

Chapter IV

Construction of Canals



SP @ Km 52.050

Chapter IV Construction of Canals

The change in RMC alignment after entrustment of work resulted in wasteful expenditure for the work already executed. Boosting up of unit rate for earthwork excavation in the Internal Benchmark resulted in additional financial burden.

Increase in quantities/cost and delay in execution of Left Main Canal (LMC) works resulted in non-acceptance of revised quantities by Revised Cost Committee of GoI, thereby imposing component-wise restriction. Due to slow progress in the execution of works by the contract agencies, the Department had pre-closed four package works.

Construction of under tunnel in LMC could not be taken up as the land required for execution of work was acquired belatedly. Delay in decision by Department to either award the works to National Highway Authority of India or to the contract agencies led to additional financial burden. Government had accorded additional sanction for increase in number of structures for LMC without change in the basic project parameters.

Detailed Project Report for distributary network for both the canals was yet to be finalised, due to which the second Revised Cost Estimate was not approved by GoI. There was instance of non-recovery of extra cost from the original contract agency for completion of balance work at additional cost as per existing rules. There were huge quantities of spoil earth lying at works site without proper accountal in the specified register/form and instances of theft of spoil earth. The unilateral decision of Revenue Authorities to take back the alienated project land (without the consent of Water Resources Department) designated for disposal of spoil earth would affect the disposal process and in turn may create environmental & ecological problems/issues, which would attract penalties from NGT.

4.1 Introduction

The civil works of Polavaram Irrigation Project (PIP) includes construction of two main canals *i.e.*, Left Main Canal (LMC) and Right Main Canal (RMC) which takes off from the connectivities on either side of the dam. The canal systems are designed to meet the irrigation, drinking water and industrial water requirements of the envisaged districts and diversion of 80 Thousand Million Cubic feet (TMC) of water to Krishna River, through RMC, as per Godavari Water Distribution Tribunal (GWDT) Award. The components of LMC and RMC include earthwork excavation, construction of lining and structures.

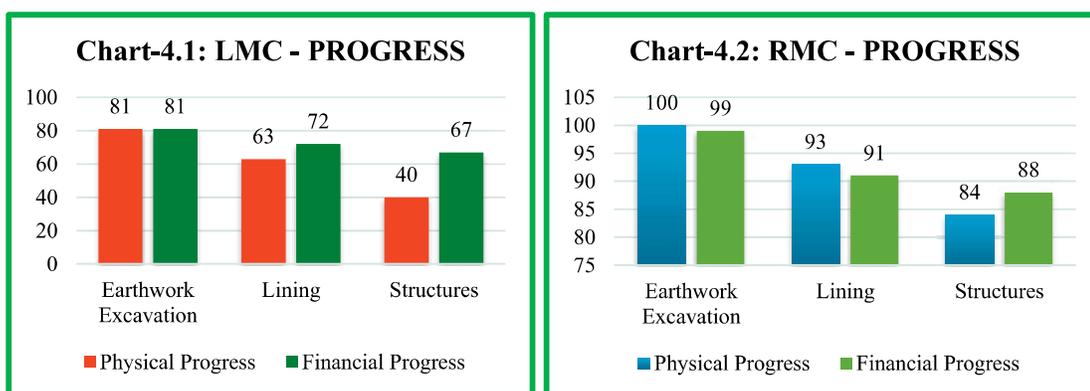
The RMC takes-off from the Head Regulator in the stilling basin and runs for a length of 178.81 Km crossing five major streams¹⁴⁹ and empties into Budameru Diversion Canal near Vijayawada city which joins Krishna River about eight kilometre (Km) upstream of Prakasam

¹⁴⁹ Kovvadakalava, Yerrakalava, Gunderu, Tammileru and Ramileru

Barrage. The RMC is a lined canal and is designed to irrigate 1.29 lakh hectare (3.20 lakh acres) of ayacut in upland areas of West Godavari and Krishna Districts.

The LMC takes off from the Nelakota subsidiary reservoir and runs for a length of 211.27 Km crossing through six major streams¹⁵⁰. The LMC is a lined canal and is designed to irrigate 1.62 lakh hectare (four lakh acres) of ayacut in erstwhile East Godavari and Visakhapatnam Districts, besides supplying 23.44 TMC of water for industrial and drinking water needs in and around Visakhapatnam city.

As of March 2023, the physical and financial progress of works in LMC and RMC were as shown in **Chart 4.1 & 4.2**.



Source: As per information furnished by Department

4.2 Construction of Right Main Canal

The investigation for RMC alignment was carried out for the entire length of 178.81 Km at the time of preparation of DPR. As the canal crosses a number of valleys, in order to facilitate crossing of these valleys, different types of Cross Drainage (CD) works viz., under tunnels, super passages, aqueducts, etc., were proposed depending upon the site conditions. Detailed designs and cost curves were prepared (2004) for these structures and the cost of all the minor structures was arrived at and were approved by Chief Engineer (CE), Central Designs Organisation (CDO), GoAP.



Picture 4.1: Right Main Canal at KM 50

The RMC works commenced in the year 2005 with a target to complete in 24 months *i.e.*, by the year 2007. The works under RMC were divided into seven packages and awarded (October 2004) to various contract agencies under EPC contract at a total agreement value of ₹1,736.06 crore. Most of the works of all the seven packages were completed (except for canal lining of

¹⁵⁰ Sarada, Mamidivaka Gedda, Varaha, Thandava, Yerra, Buradakalva

12.95 Km and 41 structures) by the year 2016 at a cost of ₹1,730.68 crore (as detailed in *Appendix 4.1*).

4.2.1 Execution of works of Right Main Canal

Main components of RMC work involve earthwork excavation, lining and construction of structures. The earthwork excavation was completed (at a cost of ₹646.20 crore) for the entire length of the canal. However, even after incurring ₹666.57 crore towards lining of canal, lining for a length of 12.95 Km (176.20Km¹⁵¹ – 163.25 Km) was yet to be completed. Out of 255 structures proposed, 214 structures were completed (₹591.92 crore) and balance 41 structures were yet to be completed, as of March 2024.

4.2.1.1 Change in canal alignment after entrustment of work

In the above-mentioned work, the initial alignment of RMC from Km 171.000 to Km 172.566 passes through Balerao Tank portion which provides water to an ayacut of 850 acres. Prior to pre-closure of work, the first contract agency had executed the earthwork excavation from Km 171.000 to Km 172.566 (as detailed in *Appendix 4.2*) and a payment of ₹4.32 crore (2.39 per cent of the agreement value of ₹180.70 crore) was made.

During execution of the canal works, the Department noticed that the carrying capacity of the canal would decrease with the current alignment. To mitigate the problem, the Technical Expert Committee visited (September 2015) the site and instructed (February 2016) to divert the canal alignment beyond Km 170.817 in the foreshore area of tank without Land Acquisition. As such, proposal for alternate alignment and designs, drawings and Hydraulic Particulars were approved by CE, CDO Hyderabad, duly detouring (a deviation from a direct course) the Balerao tank as online reservoir with regulators on downstream of the tank.

As the work was stopped by the first contract agency, the balance portion of work was entrusted to new contract agency¹⁵². The Government accorded (January 2017) approval for taking up the work¹⁵³ and agreement was concluded (March 2017) with contract agency on nomination basis for an amount of ₹15.48 crore and the work was completed.

Audit noticed that due to improper planning, a change in alignment was necessitated after execution of the canal work through Balerao tank. This resulted in re-working of the canal alignment and avoidable expenditure of ₹4.32 crore towards earthwork excavation already carried out from Km 171.000 to Km 172.566 by the first agency.

The Government replied (June 2024) that detouring Balerao tank with new alignment was done as per the recommendations of Technical Expert Committee to safeguard the interest of the ayacutdars under Balerao tank.

During the Exit Conference, the Government stated (November 2024) that the original alignment was on the downstream side of the tank and a heavy structure was to be constructed in the tank area which was objected by the villagers and villagers insisted to take away from

¹⁵¹ though the length of canal is 178.81 Km, the lining is taken up for 176.20 Km

¹⁵² M/s. BSCPL Infrastructure Limited

¹⁵³ Earthwork excavation embankment and construction of CM&CD works from Km156.500 to Km 174.000, change of alignment including excavation embankment lining CM&CD works from Km170.817 to Km 172.975 in upstream of Balerao tank

existing ayacut under Balerao tank. This was referred to the Technical Committee which recommended for change of alignment.

Thus, it is evident that improper planning led to change in alignment after execution of work, which resulted in wasteful expenditure of ₹4.32 crore.

4.2.1.2 Incorrect adoption of unit rate

The work¹⁵⁴ of Package-6 was entrusted (2004) to a contract agency¹⁵⁵ at an agreement price of ₹196.74 crore (ECV: ₹206.77 crore) with a condition to complete the work by 2006.

In the abstract estimate (Internal Bench Mark (IBM)) of revised technical sanction (accorded in October 2004) the total quantity of earthwork to be executed was 98,78,844 cum at a cost of ₹55.46 crore. Of this, the unit rate (₹16.70 per cubic meter) for excavation of 3,57,485 cum of hard gravelly soil SS 20B by machinery was ₹0.60¹⁵⁶ crore.

However, during award of work (October 2004) to the contract agency, an amount of ₹5.96 crore was adopted for hard gravelly soil in the IBM instead of ₹0.60 crore. This resulted in boosting up of IBM by ₹5.36 crore (₹5.96 crore - ₹0.60 crore) for the item of work. As a result, the unit rate for total quantity of earthwork excavation was taken as ₹54.69 per cum instead of ₹49.35 cum, thereby boosting up the IBM as detailed in **Table 4.1**.

Table 4.1: Unit rate calculation

Total earthwork excavation (cum)	Amount adopted for Earthwork (EW) (₹ in crore)	Excess amount adopted for hard gravelly soil (₹ in crore)	Amount to be adopted for EW (₹ in crore)
(1)	(2)	(3)	(4) = (2)-(3)
98,78,844	55.46	5.36	50.10
Proportionate amount towards survey investigation of work {₹1.40 crore X ₹50.10 crore/₹206.77 crore}			0.34
Proportionate amount towards miscellaneous items {₹3.35 crore X ₹50.10 crore/₹206.77 crore}			0.81
Total Earthwork component at estimate rates			51.25
Unit rate as per estimate rate (₹51.25 crore/ 98,78,844 cum)			51.87
Tender discount at 4.85 per cent			2.52
Unit rate to be adopted (Unit rate to be adopted - Tender discount) per cum			49.35

Source: Calculated by Audit based on the information furnished by the Department

The boosting up of unit rate for earthwork excavation in the IBM resulted in additional financial burden while entering into supplementary agreements for item of works amounting to ₹2.62 crore as detailed below in **Table 4.2**.

¹⁵⁴ Investigation, design, preparation of Hydraulic particulars, estimates and execution of works of Polavaram Project Right Main Canal from Km 133.800 to Km 156.500 including construction of CM & CD works and lining of main canal

¹⁵⁵ M/s Progressive Constructions Limited, Hyderabad

¹⁵⁶ ₹16.70 per cubic meter X 3,57,485 cubic meter

Table 4.2: Additional financial burden due to incorrect adoption of unit rate

Supplementary Agreement Number	Earthwork quantity (in cum)	Rate adopted (in ₹ per cum)	Rate to be adopted (in ₹ per cum)	Excess rate adopted (in ₹ per cum)
(1)	(2)	(3)	(4)	(5) = (3)-(4)
5SE/ 2015-16 dated 24.06.2015	9,69,183.37	54.69	49.35	5.34
19SE/ 2015-16 dated 29.09.2015	39,39,921.44			
Total earthwork quantity	49,09,104.81			
Undue financial burden = 49,09,104.81 cum X ₹ 5.34 per cum				2,62,14,620

Source: Calculated by Audit based on the information furnished by the Department

Hence, failure to adopt correct unit rate in the IBM resulted in additional financial burden of ₹2.62 crore to exchequer towards total earthwork quantity of 49,09,104.81 cum executed so far.

The Government replied (November 2024) that due to typographical error, an amount of ₹5.96 crore was adopted in the IBM instead of ₹0.60 crore. Thus, the unit rates were finalised based on the quantities and amounts provided in IBM. The excess payment would be recovered in the final bill to be paid to the agency.

Recommendation 4.1: The State Government should ensure robust design planning to minimise deviations during project execution and meticulously prepare estimates to avoid unnecessary payments.

4.3 Construction of Left Main Canal

The works of LMC were divided into eight packages and were taken up in the year 2005 with a target to complete in 24 months *i.e.*, by the year 2007. The works were awarded (between March 2005 and February 2019) to various contract agencies under EPC contract system at an agreement value of ₹2,233.34 crore. All the package works remained incomplete (except package 2), as of March 2023, even after a lapse of 17 years despite incurring ₹2,076.10 crore (as detailed in *Appendix 4.3*). The execution of LMC works was delayed due to various reasons such as delay in LA, delay in entrustment of highway crossings, delay in approval of designs, frequent change in contract agencies due to slow progress of work, insolvency petitions filed by contract agencies in National Company Law Tribunal (NCLT), *etc.*

Out of total length of 211.27 Km of LMC, the earthwork excavation¹⁵⁷ was completed for a length of 172.15 Km at a cost of ₹506.57 crore leaving a balance length of 39.12 Km. Out of 209.99 Km of lining¹⁵⁸ proposed, only a length of 131.98 Km was completed, at a cost of ₹414.77 crore, leaving a balance length of 78.01 Km. Out of 451 structures proposed, 181 were completed at a cost of ₹761.82 crore, leaving a balance of 270 structures. The balance works in respect of LMC (Packages 1, 3, 5, 5A & 6A) which were deleted from the scope of original agencies are yet to be awarded and taken up.

¹⁵⁷ out of proposed 1,095.49 lakh cum, 1,006.23 lakh cum completed leaving a balance of 89.26 lakh cum

¹⁵⁸ out of proposed 15.07 lakh cum, 10.84 lakh cum completed leaving a balance of 4.23 lakh cum

4.3.1 Planning for construction of LMC

During preparation of DPR, investigation for LMC alignment was carried out for the original length of 181.50 Km. The alignment of the canal was marked on the topo sheets as per the Hydraulic Particulars (HP) prepared by the Department and cross sections were taken at every 0.20 Km on the base line.

As the canal crosses a number of valleys, to facilitate crossing of these valleys, different types of cross drainage works like under tunnels, super passages, aqueducts, *etc.*, were proposed depending upon the site conditions. Site surveys were conducted for all major structures and typical minor structures at the rate of three structures for each type of structure. Detailed designs and cost curves were prepared (2004) for these structures and the cost of all the minor structures was arrived at and were approved by Chief Engineer (CE), Central Designs Organisation (CDO). The discharge capacities of LMC at head of canal system was 495.00 cumecs. Subsequently, the length of the canal was increased to 211.27 Km. Out of land requirement of 10,609.45 acres, land admeasuring 10,193.63 acres was acquired leaving a balance of 415.82 acres to be acquired.

4.3.1.1 Improper assessment of revised quantities led to non-approval and stoppage of work

As per 2nd RCE, the quantities of earthwork, lining and number of structures have increased substantially in canal works, resulting in increase in cost from estimated amount of ₹2,373.00 crore to ₹4,202.69 crore. The Revised Cost Committee (RCC) felt that the quantities and cost of canals have already exceeded the limits as per 2013-14 Price Levels. Therefore, the cost of these items has been frozen at 2013-14 Price Level for the quantities as per approved 1st RCE of 2010-11.

Thus, the increase in quantities/cost and delay in execution of canal works resulted in non-acceptance of revised quantities by RCC, thereby imposing component-wise restrictions. Due to slow progress in the execution of works by the contract agencies, the Department had pre-closed four package works. Subsequently, CE, PIP submitted proposals to Government for awarding of balance works, as detailed in **Table 4.3**. However, as of March 2023, no decision has been taken by the Government in this regard.

Table 4.3: Details of works pending before government for approval

Package Number	Balance value of work to be done (₹ in crore)	Date of submission of proposals to Government	Status
1	69.23	November 2020	Works stopped
3	69.09	October 2020	
5 & 5A	150.02	November 2020	
6A	413.74	October 2021	
Total	702.08		

Source: Records of the Department

Delay in awarding the balance works (earthwork excavation, lining and structures) would lead to cost escalation, as the works are to be awarded as per the prevailing SSR. Further, not taking up the balance works would render the expenditure of ₹2,076.10 crore already incurred on LMC unfruitful as the intended purpose of supplying water through canal would not be achieved until these works were completed.

The Government replied (February 2023) that GoI was now reimbursing the bills based on DPR (2010-11PL) for canals. As of now, the expenditure under LMC exceeded the component-wise ceiling limit and hence, the expenditure is not being reimbursed by GoI since February 2021. It was further replied that GoAP had requested GoI to lift the ceiling limit which was not agreed to. GoAP attributed the delay in awarding LMC works to GoI, as GoI did not approve the 2nd RCE and also did not consider the request of GoAP for sanction of ad-hoc grant. It was further replied (November 2024) that tenders for the above packages were already called for and the work would be entrusted to the executing agencies soon.

The reply is not acceptable. It is the responsibility of the Department to assess all the components required for execution of canal correctly and prepare accurate estimation for the canal works. Due to the delay in Land Acquisition and inaccurate estimates prepared by the Department, there was a substantial increase in the quantities to be executed. Ineffective monitoring of the works by the Department after entrustment resulted in delayed execution by the original contract agencies. Further, the delay in entrustment and completion of the balance LMC works would render the objective of supplying water to the intended ayacut unachieved.

4.3.1.2 Stoppage of work due to pendency of Land Acquisition and R&R

The work “Conducting detailed investigation, preparation of HPs, design and engineering, preparation of estimates and execution of main canal, formation of banks including canal lining and construction of CM & CD works from Km 69.145 to Km 93.700 of LMC (Package No.4)” was awarded (2005) to a contract agency¹⁵⁹ for an amount of ₹209.70 crore with due date of completion as 2007. The work includes construction of one Under Tunnel at Km 73.168.

Audit noticed that:

- Though the work ‘Construction of one Under Tunnel at Km 73.168’ was entrusted in 2005, the work could not be taken up till to date (March 2023), as the land measuring 10.75 acres required for execution of work was acquired belatedly in August 2018.
- The Revenue Authorities acquired the land at a cost of ₹91.96 lakh. However, the actual possession of land could not be taken (as of March 2023), as the farmers were obstructing the work, demanding higher compensation and refusing to accept the compensation amount of ₹91.96 lakh. The amount was deposited with the Land Acquisition and Rehabilitation & Resettlement Authority (LARR Authority) and proceedings were pending. In view of the above dispute, extension of time for the work was sanctioned till June 2023.

The Government replied (June 2024) that as the landowners were demanding higher compensation, the compensation amount was deposited with the LARR Authority, Visakhapatnam in December 2018.

Thus, despite delayed acquisition of the required land, there was no progress of work due to non-settlement of payment of compensation issue with farmers. This has caused delay in completion of LMC works. Efforts have not been taken by the Government for early resolution of the issue.

¹⁵⁹ M/s Sabir Dam Constructions

4.3.1.3 Delayed decision in entrustment of works

The LMC crosses National Highway (NH) at 11¹⁶⁰ points through its passage. These 11 National Highway (NH) crossings works in LMC, were awarded along with the canal works to various contractors during 2004. Subsequently, Government instructed (2007) all the Engineering Departments to delete NH crossings from the scope of EPC contract and entrust the same to National Highways Authority of India (NHAI) for execution.

Audit noticed that despite government orders these NH crossings works were not entrusted to NHAI due to various reasons such as delay in approval of designs, incomplete LA for LMC and other clearances. Subsequently, after a lapse of 11 years, eight out of 11 (to be taken up at an estimated cost of ₹42.63 crore (SSR 2004-05)), were awarded (in 2018) to various contract agencies at an agreement value of ₹156.31 crore on lumpsum contract system, leaving a balance of three NH crossings yet to be awarded. The delayed decision to entrust works to contract agencies instead of NHAI resulted in cost escalation of ₹113.68 crore (as detailed in *Appendix 4.4*) due to increase in agreement value arrived at as per latest SSR.

The Government replied (June 2024) that due to delay in decision making of NHAI and non-submission of concurrence letter by the contract agencies for deletion of the work from the scope of their contracts, led to delay in entrustment of NH crossings to new agencies.

During the Exit Conference, the Government stated (November 2024) that at the time of preparation of estimates and Hydraulic Particulars, the designs were prepared for four lane bridges. After submission of designs to NHAI, the NHAI requested to change the design of crossings/bridges to six lanes instead of four lanes. As GoI did not agree to bear the additional cost for Land Acquisition for increase in lanes, it was decided to entrust the work to NHAI. Repeated change in execution standards / rules / stand taken by NHAI resulted in delayed entrustment of these NH crossings.

Delay on the part of the Department to obtain concurrence from the contract agencies for deletion of the NH crossings from scope of work led to additional burden of ₹113.68 crore due to time and cost overrun.

4.3.2 Execution of Left Main Canal

Out of eight packages in LMC, as of March 2023, only Package-2 works were completed. Due to slow progress of canal works, some of the works were deleted from the scope of original contract agencies and were awarded to new agencies. The works pertaining to Packages-1A, 4 & 4A, 7 and 8 were in progress as of March 2023 and the proposals for awarding of works of remaining packages-1, 3, 5 & 5A and 6A were pending with Government.

4.3.2.1 Incorrect sanction towards additional structures

As per the terms and conditions of EPC contract system, the contractor has to execute the total work as a whole irrespective of the number of structures provided in the IBM. As per modalities issued¹⁶¹ (February 2015) by Government for implementation of government orders, the increase in number of structures can be considered only if there are changes in basic project

¹⁶⁰ NH-16 crossings at Km 33.559, Km 41.650, Km 55.410, Km 64.375, Km 77.175, Km 80.998, Km 88.035, Km 93.700, Km 103.658, Km 173.609 and at Km 0.850 of New Water Supply Canal

¹⁶¹ Para 7 of Annexure to G.O.Ms.No. 22 dated 23.02.2015

parameters. Government Memo issued¹⁶² (May 2008) stipulates basic parameters of canals as discharge capacity, full supply level, bed level, command area to be covered, location of starting and ending of canal, distributaries, *etc.*

The Package-7 work of LMC was awarded (2004) to a contract agency¹⁶³ at a cost of ₹175.00 crore. As per IBM, 52 structures were proposed in Package-7. However, Government sanctioned¹⁶⁴ (March 2022) 20 more structures (total 72 numbers) than what was provided in IBM at an additional cost of ₹15.74 crore.

Audit noticed that Government had accorded additional sanction for increase in number of structures without change in the basic project parameters¹⁶⁵. It was also noticed that the Chief Engineer, PIP reported¹⁶⁶ (May 2021) to the Government stating that as the number of structures increase from 52 to 73 (number of structures actually increased to 72 only), the basic project parameters are changed.

It is pertinent to mention here that, as per para 2 (b) of the Government Memo of May 2008 stated above, the project parameters in respect of canal are governed by the discharge capacity, full supply level, bed width, command area to be covered, location of starting and ending points of canal and distributaries, but not due to increase in number of structures/ quantities. As such, the incorrect sanction towards additional structures resulted in extending undue benefit to the contract agency and avoidable additional burden to the exchequer for an amount of ₹15.74 crore.

The Government replied (June 2024) that due to change in design owing to unforeseen discovery in site geology or changes in basic project parameters or changes in alignment due to local factors, all of which were not provided in the IBM estimate, revised quantities/ designs are essential for the completion of work. Accordingly, the contractor has submitted proposals for additional structures and quantities arrived due to site geology. Subsequently, based on recommendation of State Level Technical Committee sanction for additional structures was accorded in the interest of early completion of work and to achieve the intended benefits as per schedule.

During the Exit Conference, the Government stated (November 2024) that as the quantities provided in the IBM were very less when compared to the ground reality of execution, many of the agencies were not ready to execute the works. Hence, it was decided to pay the net variations in quantities to the contract agencies in the interest of completion of the work at an early date.

The reply is not acceptable, as the guidelines issued by the Government prescribe that the variations in quantities from estimated quantities and items of structures *i.e.*, increase in number of structures can be considered only if there are changes in basic project parameters and/or unforeseen discovery in site geology and/or change in alignment. However, in the instant case, the Government did not provide any documentary evidence in support of the claim that there was a change in basic project parameters / site geology. Further, as per the terms and

¹⁶² Memo No. 34843/Reforms/2006 dated 07.05.2008

¹⁶³ M/s KCL-JCCG (JV), Hyderabad

¹⁶⁴ G.O.RT.No.534 dated 19.03.2022

¹⁶⁵ length & width of canal, water carrying capacity, hydraulic parameters

¹⁶⁶ CE/PIP/DCE2/OT9/AEE2/PIPLMC/Pkg-2/Cost variation of structures dated 29.05.2021

conditions of the agreement, it is the contractor's responsibility to complete the work as a whole, for the fixed / agreed price, irrespective of the number of structures provided in IBM. Hence, the contractor is not eligible for additional payment towards an increase in structures/ quantities as per the agreement conditions. Incorrect sanction towards payment for additional structures resulted in undue advantage to contract agency for ₹15.74 crore.

Recommendation 4.2: The State Government should streamline the procedures relating to EPC contracts including the deliverables, scope and specification of work to avoid undue advantage to the contractors and loss to exchequer due to variation in quantities / number of structures.

4.3.2.2 Non-settlement of accounts of the contract agencies

The Package-5 and Package-8 works of PIPLMC were awarded¹⁶⁷ in 2005. Due to non-completion of work by agencies (despite giving numerous Extension of Time), the Government had deleted¹⁶⁸ (November 2016) certain portions of work and entrusted to new agencies duly retaining a few portions of work with the old agencies. Subsequently, the Government decided to pre-close (July 2020) the works held with the old contract agency and directed the authorities to settle the accounts with the old contract agencies.

Audit noticed that liabilities of contract agencies worth ₹37.72 crore¹⁶⁹ (recoveries to be made from the contractors) were more than assets worth ₹19.72 crore¹⁷⁰ (amounts of contractors available with the Department) of package 5 and 8. Thus, liabilities were more than the assets by ₹18.00 crore.

During the Exit Conference, the Government stated (November 2024) that as the work taken up under clause 60 (C) was not completed to arrive at the penalty to be levied on the original contract agencies, the accounts were not settled. The accounts would be settled once the work is completed.

4.4 Issues relating to both Right and Left Main Canal

4.4.1 Delay in preparation of Detailed Project Reports for distributary network

A distributary network is an essential component in any irrigation project to deliver irrigation water to the fields. The PIP contemplates creation of irrigation potential of 7.20 lakh acres¹⁷¹.

The work 'Conducting detailed investigation, survey and preparation of DPR for distributary network for LMC and RMC' was entrusted (November & December 2019) to a contract agency¹⁷² at a cost of ₹7.92 crore (LMC: ₹4.31 crore and RMC: ₹3.61 crore) with a period of completion as six months *i.e.*, May 2020 for LMC and June 2020 for RMC.

Audit noticed that even after three years from the date of entrustment of the work to the contract agency, the work remained incomplete as of March 2023. The expenditure incurred towards

¹⁶⁷ Package 5: M/s Sabir Dam & Water Works Constructions, Hyderabad and Package 8: M/s IVRCL-SEW & Prasad (JV), Hyderabad

¹⁶⁸ In Package - 5, EWE for 5.75 Km, lining for 11.00 Km and 33 numbers of CM & CD works were deleted and balance work worth ₹16.82 crore retained with the original agency. In Package -8, works worth ₹68.66 crore were deleted (except CNS lining) and works worth ₹15.05 crore retained with the original agency

¹⁶⁹ Package 5: ₹19.43 crore and Package 8: ₹18.29 crore

¹⁷⁰ Package 5: ₹15.64 crore and Package 8: ₹4.08 crore

¹⁷¹ LMC: 4.00 lakh acres and RMC: 3.20 lakh acres

¹⁷² M/s IIC Technologies Limited, Hyderabad

survey and levelling operations for preparation of DPR of LMC was ₹0.95 crore and that of RMC was ₹0.72 crore.

The Government replied (June 2024) that the draft DPRs were submitted to PPA and CWC for approval, to which certain observations were communicated (April 2024). After obtaining approval, the process for tenders of the distributary network would commence.

Thus, the fact remained that the DPR for distributary networks of both LMC and RMC was not finalised, which was one of the reasons for the delay in approval of 2nd RCE by GoI.

4.4.2 Accountability and disposal of excavated earth

Clause 61.3 of EPC agreements concluded with contract agencies for LMC & RMC works stipulate that the contractor should not dispose of or remove the excavated spoil earth except for utilisation in work with due consent of the Department. The obtained spoil earth would be the property of the Government which needs to be safeguarded and accounted for¹⁷³.

4.4.2.1 Non-disposal of spoil earth

Audit noticed (June 2022) that huge quantities of spoil earth worth ₹1,660.15 crore (₹138 per cum x 12.02 crore cum) were available at work sites of both LMC and RMC. The details of spoils available were not accounted for in the Major/ Minor 7F register to verify the correctness of information furnished by the Department. The quantities and the cost of spoil available are detailed in *Table 4.4*.

Table 4.4: Spoil earth available under each package and revenue receivable

Package Number	Balance quantity of spoil available at site (in crore cum)	Cost of the spoil (₹ in crore)
Left Main Canal		
1	1.52	210.01
2	1.80	248.92
3	0.90	123.82
4	0.99	137.23
5	0.94	129.27
6 & 7	1.58	218.45
8	0.17	23.88
Right Main Canal		
4	1.94	267.45
5	1.17	161.01
6	0.43	59.58
7	0.58	80.53
Total	12.02	1,660.15

Source: Information provided by the Department

Note: The unit rates were varying from ₹107 to ₹138. However, the uniform rate of ₹138 was considered as per SoR 2021-22 as comment was made in 2022

The reasons for non-disposal of spoils available at site were not on record. Non-disposal of the available spoils might lead to delayed accrual of revenue / loss due to theft or by nature.

The Government replied (June 2024) that Major and Minor 7F registers were not being maintained for spoil, as was done for cement and oil which can be kept in safe custody of lock and key. The Government also replied that permission for disposal of spoil is being granted

¹⁷³ duly recording in Major/Minor 7F account register

from time to time as per the request made by various Departments. Tenders would be invited, for disposal of the spoil at spoil banks.

During the Exit Conference, the Government stated (November 2024) that for the entire spoil a joint survey was conducted with the Mines & Geology Department. The Mines & Geology Department did not come forward to take the spoil which was present all along the canal length of 200 Km. The cost of safeguarding (appointing security guards) would be very high. However, wherever required, the spoil earth is used in government works as per requisition received. Only the material which can be kept under lock and key can be registered in 7F. As such, the spoil is not taken into the 7F registers. The spoil could not be sold, as the agencies were not ready to lift all the spoil at once due to storage problem which requires huge extent of land.

Reply is not acceptable. To have proper accountal of spoil earth stored and utilised, it is mandatory to maintain the details of spoil in Major and Minor 7F register. The delay in disposal of spoil may lead to loss of revenue by way of theft or pilferage.

4.4.2.2 Theft of spoil earth

Audit noticed that theft of spoil earth had occurred in Packages 4, 5, 6 & 7 of RMC. The quantities and value of spoil earth stolen as reported by Department, as per SSR 2020-21, were as mentioned in **Table 4.5**.

Table 4.5: Details of theft of spoil earth in Right Main Canal

Packages	Quantity of spoil theft (in cum)	Rate per cum (in ₹)	Value of spoil theft (₹ in crore)
4 & 5	73,702	138	1.02
6 & 7	8,45,800	138	11.67
Total	9,19,502		12.69

Source: Records of the Department

The Department did not furnish the relevant records to verify the quantum of spoil earth stolen and action taken by the Department to recover the lost quantity.

The Government replied (June 2024) that as and when cases of theft were identified complaints are being lodged and cost of spoil stolen is being recovered besides imposing fines.

The reply is not acceptable, as the spoil earth stolen worth ₹12.69 crore was remained unrecovered and the Department could not identify the responsible to recover the cost of spoil and levy fine.

Recommendation 4.3: The State Government should instruct the Department to account for the excavated spoil earth properly and implement safety measures to prevent any kind of theft.

4.4.3 Non-recovery of extra cost from original contract agency for completion of balance works

As per clause 60 (C) of PS to APDSS¹⁷⁴, if the original contract agency is not able to complete any of the balance works as per the timelines fixed by the Government, the same may be deleted

¹⁷⁴ Preliminary Specifications to Andhra Pradesh Detailed Standard Specifications

from the scope of the contract agency and entrusted to other willing contract agencies to carry out the work. If the balance work completed by other contract agency involves any extra cost, the difference shall be recovered from the original contract agency. Such recovery shall not exceed five *per cent* of the total agreement value (finished value of work).

Audit noticed that as the original contract agencies could not complete the work in time and unable to meet the timelines of the contract, the Department had deleted works worth ₹462.47 crore in 10 packages¹⁷⁵ from the scope of original contract agencies and entrusted the works to new contract agencies at a cost of ₹978.38 crore. As a result, there was an extra cost of ₹515.91 crore involved in completion of the balance works by the new contract agencies. The extra cost involved in completion of the work limited to five *per cent* of the finished value of work (Original contract value of 10 packages: ₹2,376.71 crore + ₹515.91 crore = ₹2,892.62 crore) worth ₹144.63 crore (as detailed in **Appendix 4.5**) was not recovered from the original agencies thereby extending undue benefit to the original contract agencies to that extent.

The Government replied (June 2024) that the differential cost of works deleted and being executed by new agencies would be recovered from the original contract agencies during final settlement of bills.

4.4.4 Diversion of project land for housing scheme

The District Collector, West Godavari addressed¹⁷⁶ (March 2020) Water Resources Department (WRD) for granting ratification orders for utilisation of the land belonging to WRD (RMC, Polavaram Irrigation Project), for providing house sites to the eligible beneficiaries under the flagship programme "Navaratnalu-Pedalandariki Illu" of GoAP. The WRD denied¹⁷⁷ (March 2020) the proposal and stated that PIP is a National Project and the assets belongs to Polavaram Project Authority (PPA), Government of India, and hence cannot be spared.

The District Collector, West Godavari addressed¹⁷⁸ (March 2020) Chief Secretary to GoAP for issue of necessary orders to assign RMC land measuring 28.25 acres for providing house sites to the eligible beneficiaries. Further, the District Collector stated that if required, in future, private land would be acquired for the project. Government requested¹⁷⁹ (June 2020) CE, PIP to furnish remarks on the subject matter for taking further action immediately.

The CE, PIP submitted¹⁸⁰ (July 2020) that the land measuring 28.25 acres is essential for canal widening work. The CE, PIP further reported that the Revenue Authorities have occupied and levelled the LMC land to an extent of 46.89 acres in three villages of erstwhile East Godavari District without the consent of WRD. It was also submitted that LMC land are required as area for spoil banks to carry out emergency restoration of canal banks in case of breach of canal during water regulation period and natural disasters like cyclones, floods, *etc.*

¹⁷⁵ Package 2, 4, 5, 6 & 7 in RMC and package 1, 3, 4, 5 & 6 in LMC (having total agreement value of ₹2,263.33 crore)

¹⁷⁶ letter No. ROC No. E4/e-1784822/2020 dated 07.03.2020

¹⁷⁷ memo No. ICD01/MJIR0IC28/111/2020-PROJECTS-1 dated 14.03.2020

¹⁷⁸ D.O. Letter No. E4/e- 1784822/2020 dated 21.03.2020

¹⁷⁹ memo No. ICD01/MJIR0IC28/111/2020-PROJECTS-1 dated 29.06.2020

¹⁸⁰ letter No. CE/PIP/DCE/OT2/AEE4/Misc dated 07.07.2020

The CE, PIP also reported that the Hon'ble High Court of Andhra Pradesh had ordered¹⁸¹ (April 2019) that alienation of LMC land for providing house sites to landless poor, is not permissible and particularly the land meant for spoil bank. Hence, CE, PIP requested Government to address the concerned District Collectors¹⁸² to state that the land of LMC and RMC cannot be spared for "Navaratnalu–Pedalandariki Illu".

Despite this, the Revenue Authorities of erstwhile East Godavari District, irregularly occupied 30.77 acres of LMC land and 28.25 acres in RMC for allotting house sites in various villages. Further, there was no proposal to provide alternate land to WRD.

The unilateral decision of Revenue Authorities to take back the land (without the consent of WRD) specially designated for disposal of spoil earth would affect the disposal process and in turn may create environmental & ecological problems/issues and attract penalties from NGT.

The Government replied (November 2024) that the ratification for the said land in West Godavari District was denied and the said land of 30.77 acres of LMC and 28.25 acres of RMC is in possession of the WRD. During the Exit Conference, the Government stated (November 2024) that the documents showing handing over of land to WRD by Revenue Authorities would be obtained and a detailed reply would be furnished after verifying all the documents.

Though the Government reported that the entire project land pertaining to West Godavari District is in the possession of WRD, documentary evidence in this regard was not provided.

4.4.5 Non recovery of dues from contract agencies

Scrutiny of records revealed that the Department had identified the recoveries to be affected from the contract agencies towards removal of deposited earth material, interest on mobilisation advance along with principal, *etc.*, from the running account bills worth ₹37.67 crore as detailed in **Appendix 4.6**. However, the amounts were not recovered from the contract agencies in respect of the works of LMC and RMC.

The Government replied (June 2024) that in respect of RMC Package 2 work, the amount provided in IBM estimates for 'HPCL & GAIL pipelines', was ₹3.50 lakh and the same was recovered in 66th and part bill. In respect of 'Shifting of electric lines', the amounts provided in the IBM estimates was ₹14.17 lakh and the same would be recovered from the next running bills.

The reply is not acceptable, as the said amounts were with the contract agencies for the period ranging between eight to 15 years. Further, as per the agreement the cost of execution of 'Shifting of electric lines' and 'HPCL & GAIL pipelines' shall be borne by the contract agencies. Hence, the actual amount paid by the government to the respective executing agencies needs to be recovered from the contract agencies as per terms of agreement. The WRD had not taken immediate action to recover the amounts due from the contract agencies and delayed the process of recovery.

¹⁸¹ dated 16.04.2019 in W.P (PIL)No.15 of 2019

¹⁸² Visakhapatnam, East Godavari, West Godavari & Krishna Districts