
Planning and Execution of Canal and Distribution System

Chapter V

Planning and execution of canal and distribution system

Under Engineering Procurement Construction (EPC) contract system the contractor has to execute the work as per the scope of work without referring to the quantities. However, additional quantities were sanctioned wherever it was advantageous to contractors despite no change in scope of work. The corresponding reduction in contract price was not made, despite there was decrease in quantities / reduction in length of canal / bund of reservoir stating that the works were awarded under EPC contract. Thus, the savings did not accrue to Government, however, additional payments for additional quantities were made to the contractors. As such, it can be construed that the existing provisions of the EPC contract system are more advantageous to the contractors than to the Government. The advance procurement of hydro and electromechanical components led to idling of items and blockade of funds. Incorrect preparation of IBM estimates resulted in boosting of IBM which in turn resulted in comparison of bids for a higher amount than necessary. In respect of Gottipadia canal, there was excess payment to the contractor due to inclusion of cost of canal lining in the bid amount by contractor though the canal was executed as unlined. Despite non-completion of entire project, the department irregularly released Operation & Maintenance charges to the contractor on completion of Gottipadia dam and excavation of Gottipadia canal. The Bank Guarantees (BGs) received towards Earnest Money Deposit from the successful bidder was irregularly released before completion of project and commencement of defect liability period. The Schedule of Payments was incorrectly approved with higher values to certain items of work without reference to agreement rates, resulted in front payment to contractors.

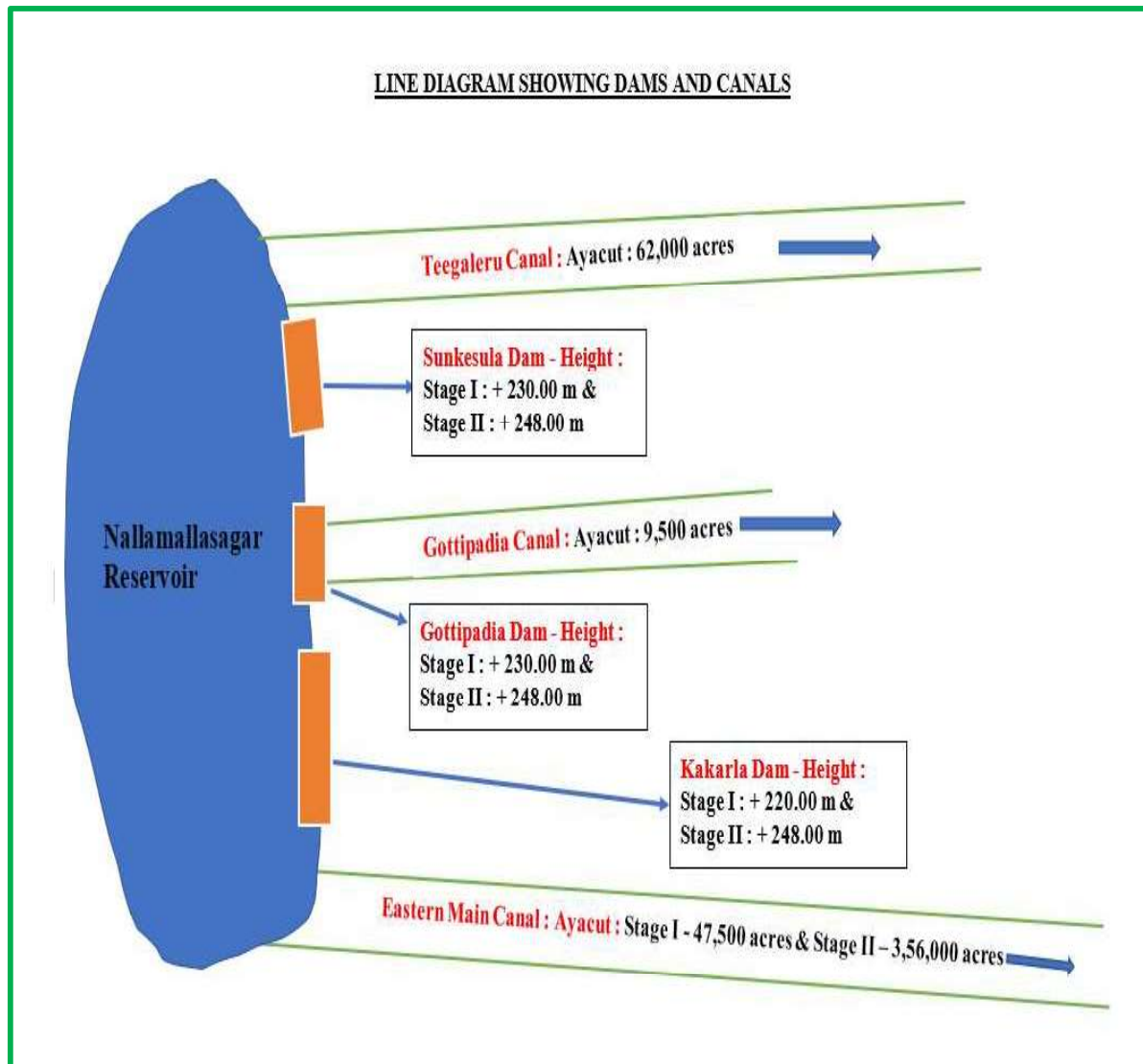
In Stage I, three canals viz, Teegaleru, Gottipadia and first reach of Eastern Main Canal (EMC) were proposed to be excavated to create an ayacut of 1.19 lakh acres in Prakasam District. In Stage II, EMC second reach and Western Branch Canal (takes off as branch canal to EMC) were also taken up to create an additional ayacut of 3.19 lakh acres in the proposed three districts⁵⁶. In addition, 5,000 acres was proposed to be created under two independent reservoirs⁵⁷. The water was proposed to be drawn from Nallamallasagar reservoir by constructing Head Regulators for Teegaleru and EMC and through a pipe in respect of Gottipadia canal.

⁵⁶ Prakasam, SPSR Nellore and YSR Kadapa

⁵⁷ Rallavagu and Gundlabrahmeswaram

The three canals proposed along with its canal system was depicted in the following line diagram (*Not to scale*)

Line Diagram 5: Showing Reservoir along with dams and canal system



5.1 Planning and execution of Teegaleru canal and distributary system

The Teegaleru canal, was planned as unlined canal with a length of 49.150 Km with takeoff from Nallamallasagar reservoir near Sunkesula dam. The distributary system under this canal would create an ayacut of 62,000 acres in Prakasam District. The excavation of unlined canal and its distributary system were taken as a component under Package II and works were entrusted on EPC contract system.

5.1.1 Irregular adoption of canal parameters in agreement led to sanction of additional quantities on Teegaleru canal

As per para 11.2 and 11.5 of agreement, the bidder shall quote for the entire work on a firm lump sum price and on a single source responsibility basis and the bid offer is for the whole work and not for individual items/part of the work.

The excavation of Teegaleru canal along with structures under Package II were awarded (November 2004) under EPC system. The scope of work (agreement) includes investigation and design of Teegaleru canal including structures along with distributary system to create an ayacut of 62,000 acres.

As per Detailed Project Report (DPR), to create this ayacut, a canal with 28 cumecs (*as detailed in Appendix-IV(A)*) discharge has to be excavated. However, the same was not mentioned in the scope of work of the agreement. The initial agreement only mentioned the canal parameters viz., bed width, full supply depth, slope, etc. Based on these canal parameters, the maximum discharge capacity, as calculated by department, was assessed as 21 cumecs (*as detailed in Appendix-IV(B)*). To arrive at the required discharge of 28 cumecs, the Department proposed to widen the Teegaleru canal for which the Department concluded three supplementary agreements⁵⁸ (February to August 2008) for ₹34.61 crore.

Audit observed that the additional amount was sanctioned even though the scope of the work did not change i.e., creation of contemplated ayacut of 62,000 acres and further, the Department did not consider the discharge initially proposed in DPR. This resulted in undue financial benefit of ₹34.61 crore to the contractor.

In reply, the Government admitted (January 2023) that in the scope of work of the agreement, the required discharge was not mentioned. However, the basic parameters of the canal were given. Government also stated that as per approved designs, the canal parameters were changed, resulting in increased scope of work. Further, additional sanctions towards variation in quantities in respect of structures were made based on the Government orders⁵⁹.

The reply is not acceptable. In EPC system, the work has to be executed as per the scope of work without reference to IBM and its quantities. Further, the design of the canal for creation of contemplated ayacut was the responsibility of the contractor. As such, the difference between canal parameters stated in agreement and as per approved designs could not be treated as increase in scope of work. Further, as per agreement conditions (Para 118.1), the contractor shall be deemed to have scrutinised, prior to the base date, the Employer's requirements (including design criteria and calculations, if any) and the contractor shall be responsible for the investigation and design of the work and for the accuracy of such Employer's requirements (including design criteria and calculations).

5.2 Planning and execution of Gottipadia canal and distributary system

The Gottipadia canal was planned as unlined canal with a length of 12.875 Km and would takeoff from Gottipadia dam through a pipe. The distributary system under this canal would create an ayacut of 9,500 acres in Prakasam District. The excavation of

⁵⁸ Supplementary Agreement No. 28/2007-08 dated 21.02.2008 : ₹13.77 crore (Change in bed width and height of canal due to increase in discharge capacity; Supplementary Agreement No. 27/2018-19 dated 04.08.2018 : ₹11.42 crore (Additional quantities in structures on Teegaleru canal – in respect of 30 structures); Supplementary Agreement No. 30/2018-19 dated 05.08.2018 : ₹9.42 crore (Additional quantities of structures on Teegaleru canal – in respect of 42 structures)

⁵⁹ GO Ms No. 22 dated 23.02.2015 and G.O. Ms. No. 63 dated 12.06.2015

canal along with structures and its distributary system were taken as a component under Package-III. The work “construction of dam, canal, distributary network” was initially entrusted (November 2004) to a contractor⁶⁰ on EPC system along with Operation and Maintenance (O&M).

The contractor completed the excavation of Gottipadia dam and main canal including structures (except one syphon⁶¹). Due to non-handing over of lands, the distributary network along with O&M was deleted from the scope of first contractor and entrusted to second contractor⁶² and the balance component (Syphon) was entrusted to third contractor⁶³ at agreement rates of first contractor.

5.2.1 Non recovery of cost of lining

The Gottipadia canal was to be executed as unlined as per the clarification given in pre bid meeting held with contractor. However, the bid price⁶⁴ quoted by the contractor was for lined canal and the agreement was also entered into (November 2004) with the contractor was for lined canal. Instead, the canal was executed as unlined by the contractor.

Audit noticed that though the canal executed was unlined, payment was made for lined canal and the cost of lining was not deducted/recovered from the bills of the contractor. This resulted in excess payment of ₹2.24 crore to the contractor as shown in *Appendix-V*.

The Government replied (January 2023) that there was no mention about lining of canal in the basic parameters or in the agreement. During the pre-bid meeting, it was clarified that the canal is unlined. Further, it was replied that the contention of Audit that the bid price quoted by the contractor and the agreement entered into was for lined canal is not supported with any documental evidence and hence not admissible. As such, no excess payment was made to contractor.

The reply is not acceptable, as the contractor in “Data Sheet 5”, which forms part of the agreement, admitted that the cost working was made based on the assumption that lining thickness would be 100 mm. As such, the bid price quoted was for lined canal with 100 mm thickness though actual execution was unlined canal. Hence, the cost of lining needs to be recovered.

5.2.2 Erroneous calculation of value of work to be deleted resulted in excess payment besides locking up of funds with the contractor

The contractor completed the construction of dam and main canal including structures on main canal (except one syphon) to the end of August 2009. At this juncture, the contractor requested (January 2013) to pre close the contract as required land to

⁶⁰ M/s. Larsen & Toubro Limited, ECC Division, Chennai

⁶¹ structure in which the canal is taken below the drainage and the canal water flows under symphonic action and there is no presence of atmospheric pressure in the canal

⁶² M/s. KKRC Infrastructures Pvt. Ltd.

⁶³ M/s. K Sai Mohan Reddy

⁶⁴ Data Sheet 5-Construction methodology of different components proposed showed that thickness of lining was taken as 100 mm

construct distributary system was not handed over. Accordingly, the Department deleted (December 2013) the balance works⁶⁵ and entrusted the same to two new contractors⁶⁶ at agreement rates⁶⁷ of first contractor.

Scrutiny of records revealed that:

(i) The total cost for execution of Gottipadia dam, main canal (including structures) and its distributary system (including structures) at agreement rates of first contractor was ₹380.00 crore. The cost of components (dam and main canal) executed by the original contractor at agreement rates was ₹373.35 crore and deleted components (distributary network) was ₹6.65 crore. Based on SoPs, the cost of components executed was ₹374.16 crore and deleted components was ₹5.84 crore. As evident from above, the cost of executed components as per SoPs were more than agreement values by ₹0.81 crore (₹374.16 crore minus ₹373.35 crore). Further, the deleted components were entrusted to new contractor at agreement rates i.e., ₹6.64 crore. Thus, irregular adoption of higher values in SoPs than the agreement rates in respect of components executed resulted in excess payment of ₹0.81 crore to the first contractor.

ii) The IBM for main canal and distributary network was prepared by incorporating lumpsum provisions amounting to ₹0.89 crore (main canal : ₹0.35 crore, distributary network : ₹0.54 crore) for providing guard stones, lab testing materials and samples, insurance, Quality Control (QC) operations, banker charges, etc. While deleting the distributary network from the first contractor, the share of the above provisions pertaining to the distributary network of ₹0.50 crore⁶⁸ at agreement rates was not included. This resulted in excess payment to the first contractor.

The excess payment of ₹1.31 crore (₹0.81 crore + ₹0.50 crore) is yet to be recovered from the first contractor.

The Government admitted (January 2023) and promised to adjust the excess payment made at the time of release of withheld amounts.

5.2.3 Irregular release of bank guarantees and operation and maintenance charges

As per agreement conditions⁶⁹ of Package III (Gottipadia dam and canal), Earnest Money Deposit (EMD) in the form of Bank Guarantee (BG) furnished by the successful bidder shall be valid for the contract period plus defect liability period. During the defect liability period, the contractor has to carryout Operation and Maintenance (O&M) for two years from the date of completion of entire project or two kharif crops whichever is more. The defect liability period commences only after completion/commissioning of the project.

⁶⁵ Syphon at Km 2.85 and distributary network with structures

⁶⁶ Syphon at Km 2.85 to Sri K. Sai Mohan Reddy for ₹16.62 lakh and distributary network to M/s. KKRC Infrastructure Pvt. Ltd., for ₹ 6.64 crore

⁶⁷ under clause 60(c) of Preliminary Specifications (PS) to Andhra Pradesh Detailed Standard Specification

⁶⁸ ₹0.54 crore minus tender discount of 6.75 per cent

⁶⁹ Para 13.11 of “Part-C Preparation of bids” and Appendix for O&M vide para 2 (v)

The construction of dam and excavation of main canal (except one syphon on Gottipadia canal) were executed and completed (August 2009) by the contractor⁷⁰ However, the balance components entrusted to two different contractors were still in progress and the works under other packages were also in progress.

Scrutiny of records revealed that:

(a) Irregular release of bank guarantees

The Department obtained BGs worth ₹10.44 crore towards EMD from the Package III contractor (Gottipadia dam and canal). Government permitted⁷¹ (April 2015) to release ₹23.67 crore⁷² (including the above BGs) to the contractor though the works were still in progress and defect liability period was not commenced/completed. Thus, the release of BGs to the contractor was irregular.

The Government replied (January 2023) that after deletion of balance work from the scope of original contractor, the contractor had completed (January 2012) the total work under their scope and maintained the work during defects liability period (January 2012 to January 2014). As such the bank guarantees were released.

(b) Irregular payment of operation and maintenance charges

While certain components under Package III and other allied packages were still in progress, the Department released (RA Bill No. 59 dated 22.02.2016) O&M charges of ₹3.23 crore⁷³ to the first contractor as per the said Government orders. The payment of ₹3.23 crore towards O&M charges without completion of whole system is irregular.

The Government replied (January 2023) that as per addendum issued after pre-bid meeting, the maintenance during defect liability period of 24 months was from the date of completion certificate which was issued in January 2012 and as such the defects liability period was completed by January 2014. Hence, release of O&M component was not irregular.

The reply in respect of both the issues is not acceptable, as the defect liability period was for a period of two years from the date of issue of completion certificate as per addendum issued to the bid document. As per agreement condition (Clause 44.1.1), 'the Engineer-in-Charge has to issue a certificate of completion when the whole of the work has been completed'. However, in the instant case, only part of the work was completed (dam and main canal) and the balance components (distributary network and one syphon on main canal) were deleted from the contractor and was shown as completion of whole work. Further, the completion certificate issued was limited to Gottipadia dam leaving main canal despite both were executed by the same contractor.

⁷⁰ M/s. Larsen & Toubro Limited, ECC Division, Chennai

⁷¹ G.O. RT. No. 246 Water Resources (Projects-2) Department dated 25.04.2015

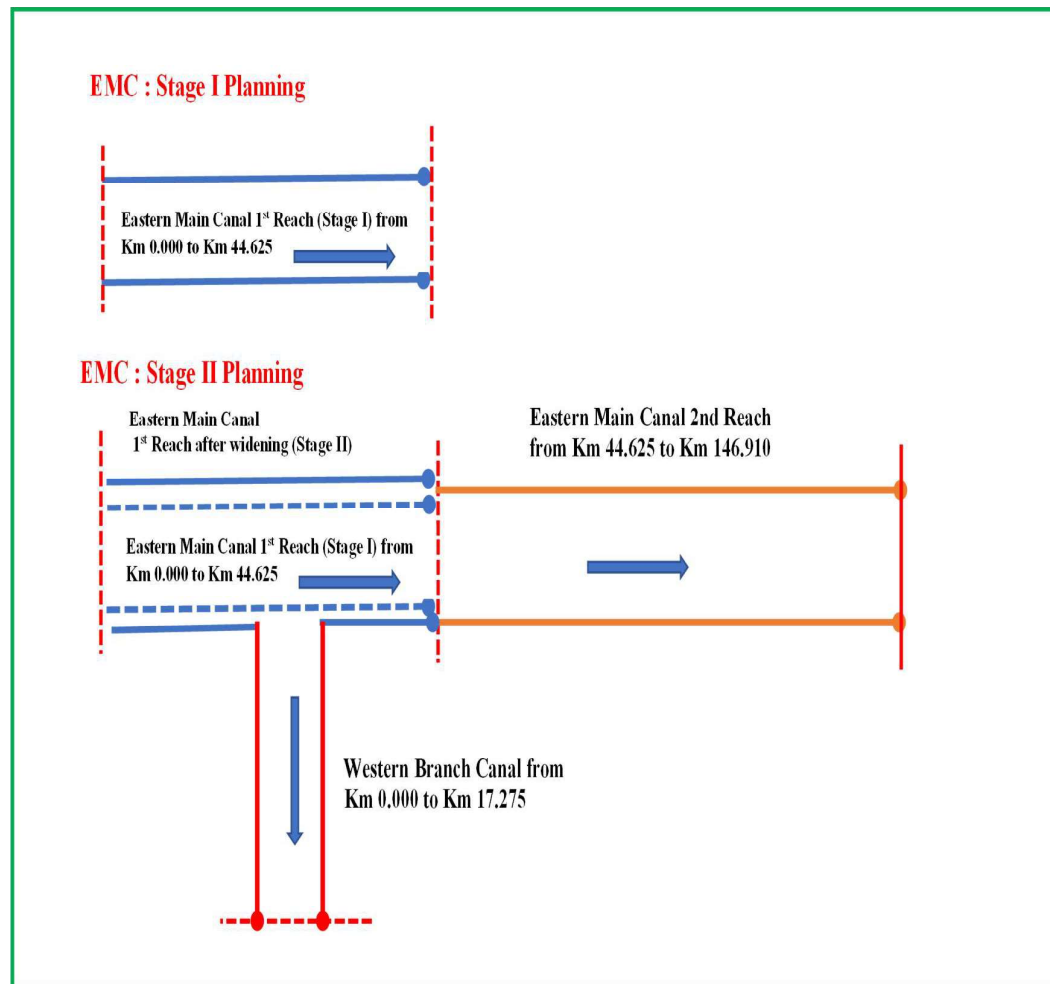
⁷² Performance Guarantees: ₹10.44 crore, Retention money Bank Guarantees: ₹10.00 crore and O&M component of ₹3.23 crore

⁷³ Gottipadia dam: ₹3.04 crore + Gottipadia canal: ₹0.19 crore

5.3 Planning and execution of Eastern Main Canal and distributary system

In Stage I, the EMC first reach was planned as a lined canal with a length of 44.625 Km. The distributary system under this canal would create an ayacut of 47,500 acres in Prakasam District. In Stage II, it was proposed to extend the EMC (second reach Km 44.625 to Km 146.910) to create an additional ayacut of 2,50,000 acres. Further, Western Branch Canal (WBC) was also proposed which takes off from Km 25.465 of EMC for creation of additional ayacut of 60,300 acres. In addition, 5,000 acres of ayacut was also proposed to be created under two independent reservoirs⁷⁴. The initial plan of EMC, its widening and second reach of EMC along with WBC is depicted in the following line diagram (*Not to scale*).

Line Diagram 6: Showing Eastern Main Canal and subsequent two canals



⁷⁴ Rallavagu and Gundlabrahmeswaram

A. Planning and execution of Eastern Main Canal from Km 0.000 to Km 44.625

The lined EMC would take off from the Nallamallasagar reservoir through a Head Regulator, near Kakarla dam, to draw water with 12.637 cumecs discharge capacity. The distributary system under this canal shall create an ayacut of 47,500 acres in Prakasam District. As per the scope of work, the investigation of main canal is to be carried out for both Stages I and II. Excavation of canal is to be done for Stage I. Further, investigation, design and execution of structures has to be made for Stage II. Under Stage II, for additional ayacut, the discharge capacity of the canal was increased to 123.620 cumecs (from 12.637 cumecs) by widening the canal.

The excavation of EMC upto Km 44.625 including structures, distributary system along with O&M were taken up as a component under Package IV. The work was entrusted (August 2005) to a contractor⁷⁵ on EPC system. Further, the widening of canal for Stage II was also entrusted to the same contractor and supplementary agreement was concluded (January 2009).

Subsequently, components viz., “Excavation of approach channel from reservoir to Head Regulator, excavation of tunnel from Head Regulator to EMC and formation of approach road to the top of Kakarla NOF dam” was entrusted (November 2019) to another contractor⁷⁶ under LS contract.

5.3.1 Failure to identify the interconnected components between two stages during planning led to additional sanction and excess payment for structures

As per the scope of work (Package IV), the contractor has to execute a branch canal⁷⁷ beyond Km 44.625 of EMC. Meanwhile, the Government extended (February 2009) the EMC (Package VI - Km 44.625 to Km 146.910) under Stage II and entrusted (February 2009) the work to another contractor⁷⁸.

As per designs, the branch canal under Package IV and EMC (second reach) under Package VI are running parallel to each other from Km 44.625 to Km 61.675. To avoid, execution of parallel canals, the Package IV and VI contractors entered into a Memorandum of Understanding (MoU) between themselves. As per this MoU, the Package VI contractor agreed to accommodate 14.524 cumecs⁷⁹ discharge of branch canal of Package IV in the Main canal of Package VI. This discharge was accommodated by widening the main canal⁸⁰ of Package VI.

Further, the Package IV contractor agreed to pay ₹4.39 crore to Package VI contractor for accommodating the discharge of Package IV branch canal. The Department approved the EMC second reach designs, after accommodating the additional discharge, submitted by the contractor by stating that the land acquisition cost for

⁷⁵ Ms/ SCL-BSCPL (JV)

⁷⁶ M/s. SCL Infratech Ltd.

⁷⁷ serves for an ayacut of 28,000 acres through three Off takes i.e., 12 L Major at Km 51.200, 13 L Major at Km 56.750 and OT of 14 L Major at Km 61.550

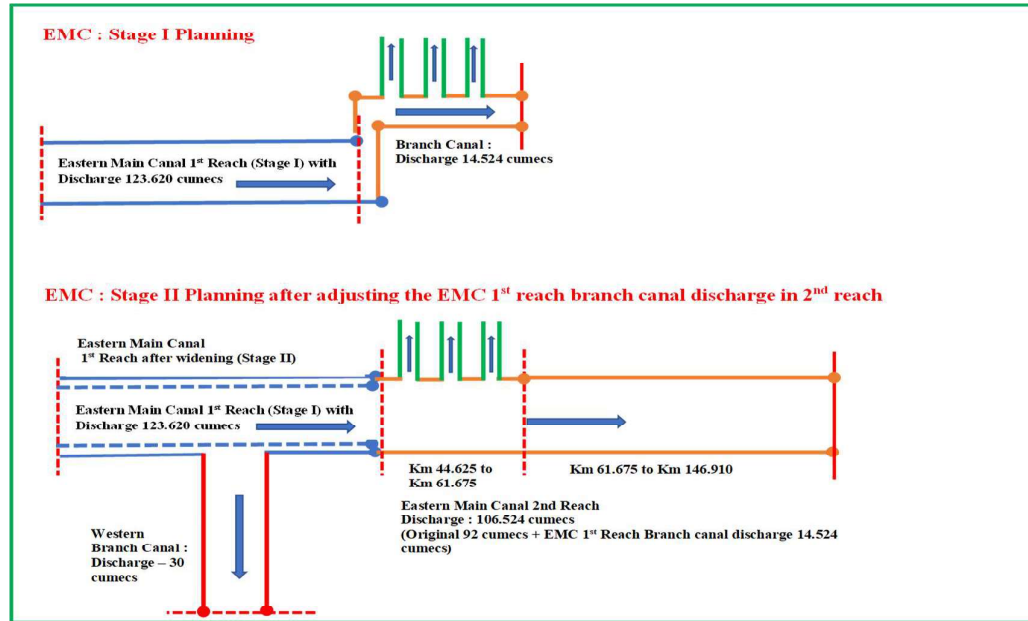
⁷⁸ Package VI – M/s MRKR – ZVTS (JV))

⁷⁹ 106.524 cumecs – 92 cumecs

⁸⁰ between Km 44.625 to Km 61.675

branch canal would be avoided. Line diagram showing the above was depicted below (*Not to scale*):

Line Diagram 7: Showing the adjustment of branch canal between two canals



Audit noticed that:

- The Department paid an amount of ₹11.88 crore to the Package IV contractor for the branch canal even though the branch canal was never executed. Since the additional cost involved in widening the EMC second reach was only ₹4.39 crore as per MoU between the two contractors, there was excess payment of ₹7.49 crore (₹11.88 crore - ₹4.39 crore) to the Package IV contractor. Had the Department reviewed the designs while planning for Stage II and deleted the branch canal from Package IV while adding in Package VI, the excess payment could have been avoided.
- For accommodating the additional discharge pertaining to branch canals in the EMC second reach (Package VI), the width of the EMC⁸¹ was increased. Considering the additional width, based on the approved drawings, additional quantities were sanctioned in respect of 16 structures coming in this length. As such, the cost of structures for this additional width (excavated to accommodate the discharge of branch canal) became additional financial burden to the Government.

The Government admitted (January 2023) that the designs of EMC (second reach) was reviewed and were changed to carry out the additional discharge⁸² resulting in cost saving of ₹74.63 crore towards land acquisition and additional sanctions. Further, it was replied that the additional financial implication in execution of structures as pointed out by Audit was admitted and the same was calculated as ₹7.85 crore on prorata basis with

⁸¹ between Km 44.625 to Km 61.675

⁸² of 12L, 13L and 14L majors

reference to canal discharge. The cost of excavation of tail end branch canal was included in the distributary network provision. Hence, Audit statement that payment of ₹11.88 crore to the Package IV contractor towards branch canal, which was never executed, was only assumption without any basis.

The reply regarding cost saving of ₹74.63 crore towards land acquisition is not acceptable, as there would be no necessity to acquire the lands for excavation of branch canal, had the department initially planned properly for execution of main canal. As such, it could not be treated as saving. The department allowed to transfer an amount of ₹11.88 crore from distributary network to main canal and paid to the contractor instead of reducing the contract value as branch canal was not executed by the Package IV contractor. Further, there was an additional financial burden of ₹7.85 crore, as accepted by the department towards structures.

Hence, responsibility may be fixed, and action is to be initiated against the erring officials.

5.3.2 Incorrect deduction of earthwork quantity from the total quantities for Stage II parameters

Scrutiny of records of EMC (Package IV) revealed that the contractor estimated 64,00,000 cum of earth work and 6,00,000 cum of embankment and the same was incorporated in the Agreement. The Stage I IBM provides for 62,74,331 cum of earth work and 6,19,560 cum of embankment.

During execution of canal for Stage II, the Department while calculating additional quantities, deducted quantities as per original IBM instead of quantities mentioned in the agreement. Accordingly, the additional quantities required for Stage II was assessed and revised agreement was concluded with the same contractor.

Audit observed that the bids were invited on EPC contract wherein the bidder has to quote his price based on his own assessed quantities to be executed. As such, quantities over and above the estimated quantities has to be sanctioned in cases where scope of work increases. However, the Department sanctioned quantities over and above the original IBM quantities. This resulted in excess sanction of ₹0.51 crore. Out of this, an amount of ₹0.45 crore was already paid as of November 2020.

The Government replied (January 2023) that the quantities mentioned in Data Sheet has no relevance in arriving at the additional quantity and comparison of these additional quantities is not correct.

The reply is not acceptable, as the bid price quoted by the contractor was based on bidders' estimated quantities and as such these quantities has to be deducted while sanctioning additional quantities to the contractor.

5.3.3 Entrustment of works within the scope of original work to new contractor as new items

As per clause 23(c) of agreement, the bidder has to take full responsibility for the survey, investigation, design and engineering and execution of entire canal system including commissioning and trial run. The scope of work as per original agreement

concluded (August 2005) under EPC contract include excavation of EMC and distributary system to create an ayacut of 47,500 acres.

The Department prepared separate estimate for ₹23.78 crore towards (i) excavation of approach channel from reservoir to head regulator for ₹2.39 crore (ii) excavation of tunnel from Head regulator to EMC for ₹16.03 crore and (iii) Formation of approach road to top of NOF dam of Kakarla gap and Head Regulator of EMC for ₹5.36 crore. After inviting bids under LS contract system, these items were entrusted to another contractor⁸³ for ₹23.57 crore.

Audit noticed that the works mentioned at (i) and (ii) in the para above i.e., excavation of approach channel from reservoir to head regulator and excavation of tunnel from head regulator to EMC were integral part of creation of ayacut. The water cannot be drawn for creation of ayacut without executing these items.

Though these items were within scope of original contractor, instead of executing these items with first contractor, the Department, by treating them as new items, entrusted to new contractor at a cost of ₹21.24 crore⁸⁴. Out of this, an amount of ₹2.40 crore was already paid as of November 2020. This resulted in additional financial burden to the Government.

The Government replied (January 2023) that due to change in location of Head Regulator, excavation of approach channel and tunnel was necessitated. These items were not included in the IBM and as such there was change in scope of work. Further, the contractor initially agreed (January 2011) to execute these works as additional items of work and subsequently (April 2016) expressed unwillingness to execute due to increase in prices of labour, POL and materials as the original estimate was prepared with Standard Schedule of Rates (SSR) 2004-05. Hence, the estimate was recasted with SSR 2016-17 and entrusted to new contractor by inviting tenders.

The reply is not acceptable, as the design of the components is the responsibility of contractor in EPC system and change in location of Head Regulator could not be treated as a change in scope of work. Further, as per the agreement conditions, the contractor has the responsibility to design and construct the head regulator to cater an ayacut of 3,57,800 acres. As such, these additional items would fall under the scope of work of original contractor.

5.3.4 Excess payment towards controlled blasting charges

The Government instructed⁸⁵ (February 2015), whenever and wherever controlled blasting is needed or has to be resorted to beyond what is permitted in the contract, the same shall be allowed by State Level Standing Committee (SLSC) and High-Power Committee as per actual ground situation and as per recorded evidence. The Government issued orders⁸⁶ (June 2015) to consider the claims towards earth work excavation when actual excavation was made by controlled blasting. The Department

⁸³ M/s. SCL Infratech Ltd., Hyderabad with 0.90 per cent less

⁸⁴ Estimate value: ₹21.43 crore (-) tender discount at 0.90 per cent

⁸⁵ Para 4 (v) of G.O.Ms. No.22 Irrigation and CAD (Reforms) Department dated 23.02.2015

⁸⁶ Para 3. III of G.O.Ms. No. 63 Water Resources (Reforms) Department dated 12.06.2015

has to submit the proposal to District Level Sanction Committee (DLSC) and based on their recommendations, the same would be referred to SLSC. Further, as per Para VI (ii) of the above orders, 75 per cent payments would be made based on the recommendation of DLSC pending final approval from SLSC.

Government approved⁸⁷ (July 2016) controlled blasting rate for the year 2004-05 as ₹237.37 per cum in respect of canals with more than 15 cumecs discharge capacity and for average depth of excavation of hard rock with more than three meters. Further, the manual blasting rate of ₹89.48 per cum (Rate as per IBM ₹99.50 per cum minus tender discount at 10.067 per cent) has to be deducted from the above approved rate as the same was included in original agreement value.

Scrutiny of records⁸⁸ revealed that the DLSC, prior to issue of above orders, approved (December 2015) blasting rate of ₹293.44 per cum after deducting tender discount for a quantity of 8,44,074 cum. Accordingly, an amount of ₹10.63 crore was paid for a quantity of 7,40,489.40 cum as of November 2020.

Audit noticed that the controlled blasting rate sanctioned by DLSC was higher than the rate communicated by Government. The actual payment due for control blasting, as calculated by audit, comes to ₹5.23 crore (7,40,489.40 cum x ₹70.62 per cum⁸⁹). Thus, there was an excess payment of ₹5.40 crore (₹10.63 crore minus ₹5.23 crore).

The Government replied (January 2023) that an amount of ₹8.94 crore was only paid towards control blasting. As per the rate approved by the Government, an amount of ₹9.18 crore has to be paid to the contractor. Proposal was submitted to SLSC and the difference amount of ₹0.24 crore would be paid after obtaining sanction of Government based on the recommendation of SLSC.

The reply is not acceptable. Till the receipt of final recommendations of SLSC, the actual amount to be paid towards controlled blasting was ₹5.23 crore as per Government orders. Further, as per RA bill 119 & part, an amount of ₹10.63 crore was paid to the contractor, but not ₹8.94 crore as replied by Government.

B. Planning and execution of Eastern Main Canal from Km 44.625 to Km 146.910

The components involved in the excavation of EMC from Km 44.625 to Km 146.910 including structures, formation of Peddireddipalli reservoir and distributary system along with O&M were taken up under Package VI. The work was entrusted to a contractor⁹⁰ under EPC contract system. After completion of certain portion of work, the balance work costing ₹535.88 crore was transferred/entrusted to new contractor⁹¹ (Lead partner of original contractor).

⁸⁷ G.O.Ms. No. 77 Water Resources (Reforms) Department dated 25.07.2016

⁸⁸ Supp Agt. No. 1007/2015-16 dated 18.12.2015

⁸⁹ {₹ 237.37 (-) tender discount at 10.067 per cent} x 75 per cent – {Initial rate : ₹99.50 (-) tender discount at 10.067 per cent}

⁹⁰ M/s. MRKR – ZVTS Consortium

⁹¹ M/s. MRKR Constructions and Industries Private Limited being a lead partner in JV

5.3.5 Boosting of Internal Benchmark

(a) Adoption of different ayacut in IBM and agreement resulted in boosting of IBM

As per the scope of work⁹² of Package VI (EMC second reach), the contemplated ayacut under this package was 2,50,000 acres. However, provision made in IBM was for 2,64,500 acres⁹³ at ₹10,500 per acre. This resulted in boosting the value of IBM by ₹15.22 crore (14,500 acres x ₹10,500 per acre).

Similarly, a provision of ₹0.15 crore for sluice gate under Udayagiri branch canal was made in the IBM. As this item falls under distributary network, the cost should be borne from the cost of distributary network, which was provided separately. Incorporation of separate provision resulted in boosting of IBM by ₹0.15 crore. Thus, overall, the IBM was boosted by ₹15.37 crore (₹15.22 crore plus ₹0.15 crore).

(b) Non deduction of tunnel reaches from earthwork resulted in boosting of IBM

The alignment of EMC (second reach) passes through three tunnels⁹⁴ enroute. The quantities to be executed under canal and these tunnels were assessed separately.

Audit noticed that the quantities to be executed under two tunnel reaches⁹⁵ were assessed under both canal and tunnel portion. Inclusion of same item twice in IBM resulted in boosting of IBM value by ₹3.97 crore.

Due to boosting of IBM, the bids were compared with higher cost and contracts were awarded for a higher amount than is necessary.

The Government admitted (January 2023) that the cost of distributary network for an extent of 14,500 acres and inclusion of quantities under tunnel reaches was erroneously incorporated twice in IBM. However, boosting of IBM would not have any impact on bid price quoted by the contractor. Further, Government replied that the Vigilance and Enforcement (V&E) department had also raised the same issue (September 2014) and recommended to modify the payment schedule and regularise the payment. Government submitted that action would be taken on the recommendations of V&E.

The reply is not acceptable, as no action has been taken, despite lapse of more than eight years since rectification/modification recommended by V&E Department.

5.4 Planning and execution of Western Branch Canal

The excavation of lined Western Branch Canal (WBC) was taken up under Package VII. The various components under the package involves, construction of pump houses, erection of pressure mains including construction of five lifts along with CM & CD

⁹² corrigendum No.7/2008-09 “Basic Parameters”

⁹³ EMC – 90,000 acres, E6, E7 and E8 Branch canal – 1,08,000 acres, Udayagiri branch canal – 52,000 acres, E13 block distributary under Udayagiri branch canal 14,500 acres

⁹⁴ at Chainages Km 67.850 to Km 71.450: 3,600 m, Km 109.50 to Km 111.20: 1,700 m and Km 143.06 to Km 143.51: 450 m

⁹⁵ Km 109.50 to Km 111.20: 1,700 m and Km 143.06 to Km 143.51: 450 m

works, distributary system, formation of balancing reservoir (Seetharamsagar) and improvements to Racheruvu tank along with O&M of canal. The work was entrusted (February 2009) to a contractor⁹⁶ under EPC contract.

The WBC was planned to take off at Km 25.465 on EMC. This necessitated for construction of an off take regulator at Km 25.465 on EMC to distribute water between WBC and downstream of EMC.

5.4.1 Procurement of Hydro and Electromechanical equipment

(a) Advance procurement of hydro and electromechanical equipment led to idling and blockade of funds

Scrutiny of records pertaining to Package VII revealed that the contractor had procured Hydro and Electromechanical equipment at a cost of ₹82.18 crore (*as detailed in Appendix-VI*) required for five Lifts useful to lift water from Western Branch Canal and payment was made accordingly.

Audit observed that these items were useful to lift water, which was required only after completion of canals, pressure mains, distributaries, field channels under this package and after impounding of water into Nallamallasagar reservoir. Audit noticed that these items were brought during 2014 and amounts were paid. However, copy of bill in which payments made for these items was not made available to audit.

Though there was no immediate necessity, these items were procured and kept idle since 2014. Improper planning to procure the items without assessing the time required to complete the components as stated above not only resulted in blockade of funds to a tune of ₹82.18 crore but also idling of items. Thus, the actual utility/functioning of equipment (procured in advance) after being kept idle for more than eight years is doubtful.

The Government replied (January 2023) that procurement of hydro mechanical equipment could not be postponed as this component has a fixed schedule as per milestone programme and early completion of one component could not be projected as idling of completed components. It was also replied that six months' time was anticipated for handing over of land, accordingly, this equipment was procured. Due to non-acquisition of land, these items were kept idle. Further, the price escalation would be ₹52.96 crore if procured at a future date.

The reply is not acceptable, as the initial schedule to procure this material has to be planned in such a manner that there should not be any idling of equipment. Further, the price escalation on 'other material' came into force in February 2015 only, whereas the required equipment was procured prior to this date.

⁹⁶ M/s. Pioneer Avantika ZVS KBL (JV)

(b) Non revision of percentage for supply of hydro and electromechanical equipment

Scrutiny of original SoP (July 2011) revealed that 18.50 *per cent*⁹⁷ was adopted towards hydro and electromechanical items for all five lifts. Subsequently, this was revised (April 2017) to 15.17 *per cent* in the revised SoP (**as detailed in Appendix-VII (A)**).

Despite the revision was made in the SoP from 18.50 *per cent* to 15.17 *per cent* for the said items, however, the payments were made based on 18.50 *per cent*. Similarly, for item pertaining to Lift 1, the percentage of 2.28 *per cent* was erroneously adopted though the actual to be adopted was 2.16 *per cent* (**as detailed in Appendix-VII B**).

Non-revision of percentage from 18.50 to 15.17 for hydro and electromechanical items for Lift 1 to 5 and adoption of higher percentage for Lift 1 resulted in excess payment of ₹15.53 crore (**as detailed in Appendix-VII C**).

The Government replied (January 2023) that the payment made to the contractor was less than the amount earmarked in the payment schedule. Further, the adoption of proportionate rate to each sub-component was not correct when revision in percentage of payment was made.

The reply is not acceptable, as the percentage adopted for different hydromechanical components was subdivided into smaller percentages for each sub-component. As such, these smaller percentages are to be considered for payment to contractor. Further, when the total component percentage was revised, the percentages of the sub-components are also to be revised. However, the same was not done and which resulted in excess payment to contractor.

5.5 Other significant observations

5.5.1 Failure to adhere to EPC contract system

The works were entrusted under EPC contract system wherein the contractors have to execute the works based on scope of work without referring the quantities involved. The payments are to be made based on certain percentages allocated to each component in the SoP.

The Government instructed⁹⁸ (February 2015), as and when extra structures needed as well for extra quantities, within the original scope of work, no additional payments would be made. However, in the guidelines to the above order, it was stated that payment of arrears would be made where there was variation between estimated quantities and actual execution due to changes in design owing to unforeseen discovery in site geology or change in basic project parameters, etc. However, there was no mention in the above order regarding reduction in length of canals, reservoir bunds and decrease in quantities as per execution when compared with IBM quantities.

Audit observed that the Department sanctioned additional quantities over and above IBM quantities in respect of structures, tunnels, etc., though, there was no change in scope of work. On the other hand, whenever and wherever there was reduction in the

⁹⁷ Lift 1–3.71; Lift 2–1.85; Lift 3–1.85; Lift 4–5.55; Lift 5–5.55 in *per cent*

⁹⁸ Para 4 (iii) of G.O.Ms. No.22 Irrigation and CAD (Reforms) Department dated 23.02.2015

execution of length of canals, earthen bunds of reservoir and also decrease in quantities executed when compared to IBM, the contract price was not reduced proportionately as discussed in the subsequent paragraphs.

(a) Sanction of additional quantities despite no change in scope of work

Scrutiny of records of four Packages (II, IV, VI and VII) revealed that the Department sanctioned an additional amount of ₹249.56 crore towards additional quantities, though there was no change in scope of work as detailed below in **Table 5.1**. The details of individual cases are discussed in **Appendix-VIII(A)**.

Table 5.1: Showing the additional quantities sanctioned for no change in scope of work

(₹ in crore)

Package Number	Purpose of Sanction	Additional sanction made	Payment made
II (Feeder canal & Teegaleru Canal)	Additional quantities for structures due to change in discharge capacity from 85 to 328 cumecs	37.87	0.00
IV (EMC first Reach)	Additional quantities and increase in number of structures from 30 (as per IBM) to 49 (as per approved designs)	36.40	19.49
VI (EMC second Reach)	Additional quantities for structures and tunnels above the IBM quantities	114.19	22.97
VII (WBC)	Additional quantities for structures, cost of pump houses, increase in number of structures from 21 (as per IBM) to 35 (as per execution) and additional quantities in surplus weir of Turimella Reservoir above the IBM quantities	61.10	28.16
Total		249.56	70.62

Source: Compiled as per information furnished by the Department

(b) Non-accrual of savings due to reduction in length of canals

Scrutiny of records of three Packages (III, VI and VII) revealed that the Department did not reduce the proportionate cost of ₹22.58 crore though there was reduction in length of canals/reservoir bunds executed when compared to agreement as detailed below in **Table 5.2**. The details of individual cases are discussed in **Appendix-VIII(B)**.

Table 5.2: Showing the non-reduction of proportionate cost for savings in works

(₹ in crore)

Package Number	Description	Total cost	Total length as per agreement (Km)	Total length as per execution (Km)	Reduced length (Km)	Proportionate cost for reduced length
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III (Gottipadia canal)	Reduction in length of canal	1.88	12.875	11.440	1.435	0.21
VI (EMC second reach)	Reduction in length of earthen bund	86.70	2.100	1.650	0.450	18.77
VII (WBC)	Reduction in length of canal	10.58	17.275	14.315	2.960	3.60
Total						22.58

Source: Compiled as per information furnished by the Department

(c) Non accrual of savings in quantities as per execution

Scrutiny of records of Package IV revealed that the Department did not reduce the proportionate cost though there was reduction in quantities of earth and concrete works as per execution when compared with the quantities as per IBM. The cost of difference in quantity, as calculated by audit was ₹111.82 crore as detailed in **Table 5.3**. The details of individual cases are discussed in **Appendix-VIII(C)**.

Table 5.3: Showing the reduction in finally executed quantities than the quantity arrived in IBM

(₹ in crore)						
Package Number	Description	Total cost	Quantity to be executed as per IBM (cum)	Quantity as per actual execution (cum)	Difference (cum)	Cost of difference in quantity
IV	Link canal	50.09	50,11,837	33,05,518	17,06,319	16.90
	EMC (First reach)	120.04	1,99,73,392	1,55,00,000	44,73,392	26.89
	Kakarla dam	170.81	2,68,138	2,27,600	40,538	7.55
VI	EMC (Second reach)	152.76	1,62,55,169	1,01,02,025	61,53,144	60.48
Total						111.82

Source: Compiled as per information furnished by the Department

Audit noticed that whenever there was an increase in quantities / number of structures over and above the provisions as per IBM, the Department compared the quantities with that of the IBM and allowed payment for additional quantities without referring the scope of work. However, suitable reduction in contract price was not made whenever there was savings in quantities / decrease in length of canals and reservoir bund on the pretext that the works were executed based on scope of work and in EPC contract system, the quantities could not be considered.

From the above it is evident that due to unclear definition of 'Scope of Work / Basic Parameters', sanction of excess quantities over and above the IBM are allowed, whereas the savings are not being accrued to the Government.

The Government replied (January 2023) that reduction in executed quantities and reduction in length of canal compared to IBM could not be classified as savings. Further, replied that sanction towards additional quantities was made on account of change in design and due to increase in number of structures, as per approved Hydraulic Particulars over and above IBM based on the Government orders.

The reply is not acceptable. The Government on one hand compared quantities mentioned in IBM for structures / tunnels, etc., whereas for earthwork similar analogy was not adopted. Further, as per Government orders, the basic parameters for canals are canal discharge capacity, full supply level, command area to be covered, location of starting and ending of canal and distributaries. As such, change in design and increase in number of structures does not account for basic parameters. Hence, sanction of additional quantities over and above IBM is incorrect and thus resulted in undue advantage to the contractors.

Thus, Government needs to reassess the EPC contract system by clearly defining the scope and specification of work to safeguard Government interest.

5.5.2 Irregular payment of price variation

The contractor is eligible for escalation of prices in respect of steel/ fuel if variation in price is beyond five *per cent* over the initial rate as mentioned in IBM.

(a) Adoption of lower price of steel in agreement resulted in excess payment towards price variation

The steel rate adopted in IBM has to be taken as initial rate, as the IBM was approved based on the material rates as per SoR. As such, this rate has to be treated as initial rate for assessing the increase/decrease in rate. As per agreement conditions⁹⁹, the variation in prices of steel beyond five *per cent* over the initial rate has to be paid based on actual quantity used in the work.

Scrutiny of records of Package II revealed that, in IBM, the steel rate adopted was ₹28,000 per MT as per SoR 2004-05. The Department, in the agreement, adopted the initial rate of steel as ₹27,500 per MT. Further, the Department calculated variation in steel rate, by considering the initial rate of ₹27,500 per MT as adopted in agreement and payments were made accordingly.

Audit noticed that the initial rate of steel adopted in agreement was less than the steel rate as per SoR/IBM. Failure to adopt the rate provided in IBM/SoR in the agreement and considering price variation over and above ₹27,500 per MT instead of ₹28,000 per MT resulted in excess payment of ₹0.12 crore (*as detailed in Appendix-IX*).

The Government admitted (January 2023) the audit observation and promised to recover the excess payment.

⁹⁹ clause No. 46.2 of agreement

(b) Excess payment of price variation charges for fuel

As per agreement condition¹⁰⁰ of Package IV, price variation in respect of fuel has to be calculated based on the formula¹⁰¹ in cases where variation in cost is beyond five *per cent* over the initial rate. The formula contains four components i.e., ‘PF’ (Fuel Factor), ‘R’ (Value of work done after excluding Value Added Tax (VAT) and Seigniorage charges), F₁ (the Cost of petrol per litre on the 15th day of the middle month of the quarter in the nearest petrol bunk) and F₀ (the cost of petrol per litre in the nearest petrol bunk on the last date of submission of bids with five *per cent* variation, i.e. ‘Initial rate’ \pm five *per cent*).

The Department calculated the ‘PF’ and ‘R’ values. ‘F₁’ values on the 15th day of every month was obtained. Accordingly, price variation bills were sanctioned and paid periodically as calculated using the formula. Subsequently, the initial sanctions were revised by adopting incorrect ‘R’ value (by deducting VAT at 2.8 *per cent* instead of prevailing four *per cent*) and ‘F₀’ value in denominator (‘initial rate’ instead of ‘initial rate \pm five *per cent*’). Accordingly, the Department made additional sanctions¹⁰² of ₹4.50 crore (January 2014: ₹3.95 crore & November 2017: ₹0.55 crore) and difference in variation was paid.

Audit noticed that the ‘R’ value has to be calculated after deducting VAT at four *per cent* instead of 2.8 *per cent*. Further the ‘F₀’ value in denominator of the formula should be adopted as ‘initial rate \pm five *per cent*’ instead of ‘initial rate’. This resulted in excess payment of ₹2.91 crore towards price variation as detailed in *Appendix-X*.

The Government replied (January 2023) that adoption of ‘F₀’ value was correct in view of orders issued (November 2021) in this regard¹⁰³ and admitted the audit objection in respect of adoption of VAT percentage and promised to revise the calculations and to recover the excess paid amount.

The reply in respect of adoption of ‘F₀’ value was not correct. As in the above said Government Order, it was mentioned (Para No. 7) that instructions given in the order are not applicable to works taken up prior to this order and orders issued earlier would continue to apply for all ongoing works, as per agreement conditions.

5.5.3 Front payments to contractors

As per agreement conditions¹⁰⁴, the contract price shall be the total value of work for the EPC contract including maintenance of total system for two years from the date of issue of completion certificate. The contract price would be divided into various works components/sub-components and their cost specified in percentage terms in the SoPs in the agreement. The interim payments for each sub-component would be regulated out of the percentage cost so assigned. There were different components involved in each package. The execution of these components would be made one after another. As such,

¹⁰⁰ general condition No. 46.3 of agreement

¹⁰¹ $0.85 \times (PF/100) \times R \times ((F_1 - F_0) / F_0)$

¹⁰² proceeding No.SE/CC(P)/OGL/DB/TO/JTO-3/P-IV/W-29/4 dated 08.01.2014 & proceeding No. SE/CC(P)/OGL/DB/TO/ATO-R/P-IV/W/29/218 dated 21.11.2017

¹⁰³ G.O.Ms. No. 62 dated 30.11.2021

¹⁰⁴ clause 37.1 and 37.4 of General conditions of contract

the execution of dams and main canal would be made initially, and distributary network would be made later. Further, the component 'Operation and Maintenance' (O&M) would be made only after completion of entire components under the project.

Audit noticed that the SoPs were incorrectly approved by adopting higher percentage in respect of dams and main canals and reduced percentages in respect of distributary network and O&M. This resulted in front payments to contractors/locking up of funds as discussed in the following paragraphs.

(a) Adoption of lower cost for distributary network in payment schedule resulted in front payment to contractor

To create the contemplated ayacut of 62,000 acres under Package II (Teegaleru canal), the rate adopted in IBM was ₹54.56 crore at ₹8,800 per acre. As per the agreement entered (November 2004) with the contractor this cost would be ₹52.12 crore¹⁰⁵ (after deducting tender discount at 4.48 *per cent*). The Government enhanced¹⁰⁶ (January 2010 / June 2015) the distributary network rate to ₹10,500 per acre¹⁰⁷. Subsequently, supplementary agreement¹⁰⁸ for ₹12.98 crore¹⁰⁹ was concluded (November 2018) with the contractor for difference in rate of distributary network. As such, the total agreement cost for distributary network comes to ₹65.10 crore (₹52.12 crore + ₹12.98 crore).

The total cost of Package II, as per agreement/SoP was ₹361.36 crore. Out of this, the distributary network cost was ₹65.10 crore (18.02 *per cent*) and the remaining amount of ₹296.26 crore (81.98 *per cent*) pertains to balance components of work. As such, the same rates should be adopted in the SoP.

However, in SoP, the Department adopted ₹54.82 crore (15.17 *per cent*) for distributary network, and the remaining ₹306.54 crore (84.83 *per cent*) for balance components. The execution of balance components and distributary network were in progress. The Department paid an amount of ₹285.54 crore towards the balance components and ₹3.65 crore towards distributary network as of November 2020.

Audit noticed that the values adopted in respect of balance components (other than distributary network) was higher than the agreement rates by ₹10.28 crore (₹306.54 crore - ₹296.26 crore). The actual payment to be made, at agreement rate, was ₹275.96 crore. (₹285.54 crore x ₹296.26 crore / ₹306.54 crore). However, an amount of ₹285.54 crore was paid. As such, there was a front payment of ₹9.58 crore (₹285.54 crore - ₹275.96 crore).

(b) Adoption of lower cost for distributary network, O&M in payment schedule resulted in front payment to contractor

Scrutiny of records¹¹⁰ of Western Branch Canal revealed that the total contract value was for ₹753.14 crore. This includes the cost of distributary network for ₹69.93 crore (9.28 *per cent*), Operation & Maintenance (O&M) for ₹44.11 crore (5.86 *per cent*) and

¹⁰⁵ 62,000 acres x ₹8,800 per acre as per IBM=₹54.56 crore minus ₹54.56 crore x 4.48 *per cent*

¹⁰⁶ para 2(a) of Memo. No. 34843/Reforms/A1/2006 dated 04.01.2010

¹⁰⁷ ₹9,000 per acre for distributary plus ₹1,500 per acre for field channels

¹⁰⁸ No. 59/2018-19 dated 30.11.2018

¹⁰⁹ 62,000 acres x ₹10,500 minus ₹52.12 crore

¹¹⁰ original IBM, agreement and schedule of payment

the remaining amount of ₹639.10 crore (84.86 per cent) pertains to balance components of work. As such, the same rates should be adopted in the SoP.

However, in SoP, the Department adopted ₹45.90 crore (6.09 per cent) for distributary network, ₹25.52 crore (3.39 per cent) for O&M and ₹681.72 crore (90.52 per cent) for balance components. The execution of these balance components was in progress and an amount of ₹485.51 crore¹¹¹ was paid as of November 2020. The components viz., distributary network and O&M was not yet grounded.

Audit noticed that the values adopted in respect of components which were in progress were higher than the agreement rates by ₹42.62 crore (₹681.72 crore - ₹639.10 crore). The actual payment to be made, at agreement rates, was ₹455.16 crore (₹485.51 crore x ₹639.10 crore / ₹681.72 crore). However, an amount of ₹485.51 crore was paid. This resulted in front payment of ₹30.35 crore (₹485.51 crore - ₹455.16 crore).

(c) Adoption of lower cost for O&M in payment schedule resulted in front payment to contractor

The Package VI (EMC second reach) was first entrusted (February 2009) to a Joint Venture (JV) firm for an amount of ₹1,135.85 crore. While the execution of components was in progress, the balance works worth ₹535.88 crore was transferred (September 2015) to another contractor, who is a lead partner in the above Joint Venture firm.

Scrutiny of records of EMC second reach revealed that the total contract value was for ₹1,135.85 crore. This includes the cost of O&M of ₹10.72 crore (0.94 per cent) and the remaining amount of ₹1,125.13 crore (99.06 per cent) pertains to balance components of work. As such, the same rates should be adopted in the SoP. However, in SoP, the Department adopted ₹5.45 crore (0.48 per cent) for O&M and ₹1,130.40 crore (99.52 per cent) for balance components. The execution of these balance components was in progress and the O&M component would commence after completion of project.

Audit noticed that the values adopted in respect of components which were in progress were higher than the agreement rates by ₹5.27 crore (₹1130.40 crore - ₹1125.13 crore). The actual payment that to be made, at agreement rates, was ₹595.46 crore (₹598.25 crore x ₹1,125.13 crore / ₹1,130.40 crore). However, an amount of ₹598.25 crore was paid. This resulted in front payment of ₹1.01 crore to the subsidiary contractor. Further, due to deletion of work from original contractor, an amount of ₹2.77 crore was locked up with the original contractor for more than seven years without recovery as shown in *Appendix-XI*.

Regarding front payments to contractors, the Government replied (January 2023) that if the agency succeeds in completion of the work as per scope of the agreement, then the issue of front payment does not have any relevance. Further, Government promised to recover the balance value of work as per agreement rates/payment schedule, whichever is higher in case the agency fails to complete the work and opts for pre-closure.

¹¹¹ ₹513.67 crore - Cost of Suppl Agt. No. 39/2017-18; ₹24.20 crore - Cost of Suppl Agt. No. 40/2018-19; ₹3.96 crore

The reply is not acceptable, as adoption of higher cost in the SoP, in respect of components which were executed first resulted in undue financial advantage to the contractor.

5.5.4 Inclusion of canal lining quantities along with structures led to excess sanction

As per agreement condition¹¹², the canals should be lined for a length of 30 m with cement concrete on upstream and downstream near the structures where canal discharge is 500 cusecs (14.1584 cumecs¹¹³) and more.

Scrutiny of records of Package IV (EMC first reach) and VI (EMC second reach) revealed that the canals proposed were lined canals and the quantities required to execute lining were estimated and included in the IBM. Further, the Department, at the time of sanction of additional quantities for structures, included canal lining valuing ₹1.54 crore and ₹2.47 crore (*Appendix-XII*) at agreement rates in Package IV and VI respectively. Out of above, an amount of ₹0.48 crore (₹2.47 crore x 19.54 per cent) was already paid in Package VI.

Audit noticed that in IBM (Package VI), the canal lining quantities were incorporated twice i.e., once for the entire length of the canal and then again for the 30 m around the structures. Inclusion of same component under both canal lining and structure quantities resulted in excess sanction of ₹4.01 crore and excess payment of ₹0.48 crore as of November 2020.

The Government admitted (January 2023) the audit observation in respect of Package VI and promised to delete the lining quantities on structures at the time of submission of proposals to the SLSC. In respect of Package IV, it was replied that there was no duplication of quantities of lining.

The reply in respect of Package IV is not acceptable, as lining quantities were not deducted at the time of sanction of additional quantities in structures. As such, there was a duplication, which needs rectification.

5.5.5 Irregular reimbursement of banker's and insurance charges

The Government ordered¹¹⁴ (July 2003) to make a lumpsum provision towards banker's and insurance charges in the IBM and the bid price quoted by the contractor should be inclusive of above provisions. As such, the contractor has to bear the cost incurred towards payment of insurance premium and charges for obtaining BGs. Further, Government instructed¹¹⁵ (February 2015) to follow the existing codal provisions for reimbursement of banker's charge on BGs obtained towards Earnest Money Deposit

¹¹² clause no. 9 of Special conditions of contract

¹¹³ 1 cusec = 0.028316847 cumecs

¹¹⁴ para (1) (c) of Annexure I to G.O.Ms. No.94 Irrigation and CAD (PW-COD) Department dated 01.07.2003

¹¹⁵ para No. 4 (vi) of G.O.Ms. No.22 Irrigation and CAD (Reforms) Department dated 23.02.2015 and para 4(j) of guidelines appended to the G.O

(EMD)/ Mobilisation Advance and insurance charges paid by the contractors for works insured.

As per agreement conditions¹¹⁶, the successful bidder has to furnish EMD at 2.5 *per cent* of bid amount in the form of demand draft or BG, valid till work is completed in all respect. In addition to above, five *per cent* of the bill amount deducted from each bill towards retention amount can be released to contractor against submission of BG in spells of ₹50.00 lakh.

Scrutiny of bills revealed that in four packages (II to IV and VI) the Department reimbursed banker's charges worth ₹4.63 crore submitted towards EMD/Retention amount/ Mobilisation advance and in three packages (Package II, III and IV) insurance charges of ₹3.96 crore was reimbursed.

Audit noticed that, in Package VII, the banker's and insurance charges paid earlier were recovered from the contractor. As such, release of ₹8.59 crore (₹4.63 crore + ₹3.96 crore) towards insurance and BG charges was irregular.

The Government replied (January 2023) that the BG commission and insurance charges were recovered in Package No. VII based on the observations of Regional Vigilance and Enforcement Officer. Further, it was replied that no such instructions were received in respect of other packages and hence no recovery was made.

The reply is not acceptable, as reimbursement of bankers and insurance charges was against the codal provisions and hence needs to be recovered without linking the issue to the Regional Vigilance and Enforcement Officer directives.

5.5.6 Adoption of distributary network rate

(a) Irregular concluding of supplementary agreement towards distributary network resulted in excess sanction

Government ordered (January 2010¹¹⁷/June 2015¹¹⁸) to enhance distributary network rate as ₹10,500¹¹⁹ per acre without applying tender discount/premium. The CE clarified¹²⁰ (March 2021) that the tender discount/premium shall not to be applied on both initial rate and enhanced rate.

Scrutiny of records revealed that:

(i) For Teegaleru canal (Package II) the contemplated ayacut was 62,000 acres. The cost of distributary network at IBM rates was ₹8,800 per acre and at agreement rate was ₹8,406 per acre (after deducting tender discount of 4.48 *per cent*). The total cost of distributary network, at agreement rates, was ₹52.12 crore (62,000 acres x ₹8,406 per acre). As the rate for distributary network was increased to ₹10,500 per acre, the

¹¹⁶ package II & III: Para 13.1, 13.6, 13.11 and 13.7 of "Preparation of Bids" and para 47.1 and 47.2 of "Part A-Conditions of contract"; Package IV & VI : Para 15.1, 15.5 and 15.6 of "Preparation of bids" and para 47.1 of "Part A-Conditions of contract"

¹¹⁷ memo No. 34843/Reforms-A1 dated 04.01.2010

¹¹⁸ Para IV of G.O.Ms. No. 63 Water Resources (Reforms) Department dated 12.06.2015

¹¹⁹ distributary-₹9,000 per acre and field channel-₹1,500 per acre

¹²⁰ CE&DWRO/PKM DIST/OGL/DEE-1/AEE-3/KORGRP/Vol.15/241 dated 09.03.2021

Department calculated the difference in rate as ₹2,094 per acre (₹10,500 - ₹8,406) and an additional amount of ₹12.98 crore (62,000 acres x ₹2,094 per acre) was sanctioned. Accordingly, supplementary agreement was concluded (November 2018). Further, an amount of ₹3.65 crore¹²¹ (5.6 per cent) was paid out of the total distributary network cost of ₹65.10 crore (₹52.12 crore + ₹12.98 crore).

Audit noticed that the Department calculated the difference in cost of distributary rate by applying tender discount on initial rate. Without applying tender discount on initial rate, the difference in unit rate of distributary network, would be ₹1,700 per acre (₹10,500 - ₹8,800). Thus, the Department adopted an excess rate of ₹394 per acre (₹2,094 - ₹1,700) for distributary network. This resulted in excess sanction of ₹2.44 crore¹²². Out of this, an amount of ₹0.14 crore¹²³ was paid as of November 2020.

(ii) For Gottipadia canal (Package III) the contemplated ayacut was 9,500 acres. The cost of distributary network at IBM rates was ₹7,500 per acre and at agreement rate was ₹6,994 per acre (after deducting tender discount of 6.75 per cent). The total cost of distributary network, at agreement rates, was ₹6.64 crore (9,500 acres x ₹6,994 per acre). As the rate for distributary network was increased to ₹10,500 per acre, the Department calculated the difference in rate as ₹3,506 per acre (₹10,500 - ₹6,994) and an additional amount of ₹ 3.33 crore (9,500 acres x ₹3,506 per acre) was sanctioned. Accordingly, supplementary agreement was concluded (September 2015). No payment was made towards distributary network.

Audit noticed that the Department calculated the difference in cost of distributary rate by applying tender discount on initial rate. Without applying tender discount on initial rate, the difference in unit rate of distributary network, would be ₹3,000 per acre (₹10,500 - ₹7,500). Thus, the Department adopted an excess rate of ₹506 per acre (₹3,506 - ₹3,000) for distributary network. This resulted in excess sanction of ₹0.48 crore¹²⁴.

Thus, the overall excess sanction in both the packages comes to ₹2.92 crore (₹2.44 crore + ₹0.48 crore) and an amount of ₹0.14 crore was already paid in Package II.

The Government replied (January 2023) that the difference amount was correctly arrived at for the additional sanction by deducting the tender discount on initial cost.

The reply is not acceptable, as it was against the clarification/instructions given in Para 4 (ii) of the Government orders *ibid* / clarification given by the CE.

(b) Adoption of distributary network rate on lumpsum basis without estimating the actual cost

The cost of distributary network depends on quantity of earthwork to be excavated, embankment required, length and discharge capacity of canals, number and type of structures, etc.

¹²¹ ₹1.98 crore + ₹1.67 crore (up to RA Bill No. 104 and part)

¹²² 62,000 acres x ₹394 per acre

¹²³ ₹2.44 crore x ₹3.65 crore/₹65.10 crore (62,000 acres x ₹10,500 per acre)

¹²⁴ 9,500 acres x ₹506 per acre


Scrutiny of IBMs of five Packages (II, III, IV, VI and VII) revealed that, the distributary network rate was adopted based on contemplated ayacut multiplied by rate per acre without considering the above factors. The rate per acre adopted in Package VI and VII was uniform by adopting ₹10,500 per acre. In respect of Package II (₹8,800 per acre) and III (₹7,500 per acre), the rates adopted, initially, were less than ₹10,500 per acre and subsequently increased to ₹10,500 per acre in both Packages II and III. In respect of Package IV, the rate adopted, initially, was ₹12,000 per acre.

Audit noticed that the authority or the detailed calculations made, if any, to adopt cost of distributary network on the basis of 'Rate per acre' in IBMs/subsequent enhancement were not available.

The Government replied (January 2023) that the command area plays a significant role in arriving the cost of distributary network. As such, based on percentage of cultivable command area out of gross command area, the distributary network work rate was adopted initially. Subsequently, the Committee of Engineers studied the distributary cost of Telugu Ganga Project and made certain recommendations. Accordingly, Government ordered (January 2010) to enhance the distributary network rate.

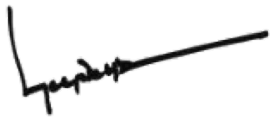
The reply is not acceptable, as at the first instance Government stated that 'the gross command area and cultivable command area play a significant role in arriving the distributary network rate'. Subsequently stated that 'as per studies conducted in other project, the Government ordered to adopt uniform rate'. Thus, no fixed stand was taken in arriving the cost of distributary network.

Vijayawada
The 12 Sep 2023


(INDU AGRAWAL)
Principal Accountant General (Audit)
Andhra Pradesh

Countersigned

New Delhi
The 19 Oct 2023


(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India