim Affidavit
KWH	Kilo Watt Hour
KM	kilo meter
LMC	Left Main Canal
LA	Land Acquisition
MCM	Million Cubic meter
MW	Mega Watt
MWL	Maximum Water Level
MoTA	Ministry of Tribal Affairs
MNRE	Ministry of New and Renewable Energy
MoP	Ministry of Power
MoJS	Ministry of Jal Shakti
MoEF&CC	Ministry of Environment Forest and Climate Change

MoHA	Ministry of Home Affairs
MoF	Ministry of Finance
MoHRD	Ministry of Human Resource Development
Mo Law	Ministry of Law
Mo Urb Dev	Ministry of Urban Development
MoWR,RD&GR	Ministry of Water Resources , River Development and Ganga Rejuvenation
NHRC	National Human Rights Commission
OS	Ordinary Suit
ONGC	Oil & Natural Gas Corporation Limited
PL	Price Level
PHEP	Polavaram Hydro Electric Project
PPA	Polavaram Project Authority (also referred as Authority)
PAF/PDF	Project Affected Families/Project Displaced Families
PESA	The Provisions of the Panchayats (Extension to Scheduled Areas) Act, 1996
PMF	Probable Maximum Flood
PMCC	Project Monitoring and Coordination Consultant
PIP	Polavaram Irrigation Project
PH	Power House
PMU	Project Management Unit
RTI	Right to Information
RFCTLARR	Right to Fair Compensation & Transparency in Land Acquisition & Rehabilitation and Resettlement
R & R	Rehabilitation and Resettlement
RMC	Right Main Canal
RL	Reduced Level
RELA	Readiness For Empowerment Through Legitimate Action
SAKTI	Search for action knowledge Tribal Initiation
SJC	Senior Joint Commissioner
SP	State Projects
TMC	Thousand Million Cubic feet
TS	Telangana State
TAC	Technical Advisory Committee
U/s	Upstream
WRD	Water Resources Department
WP	Write Petition

Chapter-1

POLAVARAM PROJECT- AN OVERVIEW

1.1 Background

Polavaram Project is a multi-purpose project which has been accorded National Project status by the Union Government. This project under construction across the Godavari River is located in West Godavari and East Godavari Districts in Andhra Pradesh state and its reservoir spreads in parts of Telangana, Chhattisgarh and Odisha States also.

The first conceptual proposal for the Polavaram Project originated from the erstwhile Madras Presidency in July 1941. Later Diwan Bahadur L. Venkata Krishna Iyer, then Chief Engineer in the Presidency's Irrigation Department, conducted first survey of the project site and made a definitive proposal for a reservoir at Polavaram. Shri Iyer not only had a vision of cultivation of 3,50,000 acres (1,41,640 ha) over two crop seasons through this project, but also planned for a 40 MW Hydro-Electric plant within the project. The entire project was estimated to cost about Rs. 6.50 Cr.

Later this dam was planned at full reservoir level (FRL) of EL 208 ft(EL63.4 m) with 836 TMC gross storage capacity and 150 MW hydro-electric plant. By 1946-47, the estimated cost rose to Rs.1.29 billion. The project was named the "Ramapada Sagar Project" since the backwaters of the reservoir would touch the Lord Rama temple at Bhadrachalam.

In the old finalised project design by Dr. K.L. Rao, the right bank canal of the project was extended to south of Krishna river to serve irrigation needs in old Guntur district by envisaging aqueduct across the Krishna river.

After re-organization of the States, the Government of India constituted the Godavari Water Disputes Tribunal (GWDT) in 1969 for adjudication of the water disputes regarding interstate river Godavari. GWDT gave its original report to Government of India in the year 1979.

After a chain of deliberations, the States of Andhra Pradesh, Madhya Pradesh and Odisha entered into an agreement in 1980 resolving the submergence aspects of Polavaram Project. This agreement was filed before the Tribunal and was made part of the final order of the Tribunal in 1980. GWDT passed final orders directing that Polavaram Project shall be cleared by CWC as expeditiously as possible for FRL/MWL+150 ft.

1.2 Location of the Project

The Polavaram Irrigation Project is on the river Godavari near Ramayyapeta village of Polavaram Mandal, about 34 km upstream of Kovvur-Rajahmundry road-cum-rail bridge and 42 km upstream of Sir Arthur Cotton Barrage, where river emerges out of the last range of the Eastern Ghats and enters the plains in West Godavari District of Andhra Pradesh. This multi-purpose major irrigation project is intended for development of a gross irrigation potential of 4,36,825 ha. The project also envisages generation of 960MW of hydro power, drinking water supply to a population of 28.50 lakh

in 611 villages and diversion of 80 TMC of water to Krishna river basin. A view of spillway under construction is shown in Figure. 1.



Figure 1 View of the spillway under construction

1.3 Main Components of the Project

Dam

The project comprises an earth cum rock fill dam, 25.32 m high and 564 m long in Gap- I on the left bank of the river, 45.00 m high and 1750 m long in Gap - II and a concrete dam of 15.32 m high and 140 m long in Gap - III on the right bank are located in the main flow channel of the river Godavari. The ECRF is provided with a cut off wall of plastic concrete diaphragm wall below the foundation of dam to prevent seepage. The total length of the earth fill dams/concrete dam and ECRF Dam is 2,454 m. The gross storage of the reservoir is 194.60 TMC at FRL +45.72 m and the live storage of the reservoir is 75.20 TMC.

To construct the main ECRF dam, upstream coffer dam with top at EL +42.50 m and downstream coffer dam with top at EL +30.50 m have been planned with provision of concrete jet grouting cut-off.

Spillway

The spillway part of the project comprises of an Ogee Spillway with crest level at EL 25.72 m located on the right bank along with connecting approach channel of 2,310 m length on the upstream of spillway. Stilling basin is provided downstream of spillway for energy dissipation. The spill channel of 2920 m length takes off from the stilling basin which joins the pilot channel and finally joins the river at the downstream.

The total width of spillway at its axis inclusive of left and right abutment piers is 1,118.40 m whereas the clear width of spillway is 768 m. The spillway is provided with 48 numbers of Radial Gates of size 16 m(W) x 20 m(H). The Full Reservoir Level (FRL) is at

El.45.72 m. The probable maximum flood (PMF) is estimated as 1,41,535 m³/s (about 50 lakh cusec).

Stilling Basin

The spillway stilling basin is 110 m long and 1,043.40 m wide. The floor level of stilling basin at EL +7.25 m and end sill at EL +12.0 m are adopted as per the recommendation of CWPRS. There are no chute blocks in the energy dissipation arrangement.

Spill Channel and Pilot Channel

The stilling basin is followed by a 2,764 m long and 1,000 m wide spill channel and a 650 m long pilot channel. The bed width of the spill channel at its start is 1,043.40 m and gradually reduces to 1000 m over a length of 215.81 m. The invert level of the spill channel at its start is kept at EL 8.80 m. The pilot channel joins with the deep course of the river Godavari. The bed width of the pilot channel at its junction with the spill channel is 1,000 m.

Canal System

Two main canals offtake on each side of the dam. The main canals are designated as Left Main Canal and Right Main Canal. The canal systems are designed to meet the irrigation, drinking water and industrial water requirements of East Godavari, Vishakhapatnam, West Godavari and Krishna districts.

Left Main Canal (LMC)

Left Main Canal offtake from Nelakota Ava subsidiary reservoir by means of a head regulator. It is a contour canal. Left main canal is 181.999 km long to cater about 1,61,855 ha (4.0 lakh acres) of irrigation water requirements of East Godavari and Vishakhapatnam districts besides diversion of about 664 MCM (23.44 TMC) of water to industries in and around Vishakhapatnam. The canal also

Main Components of the Dam- At a glance

- 2454 m of Earth cum Rock fill dam/concrete dam in three gaps.
- 1,118.40 m long spillway for discharging probable maximum flood of 1,41,535 cumec.
- 181.999 km long Left Main Canal to irrigate 4 lakh acres (161855 ha).
- 178.81 km long Right Main Canal to irrigate 3.2 lakh acres (129500 ha).
- A 960 MW (12x80 MW) Power House on left flank with necessary tunnels for penstocks and tail race channel.

IP & Other Benefits

- 10.77 lakh acres (4.36 lakh ha) Gross Irrigation potential in East Godavari, Visakhapatnam, West Godavari and Krishna districts under LMC and RMC.
- Interlinking of Godavari and Krishna rivers proposing to divert 80 TMC to Krishna basin
- 23.44 TMC of water supply to industries and drinking water to Visakhapatnam.
- Domestic water supply to 28.5 lakh population in 611 villages
- Generation of 960 MW power.
- Sharing of 5 TMC and 1.5 TMC of water from reservoir rim with Odisha and Chhattisgarh respectively.

provides drinking water supply to the population living in 358 villages en-route the canal. There are about 450 nos. of different types of structures being provided along the Left Main Canal.

Right Main Canal (RMC)

The diversion of water on the right flank will be through a P-Regulator located in the upstream of the Saddle Dam-E, on the right side of the spillway. From this Regulator, the water will be first let out into two subsidiary reservoirs formed by constructing saddle dams and connecting tunnels. The outfall Head Regulator has been provided at the end of Bund-2. RMC is about 178.81km long and provided to irrigate an area of about 1,29,500 ha (3.2 lakh acres) in West Godavari and Krishna District besides diversion of 80 TMC of water to Krishna district to stabilise the existing Krishna Delta command. The canal also provides drinking water to the population living in 196 villages in West Godavari district and 57 villages in Krishna district. There are 251 nos. of different types of structures being provided along the Right Main Canal. A picture of Buttress Under Tunnel @Km.122.10 under package no.5 of Right Main Canal is shown in Figure 2.



Figure 2 Buttress Under Tunnel @ Km.122.10 under package no.5 of Right Main Canal

The salient features of both the canals are tabulated in Table 1 & 2.

Table 1: Left Main Canal

	Description	By flow (in Ha.)	By lift (in Ha.)	Total (in Ha.)
(1)	(2)	(3)	(4)	(5)
Left Main Canal				
1	Gross command area (GCA)	1,92,466	23,731	2,16,197
2	Culturable command area (CCA)	1,53,238	21,740	1,74,978
3	Area under Irrigation	1,41,765	20,110	1,61,875
4	Khariff	1,12,064	13,810	1,25,874
5	Rabi	70,940	10,000	80,940
6	Hot weather		-	
7	Two seasonal		-	
8	Perennial	29,701	6,300	36,001
9	Gross Irrigation Area(GIA)		2,42,815	
10	Intensity of Irrigation		150%	

Table 2: Right Main Canal

Right Main Canal				
1	Gross command area	1,53,047	9,644	1,62,691
2	Culturable command area	1,31,062	8,678	1,39,740
3	Area under Irrigation	1,21,232	8,027	1,29,259
4	Khariff	91,265	5,619	96,884
5	Rabi	60,738	4,013	64,751
6	Hot weather		-	
7	Two seasonal		-	
8	Perennial	29,967	2,408	32,375
9	Gross Irrigation Area		1,94,010	
10	Intensity of Irrigation		150%	

Note: In the 141st meeting Note of Advisory Committee of Ministry of Water Resources, RD&GR, there is no change in the scope of work and the above values were taken as was there in the original approved Note of Advisory Committee.

Power House

Polavaram Hydro Electric Project as a part of Polavaram Multi Purpose Project is proposed in the Left Bank of ECRF Dam in Gap-I at Anguluru village in Devipatnam Mandal of East Godavari district, to utilize the monsoon flows and releases downstream for hydel power generation. The installed capacity of the power house is 960MW (12X80MW).

The Central Electricity Authority (CEA), Ministry of Power, Government of India has accorded Techno-Economic Concurrence on 21.02.2012 to the Polavaram Hydro Electric

Project to be executed at an estimated cost of Rs.3,013.68Cr (at 2010-11 Price level), and a levelised tariff of Rs.3.17/KWH considering mega status to Project. Vide letter no.30118/2018/HPA/198 to 200 dated 06.02.2019, the revised cost of E&M work has been vetted by CEA for Rs.2,613.36 crore at 2017-18 PL. Salient features of the power house is presented in Table 3.

Table 3: Salient features of the Power House

1	Capacity	12x 80 MW= 960 MW
2	Type of Turbine	Vertical Kaplan adjustable blade
3	Design head	27 M
4	Discharge per Unit	331 Cumecs
5	Power Project Cost	
	E&M Works	Rs.2,613.36 Cr.
	Civil Works	Rs.1,511.28 Cr.
	Total Project Cost	Rs.4,124.64Cr.(2017-18 Price level)
6	Designed Energy of operation	2,308.41MU in the First year and 431.27 MU in Final (35 th) year
7	Levelised Tariff	461Paise/Kwh

The Line diagram of Polavaram Irrigation Project is shown in Figure 3.

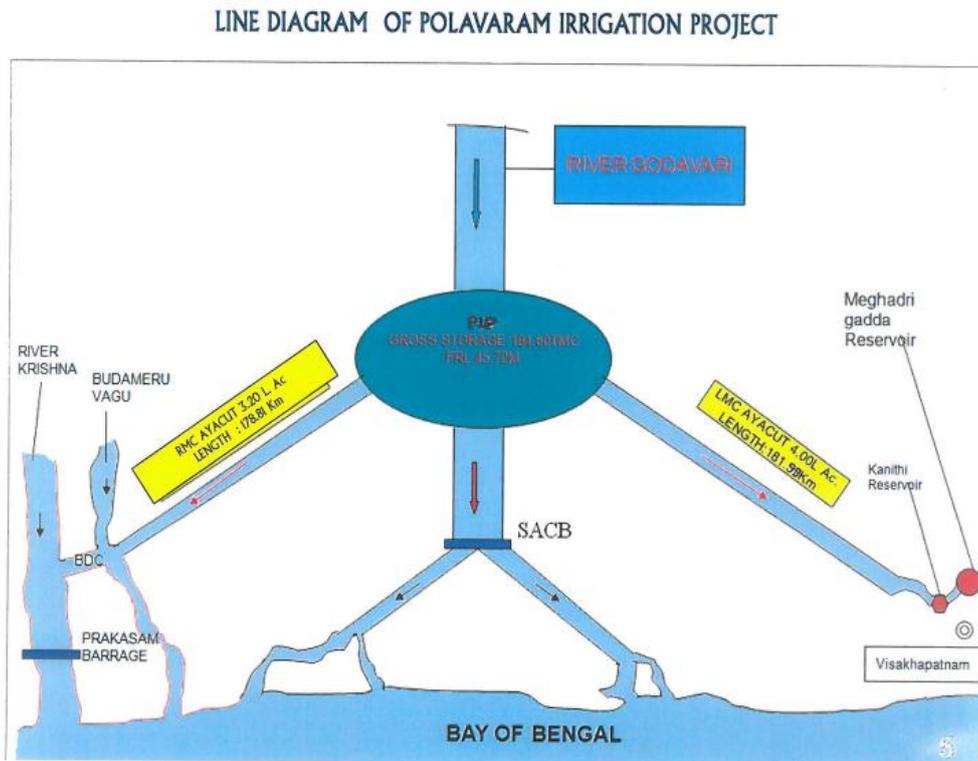


Figure 3 Line Diagram of Polavaram Irrigation Project

An Index map of Head Works is given at Fig. 3(a).

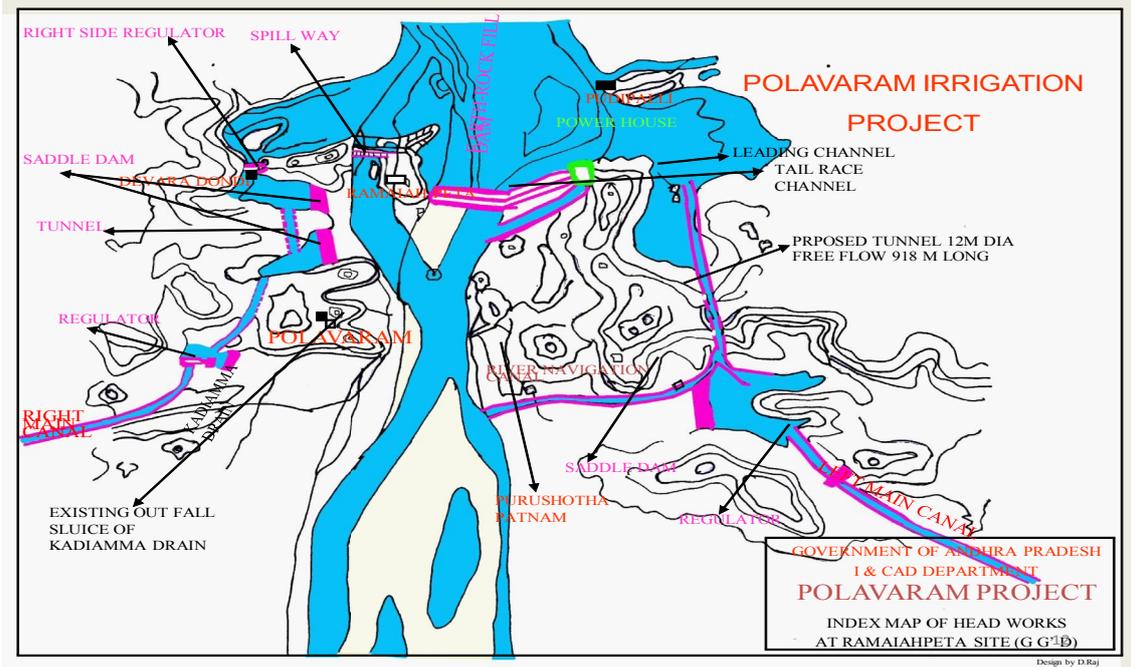


Figure 3(a) Layout of Head Works

The Command area of RMC & LMC is at Figure 3(b).

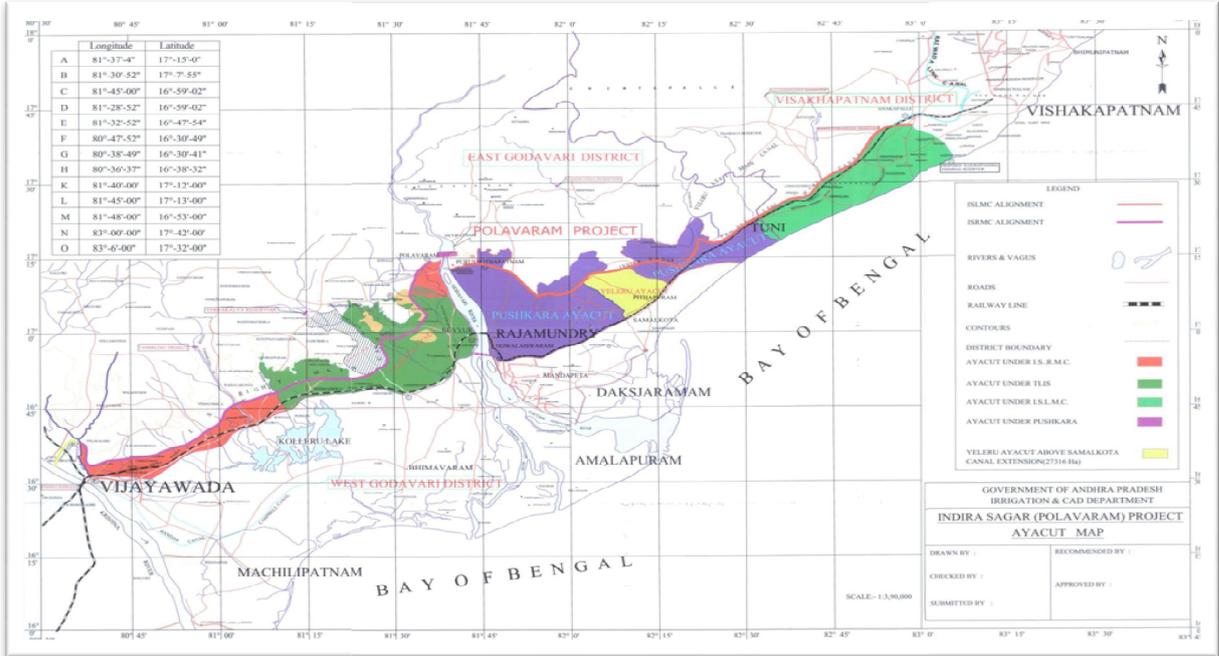


Figure 3 (b) Command area of RMC & LMC of Polavaram Irrigation Project

Chapter-2

POLAVARAM IRRIGATION PROJECT AS A NATIONAL PROJECT

2.1 Provisions of Andhra Pradesh Reorganisation Act, 2014

The Andhra Pradesh State Reorganisation Act (APRA), 2014 declared the Polavaram Irrigation Project as a National Project under Section 90 and it is expedient in the public interest that the Union should take under its control the regulation and development of the Polavaram Irrigation Project for the purposes of irrigation.

The relevant clause of the Notification states as follows.

'Whereas the Andhra Pradesh Reorganisation Act, 2014 (6 of 2014- herein after referred to as the Act) declares Polavaram Irrigation Project to be a national project [under Sub-section (1) of Section 90] and it is expedient in the public interest that the Union should take under its control the regulation and development of the Polavaram Irrigation Project for the purposes of irrigation [under Sub-section (2) of Section 90];

And whereas under Sub-section (4) of Section 90 of the Act mandates that the Central Government shall execute the project and obtain all requisite clearances including environmental, forests, and rehabilitation and resettlement norms';

2.2 Governing Body to Polavaram Project Authority

In pursuance of the AP Reorganisation Act, 2014, the Central Government constituted the Governing Body to Polavaram Project Authority vide Extraordinary Gazette Notification No 129 dated 28th May, 2014. The constitution of the Governing Body to the Polavaram Project Authority is tabulated in Table 4.

Table 4: Constitution of Governing Body

1	The Secretary to the Government of India, Ministry of Water Resources	Chairperson
2	The Chief Secretary to the Government of Andhra Pradesh	Member
3	The Chief Secretary to the Government of Telangana	Member
4	The Secretaries to the Government of India, Ministries of Environment and Forest, Finance (Dept. of Expenditure), Power and Tribal Welfare (or their nominee(S) not below the rank of Joint Secretary)	Members
5	The Chief Executive Officer, Polavaram Project Authority	Member
6	A representative of Planning Commission (not below the rank of Joint Secretary)	Member
7	Member Secretary, Polavaram Project Authority	Member Secretary

2.2.1 Powers, functions and duties of the Governing Body

- i) The Governing Body to the Polavaram Project Authority shall be charged with the power and shall be under a duty to do any or all things necessary, sufficient and expedient for obtaining all requisite clearances including environmental, forests, and rehabilitation and resettlement norms and regulation and development of the Polavaram Project.
- ii) The power, functions and duties of the Governing Body may include –
 - a) Supervision of the functioning of the Polavaram Project Authority.
 - b) Expediting the statutory clearances from the Ministry of Environment and Forests and investment clearance from the Planning Commission;
 - c) Finalisation of phasing and construction programmes of the Polavaram Project with view to obtaining expeditiously optimum benefits during and after completion of the construction of the project in accordance with decision of Godavari Water Disputes Tribunal related to Polavaram project and conditionality of statutory clearances;
 - d) Deciding about organizational structure of the Authority and delegation of powers to the Chief Executive Officer and other Members and Officers of the Authority.

2.3 Polavaram Project Authority (PPA)

The Polavaram Project Authority consists of a Chief Executive Officer (CEO) and eleven Members, as shown in Table 5.

Table 5: Structure of PPA

i.	The Chief Executive Officer	Chairman
ii.	The Principal Secretary or Secretary of Irrigation or Water Resources Department of the successor State of Telangana	Member
iii.	The Principal Secretary or Secretary of Irrigation or Water Resources Department of the successor State of Andhra Pradesh	Member
iv.	Two Chief Engineers (Senior Administrative Grade), one each from Central Water Engineering (Group 'A') Service and Central Power Engineering (Group 'A') Service to be in-charge of Planning and Design and Power Wing respectively.	Members
v.	Three Chief Engineers to be deputed by the State Government to be in- charge of the works for the Dam and appurtenant structures , Power House and association works and Canal system	Members
vi.	Commissioner in-charge of Land Acquisition and Rehabilitation of States of Andhra Pradesh and Telangana	Members
vii.	Financial Adviser, Ministry of Water Resources	Member
viii.	One Chief Engineer (Senior Administrative Grade) from Central Water Engineering (Group 'A') Service	Member-Secretary

- (i) The Chief Executive Officer and members at serial number (iv), (v) and (viii) shall be posted to the Authority on full time basis by the Central Government or the State Government, as the case may be.
- (ii) The Chief Executive Officer shall be appointed by the Central Government from amongst Officers empanelled for the post of Additional Secretary to the Government of India with a fixed tenure of at least three years and he shall be in-charge of the Authority under the general supervision and control of the Governing Body.
- (iii) The Chief Executive Officer shall have all the administrative, financial and work powers as available to the Head of the Department in the Central Government.

2.3.1 Officers and Servants of the Authority

- a) The Authority may from time to time appoint or employ such officers and employees as it thinks fit. All such officers and employees shall be subject to the sole control of the Authority.
- b) The Authority may, with the previous approval of the Central Government, make regulations to regulate conditions of service of all such officers and employees in respect of residential accommodation, house rent allowance, travelling allowance, daily allowance, conveyance allowance and medical reimbursement.
- c) The scales of pay, allowances (including project allowance) and other service conditions shall be as applicable to Central Government employees.
- d) The Authority shall arrange with the State Government to spare the services of the persons employed in the State Governments of Andhra Pradesh and Telangana for whole-time employment with the Authority, or for the performance of any work or services for the Authority, and in that case, the scales of pay, allowances (including project allowance) and other service conditions of such employees may be as applicable to concerned State Government employees.
- e) The personnel, which immediately before the notification of the Authority, was working on the Polavaram Project on regular basis, shall continue to work on the project after notification and would be deemed to be on deputation to the Authority till the Authority makes alternate arrangement, if so considered necessary.
- f) All the posts of the Authority shall be exempted from the rule of immediate absorption for appointment in the Authority.

2.3.2 Powers, functions and duties of the Authority

- a) The Authority shall execute the project, preferably through the concerned State Departments and/ or any other expert agency, and obtain all requisite clearances including environmental, forests, and rehabilitation and resettlement norms and shall be charged with the regulation and development of the Polavaram Project.
- b) The Authority shall issue appropriate directions, whenever necessary for timely and full compliance by the concerned States in the matter of acquisition for and making available to Authority lands and properties likely to be submerged under

the Polavaram Project and in the matter of compensation and rehabilitation of oustees there under.

- c) The Authority shall cause to be established, maintained and operated by the State Government(s) concerned or Central Water Commission, such stream and other gauging evaporation observation stations and measuring devices as may be necessary from time to time for securing the records required to implement the provisions of the orders of the Godavari Water Disputes Tribunal with regard to Polavaram Project.
- d) The Authority shall frame rules for water accounting to implement and supplement the provisions of the Award of the Godavari Water Disputes Tribunal.
- e) The Authority shall regulate distribution of power generated from the Polavaram project amongst the States, as notified by the Ministry of Power.
- f) The Authority shall determine the volume of water stored, flowing in and out of the Polavaram reservoir, and the volume of water utilized through each Main or Branch head works, evaporation and seepage losses on ten daily basis in a water year (1st June of a year to 31st May of next).
- g) The Authority or any of its duly authorized representatives shall have power to enter upon any land and property upon which any work of gauging, evaporation or other hydrological station or measuring device has been or is being constructed, operated or maintained by any State for the use of Polavaram water and each State through its appropriate departments shall render all cooperation and assistance to the Authority and its authorized representatives in this behalf.
- h) The Authority shall meet as often as necessary and decide on a proper management of waters including in particular the manner and details of withdrawals of waters from Polavaram reservoir in accordance with the orders of the Godavari Water Disputes Tribunal.
- i) The Authority shall issue appropriate directions for establishment, maintenance and operation of an effective system of flood forecasting and flood control including reporting of heavy precipitation and telecommunication systems and the Authority shall publish annually and make available to party States the data regarding operation of reservoirs during floods.
- j) The Authority shall also perform any other function as directed by the Governing Body and the Central Government from time to time.

2.3.3 Present arrangement for execution of PIP

As per F. No. 1(2)/PF-1/2014(Pt) dated 30.09.2016, Department of Expenditure, Ministry of Finance issued office memorandum that inter alia states as under;

“In view of the recommendations of the Vice-Chairman NITI Aayog that it will be appropriate for the State of Andhra Pradesh to execute this project (as it is an important project and the State Government is keen to complete it at the earliest), the Government of India has agreed to the State’s request for the execution to the project by the State Government on behalf of the Government of India”.

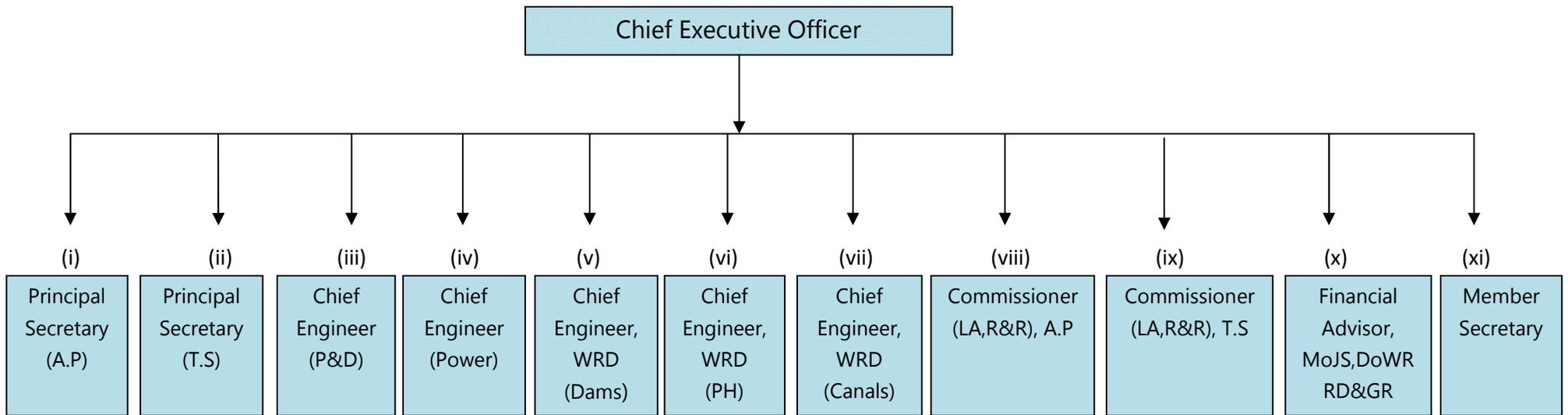
Accordingly, Government of Andhra Pradesh is being executing all the construction works (Irrigation component only) of PIP on behalf of Government of India.

2.3.4 Organisational Structure of PPA

The organisational structure of the office of Chief Executive Officer, Polavaram Project Authority is as follows:

- i. Chief Executive Officer from Central Govt. from amongst officers empanelled for the post of Additional Secretary to Government of India.
- ii. Chief Engineer (Planning & Design) from CWES
- iii. Chief Engineer (Power) from CPES
- iv. Chief Engineer (Dams) from Government of AP
- v. Chief Engineer (Canals) from Government of AP
- vi. Chief Engineer (Power House) from Government of AP
- vii. Member Secretary from CWES

Structure of Polavaram Project Authority



Note: The Chief Executive Officer and Members at column number (iii),(iv),(v),(vi),(vii) and (xi) are posted to the Authority on full time basis from the Central Government or the State Government, as the case may be. However, as the project is now being implemented through State Government, only officers/members at serial number (iii),(iv) and (xi) are posted to the Authority on full time basis.

2.3.5 Incumbency Status during the year 2018-19

The Incumbency status during the year 2018-19 is shown below:

Sl. No.	Name of the Officer	Period	
		From	To
I	Chief Executive Officer		
1	Shri S. K. Halдар	01.04.2018	31.05.2018
2	Shri R.K. Jain	18.09.2018	31.03.2019
II	Member Secretary		
1	Dr. R. K. Gupta	01.04.2018	25.02.2019
2	Shri A. K. Pradhan(A/C)	26.02.2019	31.03.2019
III	Chief Engineer (P&D)		
	Shri A. K. Pradhan	01.04.2018	31.03.2019
IV	Chief Engineer (Power)		
	Shri Satyanarayan S	01.04.2018	31.03.2019

In addition to the above, three Deputy Executive Engineers and four Assistant Executive Engineers (on diversion basis) from the Water Resources Department, Government of A.P have been diverted to work in PPA, Hyderabad. One Director level officer and one Deputy Director level officer from the Central Water Commission, Hyderabad have been given additional charge to work for PPA to handle the day-to-day works.

2.4 Meetings of the Polavaram Project Authority

The Eighth meeting of the Polavaram Project Authority (PPA) was held on 18th December, 2018 at Vijayawada under the Chairmanship of Shri R.K.Jain, CEO, Polavaram Project Authority wherein various technical, administration and financial matters were discussed. Important issues discussed are as follows:

- Contract agreements made by GoAP with construction agencies
- Progress of works and construction schedule of the project
- Status of Revised Cost Estimate of Polavaram Irrigation Project

Chapter-3**POLAVARAM IRRIGATION PROJECT- COST, CLEARANCES & OTHER ASPECTS****3.1 Estimated Cost of the Project**

The project proposal of Polavaram Irrigation Project (Indira Sagar Polavaram Project) was considered and accepted by the Advisory Committee of MoWR, RD &GR on Irrigation, Flood Control & Multipurpose Projects in its meeting held on 20.01.2009 for Rs. 10,151.04 Cr at price level 2005-06. The project was accorded investment clearance by the Planning Commission for Rs. 10,151.04 Cr at 2005-06 price Level on 25.02.2009.

The estimated cost of the project was revised to Rs. 16,010.45 Cr at 2010-11 price level, and the same was accepted by the Advisory Committee of MoWR, RD &GR in its 108th meeting held on 04.01.2011. The investment clearance for the revised cost estimate of Rs.16,010.45 Cr (2010-11 price level) was accorded by MOWR, RD &GR in the 5th meeting of Investment Clearance Committee of MoWR, RD&GR held on 10.02.2017 in New Delhi and communicated in letter No.P.20011/2/2016-SPR/947-58, dated 08.05.2017. The Second Revised Cost Estimate has been examined in CWC and was placed before Advisory Committee of MoWR, RD & GR in its 141st meeting held on 11.02.2019. The same has been accepted by the Advisory Committee of MoWR, RD & GR for an amount of Rs.55,548.87 Cr at PL 2017-18. The Advisory Committee also noted that the Revised Cost Estimate of Polavaram Irrigation Project for Unit-I i.e. Head works and Unit-II i.e, RMC, LMC & WSC at 2013-14 PL based on the quantities approved in Advisory Committee meeting held on 04.01.2011 is Rs.27,081.62 Cr.

3.2 Central Assistance released to Polavaram Irrigation Project

(a) Project under AIBP: The construction of the project started in the year 2004-05. It was included under AIBP during the year 2008-09. Central Assistance of Rs. 562.47 Cr was provided to the State under AIBP till March, 2014.

(b) National Project: After declaration of Polavaram project as National Project in the year 2014, total amount released as central assistance for Polavaram Irrigation Project are as under:

Total Expenditure incurred on the project up to 3/2019	= Rs.16,409.84 Cr
Post National Project till March, 2019	= Rs.11,273.97 Cr
Before National Project declaration (i.e. before 01.04.2014)	= Rs 5,135.87 Cr

Funds released by Government of India to Polavaram Project

Financial Year	Release to Polavaram Project Authority(PPA) (Rs in Cr)
Before 01.04.2014	562.47
2014-15	250.00
2015-16	600.00
2016-17	2,514.16
2017-18	2,000.00
2018-19	1,400.00
Total	7326.63

3.3 Details of Statutory Clearances

Table 6 lists the clearances issued by various agencies over the period.

Table 6: List of Statutory Clearances

Sl. No.	Clearance	Name of Ministry / Orgn.	Letter No.	Stage of clearance
1	Site Clearance	MoEF	No.J/12011/18/2004-IA.1 Dt:19.09.2005	Accorded by MoEF on 19.9.2005
2	Environmental Clearance	MoEF	No.J/12011/74/2005-IA.1 Dt:25.10.2005	Accorded by MoEF on 25.10.2005
3	Wild Life Clearance	NBWL	File No:6-3/2003 WL-I(pt), Dt: 06.07.2006	Permission granted by NBWL on 6.7.2006
4	R&R Clearance	MoTA	File No:20011/15/205-CP&R (NGO) Dt: 17.04.2007	Accorded by MoTA on 17.4.2007.
5	Permission for diversion of Reserve Forest Land pertaining to Papikonda Wild Life Sanctuary	Hon'ble Supreme Court	Hon'ble Supreme court orders in I.A.No.1572 & 1578/2006 in WP(C) No. 202/1995	Permission accorded by Hon'ble Supreme Court on 19.09.2008.
6	Forest Clearance (Stage-1)	MoEF	File No:8-123/2005-F.C Dt:26.12.2008	Accorded by MoEF on 26.12.2008
7	Advisory Committee on Irrigation, Flood Control and Multi-purpose projects	MoWR	Lr.No:16/27/2008-PA(N)/275-309 Dt: 23.01.2009	Accepted by CWC on 20.01.2009
8	Investment Clearance	Planning Commission	File No:2(168)/2004-WR, dt.25.2.2009	Accorded by Planning Commission on 25.02.2009
9	EAC Clearance	MoEF	Lr.No.J-12011/74/2005-IA.1, dt.9.3.2009	Accorded by MoEF on 17.2.2009
10	Forest Clearance (Final)	MoEF	File No:8-123/2005-F.C Dt:28.07.2010	Accorded by MoEF on 28.07.2010
11	1 st Revised Cost Estimate	MoWR	Lr.No:16/27/2010PA(N)/95-128 Dt: 21.01.2011	Accepted on 04.01.2011.
12	Investment Clearance for the Revised cost of Rs.16,010.45 (2010-11 Price Level)	MoWR, RD&GR	No.P20011/2/2016-SPR/947-58, Dt:08.05.2017	Accorded by Investment Clearance Committee of MoWR, RD&GR in

				its 5 th meeting held on 10.02.2017 in New Delhi.
13	2 nd Revised Cost Estimate at 2017-18 Price Level	CWC	Lr.No.16/27/2019-PA(N)/583-611 Dt.18.02.2019	Accepted by Advisory Committee of MoWR, RD&GR.

3.4 Interstate Agreement

- (a) Agreement with the States of Odisha and Madhya Pradesh was reached by the States of Andhra Pradesh for submergence of areas in those States on 02.04.1980. The clause-3 of the agreement indicate the operation schedules agreed upon by the party States i.e., the pond levels to be regulated as provided in the agreement corresponding to the inflows into the reservoir.
- (b) The excerpt from Clause – 4 of the agreement is presented below:

“In order to protect the lands and properties above RL+150 ft in the territory of the State of Odisha likely to be affected due to construction of Polavaram Project, protective embankments with adequate drainage sluices, shall be constructed and maintained at the cost of Polavaram Project. However, the State of Odisha may exercise an option at the time of construction of Polavaram Project for the compensation to land and property likely to be affected above RL + 150 ft as agreed to in the case of the State of Madhya Pradesh.”

3.5 Relevant provisions for design & operation under the GWDT Award, 1980

The Interstate Agreement is made part of the GWDT award. The GWDT directed in Clause – VI of their final orders that:

- The Polavaram Project shall be cleared by the CWC as expeditiously as possible for FRL / MWL of + 150 ft.
- The matter of the design of the dam and its operation schedule is left to the CWC which shall decide keeping in view all the arrangements including the Agreement dated 2nd April, 1980 – as far as practicable.
- If there is to be any change in the operation schedule as indicated in Agreement date 2nd April, 1980 it shall be made only after consultation with the States of Andhra Pradesh, Madhya Pradesh and Odisha. The design aspects shall however be left entirely to CWC.

3.6 Status of Court Cases

The present status of Court cases relating to the project is given in Table 7.

Table 7: Status of Court Cases (as on 31.03.2019)

SL No	Case No	Name of the Petitioner (s)	Name of the Respondent (s)	Name of the Court	Status of the cases	Remarks
(i)	(ii)	(iii)	(iv)	(v)	(vi)	(vii)
1	Original Suit 4/2007	State of Odisha	1)Govt. of AP 2)MoWR 3) MoEF 4)MoTA	Supreme Court of India	Listed on 24.01.2019 Pending for next hearing after four weeks	Case related to Back water study & Environment clearance given by MoEF.
	I.A.No.105699 of 2018 in O.S.4/2007	State of Odisha	1) Govt. of AP	Supreme Court of India	Last Listed on 09.01.2019. Pending for next hearing.	
2	Original Suit. 3 of 2011	State of Chhattisgarh	1)Govt. of AP 2)MoWR, 3)MoTA 4)CWC.	Supreme Court of India		Related to clearances given by central agencies. Case is similar /related to OS 4/2007.
3	W.P. (C) No. 459/2011	Smt K.Kavitha, President Telangana Jagruthi, NGO	1)MoEF 2) State of A.P 3) CWC 4)Ministry of Social	Supreme Court of India	Pending, Last listed on 10.07.2017	Case is similar /related to OS 4/2007.

			Justice & Empowerment Tribal Affairs			
4	W.P. No. 144/2006	Dr.Brahmadev Sarma	1)Union of India 2)MoEF 3)MoTA 4)CWC 5)State of AP 6)State of Chattisgarh 7) State of Orissa	Supreme Court of India	Further listing Awaited. Last listed on 15.02.2018	Listed along with WP 65/2017. Case is similar /related to OS 4/2007.
5	WP No. 65 of 2017	RELA (Readiness for Empowerment through Legitimate Action)	1. MoWR, RD & GR 2. PPA and others.	Supreme Court of India	Further listing Awaited. Listed on 15.02.2018	Case is related to R&R issues of PDFs ,fundamental laws of Tribals etc.
6	WP (Civil) No. 132/2018	Shri Ponguleti Sudhakar Reddy	MoWR, RD & GR and others.	Supreme Court of India	Further listing Awaited. Last listed on 03.08.2018	Case is related to AP reorganisation Act, 2014.
7	Original Application No.350 of 2018	Shri Madicharla Satyanarayana and Shri Madicharla Ramachandran	1.MoWR, RD & GR 2.PPA and others.	National Green Tribunal, New Delhi	Disposed off on 25.01.2019	Case is related to construction of Purusothapatnam Lift Irrigation scheme& Construction of project after conducting Socio

						Environment Impact assessment under EIA notification - 2006.
8	Original Application No.365 of 2018	Shri Pothabathula Nageshwar Rao	1.PPA and others.	National Green Tribunal, New Delhi	07.01.2019	Case related to stopping and diversion of flow of river due to construction of Diaphragm wall& coffer dam and to provide relief to fishermen at par with relief granted by ONGC.
9	OA No. 452 of 2016	RELA (Readiness for Empowerment through Legitimate Action)	1. MoEF& CC, 2. PPA and others.	National Green Tribunal, New Delhi	Disposed off	OANo.452of 2016 is disposed off on ground that the similar reliefs have already been claimed in OS No. 04/2007, which is pending before Hon'ble Supreme Court of India.
10	Civil Appeal No.2630 of 2018	RELA	1. MoEF& CC 2. PPA and others.	Supreme Court of India	Last Listed on 24.01.2019	Case is listed along with OS No 04/2007.

11	WP (PIL) No. 299 of 2017	Dr.KVP Ram Chandra Rao.	1. MoWR, RD & GR 2.PPA and others.	High Court of Andhra Pradesh	Last Listed on 18.12.2018	Case related to cost of project restricted to as on 01.01.2014 and progress of project.
12	W.P(PIL) No. 47/2018	SAKTI (Search for Action Knowledge Tribal Initiative)	1.MoWR,RD&GR, 2. PPA and others	High Court of Andhra Pradesh	Last Listed on 05.03.2019	Case related to Land Acquisition, misappropriation of money and violation of the constitutional provisions.
13	W.P. No.15259 of 2018	M/s SLS Power Corporation Ltd.,	PPA and others.	High Court of Andhra Pradesh	Disposed off on 07.03.2019	Case related submergence of petitioner's power project.
14	OA No. 857 of 2018	Dr.Pentapati Pulla Rao	PPA and others.	National Green Tribunal, New Delhi	Put up for consideration report on 18.02.2018	Case related to un authorised dumping of excavation/construction material of project at Cultivated lands.

15	W.P.(Civil) No 3068 of 2018	Dr.Pentapati Pulla Rao	MoWR, RD& GR and others.	High Court of New Delhi	Last Listed on 05.03.2019	Case related to unauthorised eviction of PDFs and R&R related matters.
16	WP No. 17677 of 2015	Shri Angadala Mohan Rao and others	1.MoWR, RD& GR 2. PPA and others.	High Court of Andhra Pradesh	Pending, Last listed on 03/06/2016	Case related to land acquisition & land acquisition notice issued by GoAP for stretch from Km 143.600 to 144.340 of RMC.
17	WP No. 4886 of 2019	Shri Talluri Rahul Reddy	PPA and others.	High Court of Andhra Pradesh	Disposed by way of Withdrawal on 10.03.2016	Case related to land acquisition &RR Packages.

Chapter-4

PHYSICAL AND FINANCIAL PROGRESS

4.1 Brief Description about Contracts

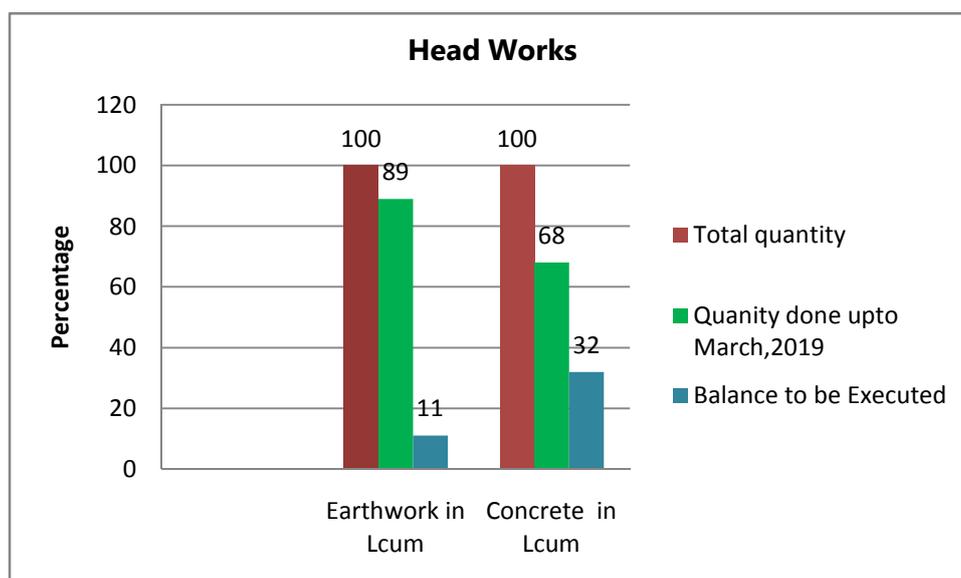
Government of Andhra Pradesh has been executing the project since 2004. After the creation of Polavaram Project Authority in January, 2015, the matter was discussed in the Ministry of Water Resources, RD & GR as regards the procedure to be adopted for construction of project keeping in view the provisions contained in the Gazette notification dated 28th May, 2014.

Ministry of Finance Vide F. No. 1(2)/PF-1/2014(Pt) dated 30.09.2016, issued the O.M. which states that:(i) It will provide 100% of the remaining cost of the irrigation component only of the project for the period starting from 01.04.2014 to the extent of the cost of the irrigation component on that date.

The execution of the project is with the State Government. The construction of all project components are in progress, except canal distributaries system and construction of embankments in the territories of Chhattisgarh and Odisha. The Head Works consisting of spillway, Earth cum Rock fill dam (in 2 gaps), concrete dam (Gap-3), approach channel, spill channel and foundation excavation of power house have commenced with the award of work to new agency in March, 2014 and are now in progress. Total works of the project was divided into 22 packages for which contracts were awarded and agreements for the same were entered into by the State Government for a value of Rs. 7,916.16 Cr. This comprises of 7 packages under Right Main Canal System, 8 packages under Left Main Canal System and 7 packages under Head works.

4.2 Physical and Financial Progress of the Project

The details of physical and financial progress in respect of major components of the project viz. Head works, Right Main Canal and Left Main Canal are given in Table 8 and the percentage progress is given in bar charts:



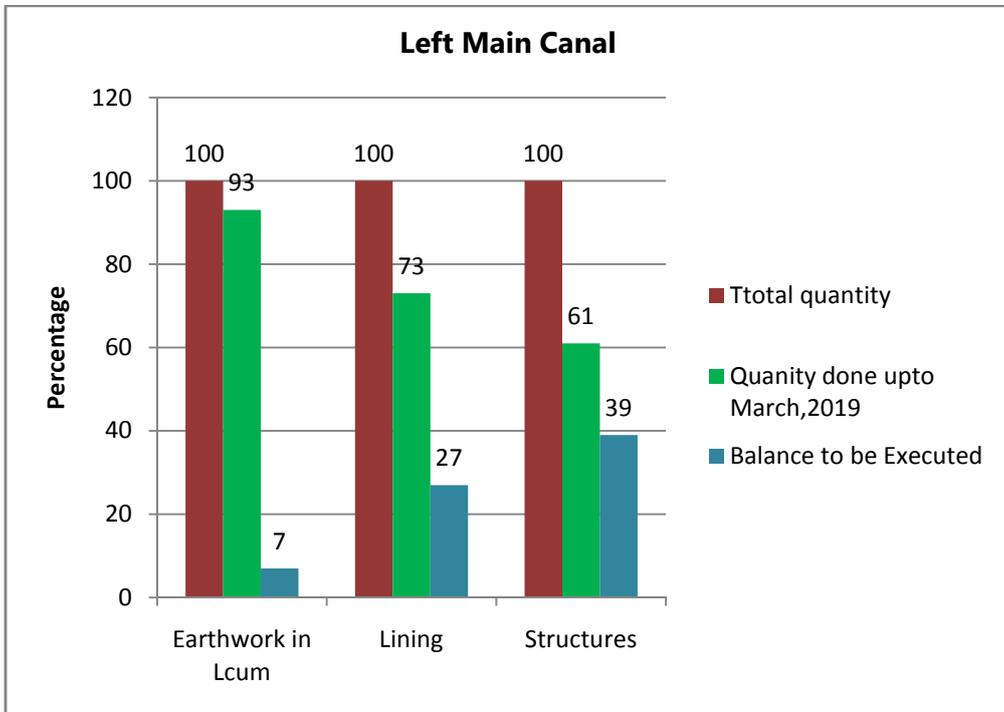
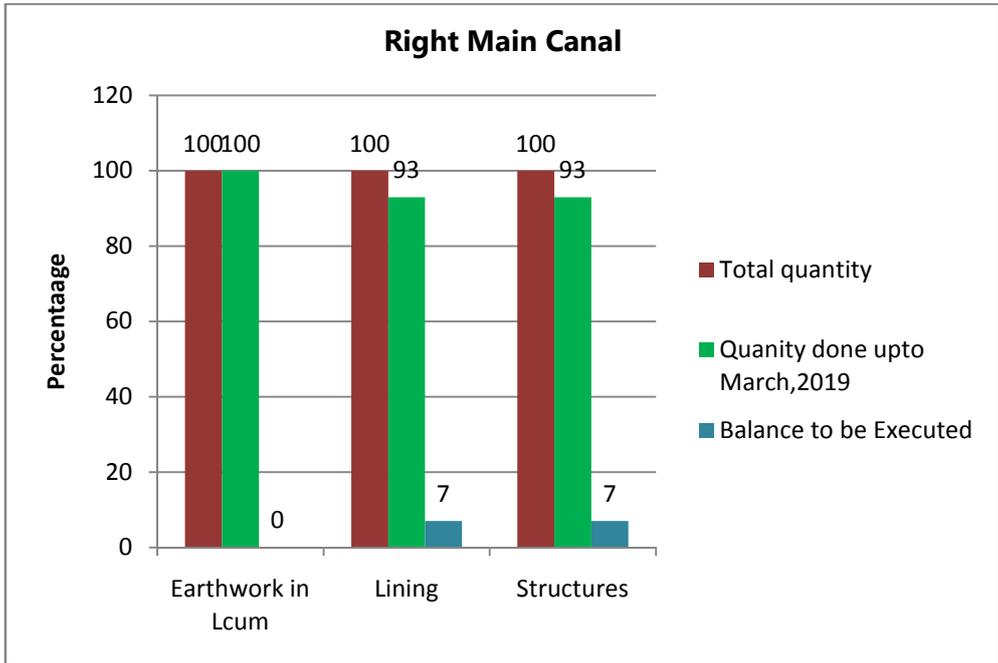


Table 8: Details of physical and financial progress of the project in respect of works component are given in the following tables.

Physical Progress						
Sl. No.	Description	Unit	Total Quantity	Executed up to 3/2019	%of work done upto 3/2019	Balance quantity
(1)	(2)	(3)	(4)	(5)	(6)	(7)
Head Works						
1	Earthwork & Embankment	Lakh Cum	1,285.11	1,141.53	89	143.58
	Concrete works	Lakh Cum	41.2	28.2	68	13
2	Right Main Canal					
	Earthwork	Lakh Cum	1,180.81	1,180.81	100	0
	Lining	Lakh Cum	17.92	16.623	93	1.297
	Structures	Lakh Cum	10.75	10.008	93	0.742
3	Left Main Canal					
	Earthwork	Lakh Cum	1,068.89	998.14	93	70.75
	Lining	Lakh Cum	14.41	10.59	73	3.82
	Structures	Lakh Cum	16.48	10.06	61	6.42

Financial Progress					
(Rs. in Crore)					
Sl.No.	Description	Total amount involved	Value of work done up to 3/2019	% value of work done	Balance amount
(1)	(2)	(3)	(4)	(5)	(9)
1	Head Works				
	Earthwork& Embankment	4,222.98	2,092.23	50	2130.75
	Concrete works	2,159.93	1,765.82	82	394.11
	Total	6,382.91	3,858.05	60	2524.86
2	Right Main Canal				
	Earthwork	878.18	638.07	73	240.11
	Lining	981	636.48	65	344.52
	Structures	1,110.92	562.55	51	548.37
	Total	2,970.10	1,837.10	62	1,133.00
3	Left Main Canal				
	Earthwork	889.58	516.3	58	373.28
	Lining	781.07	411.27	53	369.80
	Structures	1,624.1	600.38	37	1,023.72
	Total	3,294.75	1,527.95	46	1,766.8
	Grand Total	12,647.76	7,223.10	57	5,424.66

4.3 Expenditure incurred on the Project

A sum of Rs. 6,764.16 Cr has been released to Polavaram Project Authority (PPA) by Ministry of WR, RD & GR as reimbursement to State Government for the expenditure incurred beyond 01.04.2014 up to 31.03.2019.

After declaration of National Project, an expenditure of Rs. 439.48 Cr has been incurred during 2014-15, Rs.1,867.94 Cr during 2015-16, Rs.1,700.09 Cr during 2016-17 and Rs.3,829.03 Cr during 2017-18 and Rs.3,024.62 Cr during 2018-19.

Out of Rs.6,764.16 Cr made available to PPA during 2014-15, 2015-16, 2016-17,2017-18 and 2018-19, a sum of Rs.6,727.26 Cr has been transferred to the State Government, keeping an amount of Rs.36.90 Cr for meeting the expenditure towards establishment charges of PPA and also to provide consultancy charges to M/s WAPCOS for Project Monitoring & Coordination Consultant (PMCC).

4.4 Establishment Expenditure of the PPA

The annual expenditure of the PPA during the financial year 2018-19 is as given in Table 9.

Table 9: Head/Item-wise expenditure of the PPA during 2018-19 (Rs in Crore)

Sl. No	Head /Item	Amount received from GoI					Expenditure incurred during				
		2014-15	2015-16	2016-17	2017-18	2018-19	2014-15	2015-16	2016-17	2017-18	2018-19
1	Salaries						0.0506	0.5703	0.789	0.7488	0.9582
2	Domestic Travel Expenses						0.0002	0.0507	0.208	0.2397	0.3657
3	Office Expenses						0.0044	0.0179	0.0357	0.1524	0.1500
4	Machinery & Equipment						0.0586	0.0685	0.043	0.0343	0.1149
5	Minor Works						0	0.0113	0.0153	0.0287	0.0175
6	Other Admin Expenses						0.0037	0.2378	0.2785	0.3056	21.1590
7	Medical Expenses										0.0004
8	Grants -in -aid Received from MoWR	250	600	2514.16	2000	1400					
	Sub - total						0.1175	0.9565	1.3695	1.5095	22.7657
8	Release to the State Government of A.P.						245	590	2514.70	1992.56	1385
Total 6764.16											1407.76

4.5 Audit of Accounts

The accounts of Polavaram Project Authority were audited by Principal Director of Audit, Scientific Department, Kolkata Branch during the period 05.02.2019 to 27.02.2019 for the year 2017-18.

Chapter-5

SUBMERGENCE, LAND ACQUISITION AND REHABILITATION & RESETTLEMENT

5.1 Submergence and Population affected in Andhra Pradesh, Odisha and Chhattisgarh States

Due to construction of the Polavaram Irrigation Project, there will be submergence of 371 habitations in 222 revenue villages in East Godavari and West Godavari districts of Andhra Pradesh (including the villages in 7 Mandals of Khammam District transferred to A.P. State), affecting about 1,88,012 persons in 55,799 households. The total number of Project Displaced Families (PDFs) is about 1,05,601. The total numbers of tribals affected under the project are 56,495 PDFs.

The Polavaram Project involves submergence of 40,137.11 ha in Andhra Pradesh, Odisha and Chhattisgarh States. The extents of submergence in Odisha and Chhattisgarh States as per detailed survey conducted by Andhra Pradesh are 648.05 ha and 795.59 ha respectively which fall within the flood margins of Sabari and Sileru rivers. Out of which, 102.16 ha in Odisha and 0.16 ha in Chhattisgarh lies in the reserve forest. There will be submergence of four villages displacing 11,766 persons in 2,335 Project Affected Families in Chhattisgarh State and eight villages displacing 6,316 persons in 1,002 Project Affected Families in Odisha State, if no mitigative measures are undertaken. In order to completely avoid submergence of lands and properties above RL+150 ft. in the territories of Odisha and Chhattisgarh States, and to protect the interests of tribal people, the Government of Andhra Pradesh proposed to provide protective embankments with adequate drainage sluices for a length of 30 km along Sileru and Sabari rivers in the State of Odisha and for a length of 29.12 km along the Sabari River in Chhattisgarh State as per the directions of Ministry of Environment and Forests, Ministry of Tribal Affairs, Central Water Commission and other statutory bodies as per the provisions of Inter State Agreement dated 02.04.1980 and GWDT Award. By providing remedial measures i.e. by forming protective embankments for a length of 30 km along the Sileru and Sabari Rivers in the State of Odisha, and 29.12 km along the Sabari River in Chhattisgarh, the submergence in the territories of Odisha and Chhattisgarh can be avoided completely.

An Expert Appraisal Committee of Ministry of Environment and Forest (MoEF) vide their letter dated 09.03.2009, directed the project proponent to initiate action requesting the appropriate authorities in Odisha and Chhattisgarh States for conducting public hearings in the States of Chhattisgarh and Odisha in respect of embankment proposal and report back to the Committee. The conduct of public hearings is pending to be carried out by the State Governments of Chhattisgarh and Odisha.

The details of population affected in Andhra Pradesh (as per the census-2011), in Odisha and Chhattisgarh (as per the socio-economic survey of 2005) due to the Polavaram Irrigation Project, village-wise and category-wise, are given in Tables 10 and 11.

Table 10: District-wise Population Affected in Andhra Pradesh (as per census 2011)

Sl. No	Name of the district	No. of villages	No. of habitations	Total area (in ha)	Total house holds	Total population	Total male population	Total female population	Total Schedule Castes population	Total Schedule Tribes Population	Nature of submergence	
											Full	Partial
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1	East Godavari	165	234	51,427	29,303	99,463	47,703	52,051	9,405	58,825	86	148
2	West Godavari	57	137	59,452	26,496	88,549	43,506	45,043	16,845	31,002	69	68
Grand Total		222	371	1,10,879	55,799	1,88,012	91,209	97,094	26,250	89,827	155	216

Note- The figures are being firmed up by PPA.

Table 11: District-wise Population affected in Odisha and Chhattisgarh (as per the Socio-economic Survey-2005)

Sl. No.	Name of the district	Name of the Mandal	No. of villages	Total geographical area (ha)	Total No. of households	Total population	Total male population	Total female population
Odisha State								
1	Malkangiri	Podia	8	587.77	1,002	6,316	3,562	2,754
Chhattisgarh State								
1	Sukuma	Konta	4	5,375	2,335	11,766	6,923	4,843

Note- There would be no submergence in case states of Odisha and Chhattisgarh opt for embankment along the rivers Sabari and Sileru, which is one of the option available under GWDT award, 1980.

The details of number of villages and habitations that would be submerged in Andhra Pradesh due to construction of the Polavaram Irrigation Project are given in Table 12.

Table 12: Submergence details

Sl. No.	Name of the District	Names of the Mandals including Mandals / villages transferred from Khammam District	No. of villages	No. of habitations	Remarks
(1)	(2)	(3)	(4)	(5)	(6)
1	East Godavari	1.Project Site	0	8	
		2.Devipatnam	15	36	Originally in A.P.
		3.Kunavaram	49	61	Transferred from Khammam District, T.S.
		4.Chintoor	26	32	
		5. V.R. Puram	42	54	
		6. Yetapaka	33	43	
		Sub total	165	234	
2	West Godavari	1.Project site	0	8	
		2.Polavaram	13	22	Originally in A.P.
		3.Velairpadu	16	48	Transferred from Khammam District, T.S.
		4.Kukunoor	28	59	
		Sub total	57	137	
		Grand total		222	371

5.2 Land Acquisition

An extent of about 1,66,423.23 acres of land is to be acquired for the Polavaram Project. The land acquisition for the project is being done in a phased manner. The land acquisition for head works and canals of Polavaram Project was being done simultaneously since 2005 and the excavation of canals has been completed wherever land is acquired.

In-principle approval under section 2 of Forest (Conservation) Act 1980 for diversion of 3,731.07 ha. of forest land for Polavaram Project was accorded by MoEF vide its Lr.No.F.No.8-123/2005-FC Dt. 26.12.2008 and Stage –II Forest clearance was accorded by MoEF, New Delhi vide Lr. F.No.8-123/2005-FC Dt. 28.07.2010. The details of the land acquired for the purpose of construction of the project and rehabilitation & resettlement of the PAFs are given in Table 13.

Table 13: Status of Land acquisition at the end of 2018-19

Sl. No.	Name of the District	Name of the Component	Land Required		Land Acquired		Balance	
			Phy. (InAcs.)	Fin (InCr.)	Phy (In Acs.)	Fin. (In Cr.)	Phy. (In Acs.)	Fin. (In Cr.)
A	Land Acquisiton		4	5	6	7	8	9
1	West	Submergence Area	31241.19	1991.1	31999.7	1991.1	Further LA not required	0
		Head Works& Working area	1662.46	183.84	1541.12	183.84		0
		R.M.C.	9463.47	558.51	9044.94	558.56		0
		R.M.C.(Krishna)	3524.48	666.37	3331.59	666.37		0
		Land to Land	7303.13	752.64	7303.13	752.64		0
		Land for R&R colonies	2788.98	475.97	2568.98	426.47	220	49.5
		Sub Total	55983.71	4628.43	55789.46	4578.98	220	49.5
2	East	Submergence Area	74207.97	4976.63	41417.8	380.83	32786	4602.41
		Head Works& Working area	628.38	10.35	630.84	10.35	0	0
		L.M.C.	6264.57	160.72	6240.64	165.28	0	0
		L.M.C.(Vishaka)	4110.15	84.15	4110.15	72.93	0	0
		Land to Land	19426.79	2080	2023.03	156.17	17403.8	1923.83
		Land for R&R colonies	5801.7	667.2	612.06	34.05	5189.64	633.15
		Sub Total	110439.6	7979.05	55034.52	819.61	55379.4	7159.39
Total			166423.27	12607.5	110823.98	5398.59	55599.4	7208.89

Note: Figures are being firmed by PPA.

5.3 Status of Rehabilitation & Resettlement

The Government is committed to rehabilitating the PAFs/ PDFs as per R&R package keeping in view of the provisions of constitutional rights under schedule areas and PESA Act, 1996. The R&R is being implemented with utmost care and human touch, so that the project affected persons will be the first beneficiaries of the project. Out of 371 habitations, rehabilitation of 26 habitations under 1st and 2nd Phases has been completed so far. The status of R&R of the Project Displaced Families as on March, 2019 is populated in Table 14.

Table 14: Status of R&R of the Project Displaced Families

S.No	District	Description	Units	Required		Expenditure		Balance		% of Achievement	
				Phy.	Fin. (In Crs.)	Phy.	Fin.(In Crs.)	Phy.	Fin. (In Crs.)	Phy.	Fin.(In Crs.)
1	2	3	4	5	6	7	8	9	10	11	12
1	West	LA for R&R colonies @Rs.11.50 Lakhs/PDF	Acres	2788.98	475.97	2568.98	426.47	220	49.5	92%	90%
2	East	LA for R&R colonies @Rs.11.50 Lakhs/PDF	Acres	5801.7	667.2	612.06	34.05	5189.64	633.15	11%	5%
West & East LA Total			Acres	8590.68	1143.17	3181.04	460.52	5409.64	682.65	37%	40%
3	West	Housing (PDFs) @ Rs.3.15 Lakhs /PDF	PDFs	34672	1092.17	2584	81.5	32088	1010.67	7%	7%
		Infrastructure (Nos.) @ 7.00 Lakhs /PDF	PDFs		2427.04		180.93		2246.11		7%
		R&R benefits @6.50 Lakhs /PDF	PDFs		2161.14		84.5		2076.64		4%
		House Damages @ Rs. 3.50 Lakhs /PDF	PDFs		983		1981		69.33		32691
		Training / Livelihood/ Administration	PDFs	3000 #	1.18	500	0.5	2500	0.68	17%	43%
4	East	Housing (PDFs) @ Rs.3.15 Lakhs / PDF	PDFs	70929	2234.26	1338	48.68	69591	2185.58	2%	2%
		Infrastructure (Nos.) @ 7.00 Lakhs / PDF	PDFs		4965.03		96.93		4868.1		2%
		R&R benefits @ 6.50 Lakhs per PDF	PDFs		4610.39		86.97		4523.42		2%
		House Damages @ Rs. 3.50 Lakhs/PDF	PDFs		2142.89		5375		151.86		65554
		Training / Livelihood/ Administration	PDFs	3000 #	1.18	500	0.5	2500	0.68	17%	43%
West & East R&R Total			PDFs	105601	20618.27	3922	801.7	101679	19816.57	4%	4%
Grand Total for West & East (LA + R&R)					21761.44		1262.22		20499.22		9%

34,672 PDFs of West Godavari and 70,929 PDFs of East Godavari includes 3000 nos. of PDFs for Training / Livelihood/ Administration.

Chapter-6

POLAVARAM PROJECT AUTHORITY-PARLIAMENTARY MATTERS / RTI /VIGILANCE/MEETINGS ETC.

6.1 Parliament Questions and VIP References

- (i) 70 Parliament questions were received in PPA during 2018-19. The material for reply to these questions were prepared and sent to the Ministry of Water Resources, River Development and Ganga Rejuvenation.
- (ii) 4 VIP references on various matters were received by PPA during 2018-19. The material for reply to these references were prepared and sent to the Ministry of Water Resources, River Development and Ganga Rejuvenation.

6.2 Implementation of RTI Act, 2005

The following officers were appointed as Appellate Authority and Central Public Information Officer (CPIO) to provide information to the applicants in compliance of RTI Act, 2005.

Appellate Authority:

- (i) Dr. R. K. Gupta, Member Secretary from 01.04.2018 to 25.02.2019.
- (ii) Shri A. K. Pradhan, Member Secretary, PPA from 26.02.2019 to 31.03.2019.

Central Public Information Officer (CPIO):

- (i) Shri O. R. K. Reddy, S.E, Godavari Circle, CWC and I/c Director (A&C), PPA & CPIO from 01.04.2018 to 03.04.2018.
- (ii) Shri G. Rambabu, S.E, Krishna Circle, CWC and I/c Director (A&C) & CPIO, PPA from 04.04.2018 to 11.10.2018.
- (iii) Shri G. Raghuram, S.E, Godavari Circle, CWC and I/c Director (A&C) & CPIO, PPA from 12.10.2018 to 31.03.2019.

During the year 2018-19, one hundred and sixty seven requests and three appeals for furnishing information under RTI Act, 2005 were received in PPA. Information as available was provided to applicants in compliance of the Act.

6.3 Vigilance and Disciplinary Cases

No vigilance or disciplinary case concerning any officer or staff was pending or contemplated in the PPA during the year 2018-19.

6.4 Committee in PPA for Complaints on Sexual Harassment

A Committee was constituted to look into complaints of women employees working in PPA against sexual harassment at work place. The above committee is deemed to be the inquiring authority appointed by the disciplinary authority for the purpose of Central Civil Services (CCA) Rules, 1965. The committee will examine the complaints

made by women employee(s) against sexual harassment and, if necessary, conduct an enquiry and submit the findings of the enquiry report to the Member Secretary, PPA for further necessary action. No case was reported during the period of this report.

6.5 Meetings of Dam Design Review Panel (DDRP)

A Dam Design Review Panel (DDRP) was constituted on 13.06.2016 for technically sound and timely execution of Polavaram Irrigation Project with the following members:

- (i) Shri A. B. Pandya, Former Chairman, CWC- Chairman
- (ii) Shri Dinesh Bhargava, Former Director, NHPC - Member
- (iii) Shri Y. K. Handa, Former Chief Engineer, CWC - Member
- (iv) Engineer-in-Chief, Water Resources Department, GoAP - Member
- (v) Chief Engineer, Designs (NW & S), CWC, New Delhi - Member
- (vi) Chief Engineer, HSO, CWC - Member
- (vii) Chief Engineer, CDO, Government of Andhra Pradesh - Member
- (viii) Member Secretary, PPA - Member Secretary.

During the year 2018-19, three meetings of the Dam Design Review Panel (DDRP) were held. The Tenth meeting of the DDRP was held on 7th August, 2018 at New Delhi, the Eleventh meeting on 6th January, 2019 at Polavaram dam site and the Twelfth meeting on 26th March, 2019 at New Delhi. Various decisions on technical matters were taken to expedite the construction activities of the project.

6.6 Meetings of Expert Committee

With the approval of Secretary, MoWR ,RD & GR vide letter dated 10.04.2017 & 07.06.2017, an Expert Committee was constituted to overview the implementation of Polavaram Project till completion and to critically examine the progress of the project work from all angles i.e., overall planning of the construction, quality, safety, cost aspects etc. with the following members:

- | | | |
|---|---|----------|
| (i) Member (WP&P), CWC, New Delhi | - | Chairman |
| (ii) Chief Engineer (PMO), CWC, New Delhi | - | Member |
| (iii) Chief Engineer (KGBO), CWC, Hyderabad | - | Member |
| (iv) Chief Engineer ,Designs (N&W) CWC, New Delhi | - | Member |
| (v) Engineer-in-Chief, PIP, Government of Andhra Pradesh- | - | Member |
| (vi) Member Secretary, PPA, Hyderabad | - | Member |
| (vii) Representative of CSMRS, New Delhi | - | Member |
| (viii) Chief Engineer (PPO), CWC, New Delhi | - | Convener |

Special Invitees as experts:

- (i) Shri A. B. Pandya, Former Chairman, CWC, New Delhi
- (ii) Dr. D. V. Thareja, Former Member (D & R), CWC, New Delhi
- (iii) Shri D.P. Bhargava, Former Director, (Technical), NHPC, Faridabad.

The Committee visited the project site during 5th-7th September, 2018 and submitted the report.

6.7 Meetings of Land Acquisition & R&R Committee

A Committee has been constituted by the Ministry of Water Resources, River Development and Ganga Rejuvenation vide its order no. P.101/9/2017/Polavaram/R&R/SPR-1/9/22-25 dated 12.09.2017 to strengthen monitoring mechanism for Land Acquisition and Rehabilitation & Resettlement process for Polavaram Irrigation Project under the Chairperson of Secretary, Ministry of Tribal Affairs, Government of India with the following members:

- | | | |
|---|---|--------------------------------------|
| 1) Secretary, M/o Tribal Affairs, Govt. of India | - | Chairperson |
| 2) Secretary, D/o Social Justice & Empowerment | - | Member |
| 3) Secretary, MoWR, RD & GR | - | Member |
| 4) Chief Secretary, Govt. of Andhra Pradesh | - | Member |
| 5) CEO, Polavaram Project Authority | - | Member |
| 6) Engineer-in-Chief, Polavaram Irrigation Project,
Government of Andhra Pradesh | - | Member |
| 7) Secretary, Water Resources Department,
Govt. of Andhra Pradesh | - | Member |
| 8) Commissioner, (Relief & Rehabilitation),
Govt. of Andhra Pradesh | - | Member |
| 9) Member Secretary, Polavaram Project Authority,
Hyderabad | - | Member Secretary
of the Committee |

Three meetings of the Committee were held during the year 2018-19 on 24.04.2018, 28.08.2018 and 31.10.2018 at New Delhi and Minutes of Meeting communicated to all the members of the committee.

6.8 Meetings by CEO, PPA

During the year 2018-19, four review meetings were held under the chairmanship of Chief Executive Officer (CEO), PPA on 19.12.2018 at Vijayawada, 07.01.2019 and 27.02.2019 at Polavaram dam site and 15.03.2019 with WRD officials, construction agencies and WAPCOS officials at Hyderabad to review the progress of Polavaram Project.

Other meetings were convened by the Chief Executive Officer (CEO) with other concerned Central Organisations, with the officials of Water Resources Department of A.P., Revenue Department of A.P., Central Water Commission, Central Soil and Material Research Station, IIT, Delhi, executing agencies, NGOs, etc. as and when required.

Various issues concerning the implementation of the Polavaram Irrigation Project, such as project planning, designs, land acquisition, rehabilitation & resettlement, etc. were discussed and necessary directions and guidance were given to all the concerned.

Polavaram Irrigation Project has been awarded for *"Best implementation of Water Resources Project"* by CBIP (Central Board of Irrigation and Power) on 4th January, 2019 and has also received two awards from Guinness Book of world Records for *"Largest continuous concrete pour"* and *"Most concrete pour in 24 hours"* with a record of 32,315.5 cubic meter in 24 hours on 7th January, 2019.

6.9 Quality Audit and Quality Assurance by CSMRS

With reference to WRD G.O dated 20.03.2017, MoU has been signed between CSMRS and PPA with effect from 12.02.2018 for Quality Audit and Quality Assurance works of Polavaram Irrigation Project. The team visited the project thrice during 11th-16th June, 2018, 10th-17th September, 2018 and 20th-25th January, 2019 and submitted the report.

6.10 Project Management Unit

Vide Water Resources Department G.O.No.184, dated 18.04.2017, Project Management Unit (PMU) comprising of three retired experts stationed at site, for project management, construction supervision and providing expert advice during the construction of Polavaram Irrigation Project was engaged by WRD. The experts continued their activities during the year and provided necessary inputs to the project.

6.11 M/s WAPCOS as Project Monitoring & Coordination Consultant (PMCC)

M/s WAPCOS Limited has been appointed as Project Monitoring & Coordination Consultant (PMCC) for Polavaram Irrigation Project. An agreement in this regard has been signed by PPA with M/s WAPCOS on 02.04.2018.

6.12 Swachhata Pakhwada

The Government of India launched the Swachha Bharat Mission on 2nd October, 2014 throughout the country as a national movement with an aim to achieve the vision of a 'Clean India' by 2nd October 2019. The Swachha Bharat Abhiyan is the most significant cleanliness campaign by the Government of India. The Swachha Bharat Mission aims for universal sanitation coverage and achieving better levels of cleanliness through solid and liquid waste management practices. It also aims to clean up the streets, roads, and public places.

In pursuance of MoWR, RD & GR's directions, the Swachhata Pakhwada-2018 was celebrated from 16.03.2019 to 31.03.2019 with active participation of officers and staff of PPA, Hyderabad and the following activities were undertaken as per Swachhata Action Plan during the year 2018-2019.

S.No	Date	Activity
1	16 th March 2019	Inauguration of Swachhata Pakhwada with Swachhata pledge and cleaning at KGBhavan, Hyderabad premises.
2	22 nd March, 2019	Cleaning of public gardens
3	28 th March, 2019	Plantation at KGBhavan, Hyderabad and public garden.

ANNEXURE

(SNAPSHOTS OF THE PROJECT)

Spillway



Concreting of M25 in spillway crest at Block no32



Duct pipes for prestressing cable in Block no.23



Shuttering of pier of spillway Block no.46



Reinforcement in pier of Spillway Block



Excavation and dressing at spillway block no.50



Concreting in left training wall

Spill Channel & Stilling Basin



Preparation of spill channel panel



Laying of Polythene sheet below CC blocks



Reinforcement in divide wall for spillway Block no.18



M30 Concreting at end sill of stilling basin



Concreting in stilling basin



Concreting of grade M25 in divide wall at Block no.42

Spill Channel & Stilling Basin

 A photograph showing a drilling rig in operation within a large concrete structure under construction. The rig is positioned on a concrete slab, and a vertical drill bit is being used to create a hole in the concrete. The surrounding area is filled with concrete and rebar.	 A photograph showing the construction of a concrete structure. Several tall, cylindrical concrete pillars are visible, with rebar protruding from their tops. A crane is positioned in the background, and the ground is covered with concrete and rebar.
<p>Drilling for grouting in stilling basin</p>	<p>Concreting in Block no.34 of stilling basin</p>
 A photograph showing several concrete mixer trucks parked on a construction site. The trucks are discharging concrete into a large, rectangular concrete structure. The concrete is being poured into the structure, which is surrounded by earth and other construction equipment. A red text overlay reads "Concreting of CC blocks in Spill Channel, PIP-HW".	 A photograph showing a yellow JCB excavator working on a concrete structure. The excavator is using its bucket to spread and level a large amount of concrete. The concrete is being poured into a large, rectangular structure. A person is visible in the background, standing near the excavator.
<p>Concreting of CC blocks in Spill Channel</p>	<p>M15 concreting in Spill channel</p>
 A photograph showing a yellow excavator working on a large, deep excavation site. The excavator is using its bucket to dig and move earth. A yellow truck is parked nearby, and the background shows a hilly landscape under a clear sky.	 A photograph showing a large-scale excavation site. Several excavators and trucks are working on a large, rocky hillside. The ground is covered with large rocks and debris. A red text overlay reads "Excavation of 902 Hill".
<p>Excavation of Spill Channel at Ch 220 m</p>	<p>Excavation of 902 hill</p>

Coffer Dams



Compaction with sheep foot roller in U/s coffer dam



Placement of coarse filter in U/s coffer dam



Inclined sand filter placement in U/s coffer dam



Roller compaction at U/s coffer dam



Jet grouting in D/s coffer dam



Clay placement at Ch 1200 m of D/s coffer dam

Connectivities

 <p>P-Regulator Pier concreting, Level-54.5 to 56.25m</p>	
<p>Pier concreting of P-Regulator at level 54.50 m</p>	<p>Foundation for pylon erection for bridge slab at P-HR</p>
	
<p>Fine filter at Ch 200 m of E-Saddle dam</p>	<p>Rip rap on E-Saddle dam</p>
	 <p>Pkg-64, Drilling work at Tunnel Exit</p>
<p>M25 concreting lining works in Twin Tunnels</p>	<p>Drilling work at Tunnel exit in Package no.64</p>

Field Quality Control Tests



Observation of slump



Sieve analysis at U/s coffer dam



Field density test at U/s coffer dam



Permeability test for rockfill of U/s coffer dam



Core cutting test on clay of upstream coffer dam



Gradation of rock density of U/s coffer dam

Tests in Quality Control Lab



Gradation of filter material



Casagrande Test for Liquid Limit



Proctor's Compaction test



Testing of compressive strength of concrete



Specific gravity test of soil



Free swell Index test of soil

Right Main Canal

 <p>View of 102.4 SP U/S 2018-12-24 15:53</p>	 <p>Completion Sub-structure of DLRB @ 106.960 06 02 2019</p>
<p>Super Passage @ Km.102.4</p>	<p>DLRB @ Km.106.960</p>
	 <p>Thandava Aqueduct P-19 foundation reinforcement is in progress</p>
<p>Thammileru Aqueduct @ Km. 107.85 m</p>	<p>Reinforcement in P-19 of Thandava Aqueduct</p>
	
<p>Canal bed excavation @ Km.143.50m</p>	<p>CC lining of canal bed @ Km.153.00 m</p>

Left Main Canal



Super passage (BuradaKalva)@ Km. 13.26



CC Lining @ Km.90.10 m



Canal bed excavation at Km. 123.128



Reinforcement of Pampa Aqueduct



CC lining in canal bed at Km. 124.051



Excavation for lining at Km. 126.250

Site Visits



Visit of Secretary,WRD to the project site



Visit of CEO, PPA to the project site



Site visit of E-in-C, PIP to the project site



Visit of CE(P&D), PPA to the project site



Visit of Expert Committee team to the project site



PPA participation in Swachhata campaign



Navigation Tunnel of Left Connectivity



Thandava Aqueduct of Left Main Canal