Chapter II

Performance Audit

Municipal Administration and Urban Development Department
Hyderabad Metropolitan Water Supply and Sewerage Board (HMWS&SB)

2.1 Water Supply in Hyderabad Agglomeration

Executive Summary

Hyderabad Metropolitan Water Supply and Sewerage Board (Board) is responsible for supply of 150 litres per capita per day (lpcd) of potable water in its jurisdiction covering a population of 69.93 lakh. The Performance Audit of the Board was conducted (during March to August 2018), covering the period 2013-18. The audit objectives were to seek an assurance as to whether the Board could supply water as mandated, towards which it planned, raised resources and implemented water supply system projects.

(Paragraphs 2.1.1 & 2.1.5)

Financial Management

Annual Accounts of the Board were in arrears. Board has not submitted the Annual Accounts for the period from 2013-17 to Government for approval. Annual Accounts for the years 2010-13 though submitted to Government were not approved by it.

(Paragraph 2.1.7.1)

In order to augment the financial resources of the Board, Government had directed Greater Hyderabad Municipal Corporation (GHMC) (July 2009) to transfer 25 *per cent* (later reduced to 15 *per cent* in November 2015) of the collection of water tax levied by GHMC as part of property tax to the Board. It was, however, noted that a sum of ₹761.96 crore was due from GHMC to the Board on this account as of March 2017.

(Paragraph 2.1.7.4)

The Board was financially weakened due to increasing operational costs (40 *per cent* during 2013-17) and inability to collect water dues (accumulated revenue arrears of ₹1,209.86 crore as of March 2018). The accumulated loss (March 2017) was ₹967 crore. Government decisions led to stagnant water tariffs in respect of domestic consumers constituting 93 *per cent* (as of March 2018) of the consumers and waiver of water cess dues to some domestic consumers without any compensation to the Board. The Government also directed the Board to rely on uneconomical sources of water and supply water to areas outside its jurisdiction. Thus, the Board ceded its financial and operational autonomy to the Government.

(Paragraphs 2.1.7.2 & 2.1.7.6)

Planning and Execution of projects to meet expected outcomes

Board had planned additional capacities without considering the existing capacities accurately.

(Paragraph 2.1.8.1)

There were deviations from the specifications laid down by Central Public Health and Environmental Engineering Organisation (CPHEEO) Manual[1] in planning and execution of the projects which impacted achievement of project deliverables.

(Paragraph 2.1.9.3)

Accounting of water in Transmission and Distribution

Supervisory Control and Data Acquisition (SCADA) system was not installed at all water sources and hence exact quantity of water lifted for supply to HMWS&SB area could not be measured as a whole. No reliable mechanism was in place to record the water supply during transmission and distribution phases.

(Paragraph 2.1.8.2)

Losses on account of Unaccounted For Water (UFW) increased by 29 *per cent* from 134.57 Million Gallons per Day (MGD) in 2014-15 to 172.95 MGD in 2017-18.

(Paragraph 2.1.8.3)

Nearly 82 *per cent* of the Consumer Account Numbers (CANs) sanctioned did not have any measuring devices installed or were not in working condition.

(Paragraph 2.1.8.4)

Supply of mandated quantity of water

Board was unable to supply the mandated quantity of 150 lpcd of water in its jurisdiction. The net per capita water available for supply (118 lpcd) was less than the required 150 lpcd mainly due to high (39 *per cent*) water losses. The water actually supplied ranged between 66 to 71 lpcd.

(Paragraph 2.1.8.5)

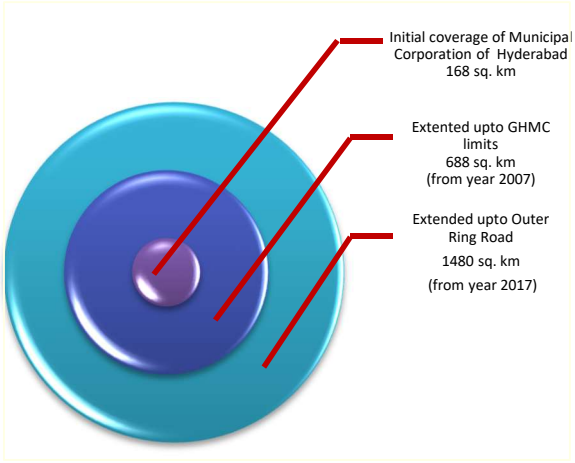
Water supply involves prioritisation of projects to strengthen the network and effective planning and implementation of the projects, requiring compliance to procedures and accurate monitoring. We found instances of deviations in planning and execution of projects.

(Paragraphs 2.1.9.1 to 2.1.9.5)

[1]Though water supply and sanitation is a State subject, CPHEEO acts as an Advisory body at Central level to advise the concerned State agencies and Urban Local Bodies (ULBs) in implementation, operation & maintenance of urban water supply, sanitation and solid waste management projects and helps to adopt latest technologies in these sub sectors. Its manual on Water Supply and Treatment, 1999 (Manual) provides guidelines to the Public Health Engineering Departments, Water Boards and Municipal Bodies on the basic norms, standards and latest developments in this field

2.1.1 Introduction

Chart-2.1



Hyderabad Metropolitan Water Supply and Sewerage Board (Board[2]) is responsible for supply of potable[3] water to a population of 69.93 lakh[4] in Greater Hyderabad Municipal Corporation (GHMC) limits. For achieving this deliverable HMWS&SB is responsible for planning, design, construction, operation and maintenance of water supply system. *Chart-2.1* illustrates the growth in the area served by the Board. From the initial coverage of 168 sq.km area within the limits of Municipal Corporation of Hyderabad, its reach has extended to GHMC limits and further extended to villages falling within Outer Ring Road (ORR) to the extent of 1,480 sq.km. The Board drew (March 2018) 446 Million Gallons per Day[5] (MGD) of water from eight sources (out of ten available sources[6]) to meet its mandate.

2.1.2 Organisational Set up

The Organisational set up of the Board is as depicted below.

Board	• **Headed by the Chief Minister who is also the Chairman of the Board. The other Board members including Vice Chairman *viz.*, Minister of Municipal Administration &Urban Development (MA&UD) Department constitute the Board**
Chief Controlling Authority	• **Managing Director is assisted by the Executive Director and Directors for discharge of his duties**
Circle Level	• **Chief General Manager**
Division Level	• **General Manager**

[2] established under Act 15 of 1989
[3] Water to be supplied for public use must be potable *i.e.*, satisfactory for drinking purposes from the standpoint of its chemical, physical and biological characteristics
[4] As per 2011 census
[5] Osmansagar (3 MGD), Manjeera Phase I (14 MGD), Manjeera Phase II (18 MGD), Singur Phase III (17 MGD), Krishna Drinking Water Supply Project (KDWSP) Phase I (90 MGD), KDWSP Phase II (82 MGD), KDWSP Phase III (82 MGD) and Godavari Drinking Water Supply Project (GDWSP)(140 MGD)
[6] Osmansagar (26 MGD), Himayatsagar (18 MGD), Manjeera Phase I (18 MGD), Manjeera Phase II (36 MGD), Singur Phase III (33 MGD), Singur Phase IV (33 MGD), KDWSP Phase I (90 MGD), KDWSP Phase II (90 MGD), KDWSP Phase III (90 MGD) and GDWSP (172 MGD)

Audit Framework

2.1.3 Audit objectives

Performance Audit of the Board was carried out to seek an assurance that:

- effective financial management was ensured through monitoring and realization of revenue.
- specified quantity and quality of water of 150 litres of water per capita per day (lpcd) was supplied.
- projects including water supply system in Hyderabad Agglomeration are planned, executed and maintained efficiently and effectively to meet the expected outcomes.

2.1.4 Audit Criteria

Following were the audit criteria:

- Hyderabad Metropolitan Water Supply and Sewerage Board Act (Act) governing all the activities related to the functioning of the Board and resolutions adopted in the Board meetings.
- Manuals on (i) Water Supply and Treatment and (ii) Operations and Maintenance (O&M) issued by Central Public Health and Environmental Engineering Organisation (CPHEEO)have been adopted in the absence of State specific Manual.
- National Water Policy, 2012 issued by Ministry of Water Resources, Government of India (GoI).
- AP Financial Code, Public Works 'D' Code.
- Orders issued by State/Central Governments from time to time on water supply.
- Service Level Benchmarks (SLBs) prescribed in Thirteenth Finance Commission guidelines.
- Applicable UN Sustainable Development Goals (SDGs).

2.1.5 Audit Scope and Methodology

Performance Audit of the Board was conducted (March 2018 to August 2018) for the period 2013-18 covering six circles[7] (out of nine) and 21 divisions[8] (out of 36) selected on the basis of statistical sampling[9]. Audit commenced with an Entry Conference held (April 2018) with the Government/Board. Audit also scrutinised relevant records/documents in MA&UD Department, HMWS&SB's Head Office to assess the overall position at the Board. Joint physical verification of sites[10] was conducted (June 2018 to July 2018) with Board's officials. Audit findings were discussed with the Government and other Officers of the Department in Exit Conference on 29 November 2018 and the replies of the Government/Board have been suitably incorporated in the Report.

[7] three Project Construction Circles, one Transmission Circle and two out of five Selected O&M Circles
[8] nine Project Divisions (including Electrical Division), Stores Division, Single Window Cell, Quality Assurance Test (QAT) Division, Quality Control &Vigilance Division, two Transmission Divisions and six selected O&M Divisions
[9] Simple Random Sampling method
[10] Source/drawal points and Storage Reservoirs

2.1.6 Acknowledgement

We acknowledge the cooperation and assistance rendered by the officials of the Board during the conduct of the Performance Audit.

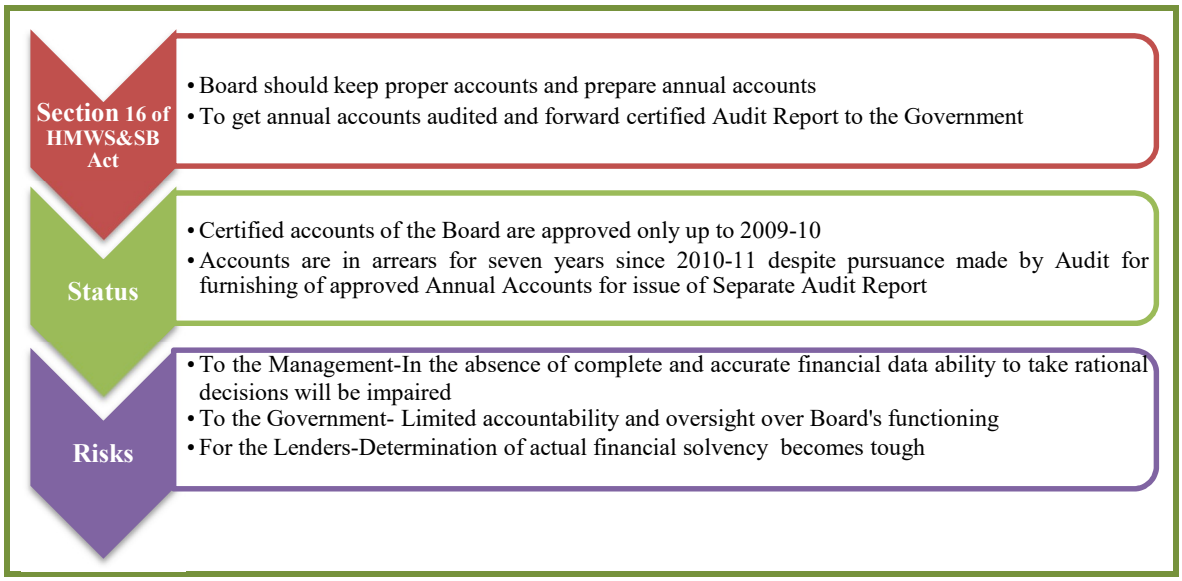
Audit findings

2.1.7 Financial Management

2.1.7.1 Finalisation of accounts

Finalisation of accounts is essential for ensuring better monitoring and utilisation of available funds. The accounts of the Board were, however, in arrears from 2010-11 onwards (*Chart-2.2*). Board attributed the pendency to shortage of trained staff.

Chart-2.2



This office had brought to the notice of the Administrative Department viz., Principal Secretary to Government, MA&UD repeatedly regarding the pendency in receipt of annual accounts for the period from 2010-11 to 2016-17. Despite this, there has been no action taken by the Administrative Department so far, to ensure finalisation of Accounts by the Board.

Government stated (November 2018) that accounts for the years 2010-17 had been finalised in all aspects. It however accepted the fact that the accounts for the years 2010-11 to 2012-13 were yet to be approved by it and that the accounts for the years 2013-14 to 2016-17 were yet to be submitted by Board for approval. The reply confirms the Audit contention that certification of accounts has so far not been completed for the period from 2010-11 to 2016-17.

In the absence of certified accounts for the period 2010-17, Board could not accurately assess its financial position.

Recommendation 1:Board should prioritise finalisation of the annual accounts on a time bound basis

2.1.7.2 Trends of profitability

State Government stands guarantor for the loans taken from the financial institutions by HMWS&SB for the drinking water projects. For the loans[11] raised by HMWS&SB, Government repays the loan including interest through budgetary support. HMWS&SB generates its own revenue through collection of water cess and water connection charges.

The Board registered excess of expenditure over income of ₹197.93 crore in 2009-10. In the absence of certified accounts for the years subsequent to 2009-10, Audit relied on provisional accounts prepared up to the year 2016-17. Board continuously incurred expenditure in excess of income (average annual increase of 20 *per cent*) during the period 2013 17. The accumulated losses was ₹966.89 crore as of March 2017.

Analysis of the provisional figures pertaining to the period 2013-14 to 2016-17 showed that:

Income side	Expenditure side
• Income from water cess on an average accounts for 86 *per cent* of the Board's income and increased by 47 *per cent* (March 2017) • Water cess dues increased from ₹860.77 crore (March 2013) to ₹1,209.86 crore (as of March 2018). This excluded dues amounting to ₹441.46 crore waived off (February 2016) by the Board	• Operating expenditure grew by 40 *per cent* during the period 2013-17 • Power charges which accounted for 78 *per cent* of the operating expenditure grew by 45 *per cent* during 2013-17 • The total liabilities of the Board was ₹5,977.04 crore (as of March 2017) which was a 69 *per cent* increase over the year 2013-14 • A contingent liability of ₹600.69 crore was due to Irrigation Department towards pumping charges for pumping raw water for Krishna Drinking Water Supply Project (KDWSP implemented by the Board) Phase I, II and III during April 2004 to February 2018 (communicated in June 2017 and May 2018)

As a result of the continuous losses, the Board had to resort to loans (₹300 crore; from Syndicate Bank in May 2014) and mortgaged its assets (buildings including its Headquarters) to pay its power dues. In such a situation, its ability to invest in maintenance of its transmission and distribution lines was impaired[12]. The waiver of water cess dues to the extent of ₹441.46 crore also significantly impacted the Board's already strained financial position. Board had not revised the tariff in respect of domestic consumers (who constitute 93 *per cent* of the total consumers) since 2011 which adversely impacted the revenues of the Board.

Government endorsed Board's reply (November 2018) that the excess of expenditure over income was due to increase in power tariffs without corresponding increase of water cess/tariff, increase in salaries to staff and the decision of Government to discontinue supply of water from Singur, Manjeera, Osmansagar and Himayatsagar reservoirs.

[11] State Government permits HMWS&SB to raise loans required for executing water supply projects with Government guarantee and with the financial support of the Government towards repayment of loans. This is given during the time of administrative sanction or during execution

[12] Board did not furnish to Audit, the age-wise analysis of the existing pipelines. During 2013-17, an average of ₹157.10 crore was spent annually on maintenance and repair, which was 21 *per cent* of the operating expenditure

The increasing burden of non-collection of dues (₹1,209.86 crore), non-revision of tariff in the domestic category (constituting 93 per cent Consumer Account Numbers) and water cess waiver (₹441.46 crores) led to a consequent inability on the part of the Board to cover even its operational expenditure. This explains the precarious financial position of the board (excess of expenditure over income of ₹966.89 crore).

Recommendation 2:Government should devise a sustainable financial model for the Board which should include a sound mechanism for recovery of operating cost

Receipts Management

2.1.7.3 Collection of water cess

Section 8 of the HMWS&SB Act has specified the mechanism for provision of sufficient revenues for its working through levy of rates, fees, tariffs, rentals, deposits, contributions and other charges from time to time.

It was observed that, in some cases, viz., Gram Panchayats (GPs), Rural Water Supply (RWS) divisions, Municipalities, Board was unable[13] to collect the water cess dues from consumers. Water cess dues increased from ₹860.77 crore (March 2013) to ₹1,209.86 crore (March 2018) which further increased to ₹1,350.53 crore as of July 2018. It was observed that the dues were highest in three divisions which supplied water to local bodies. Together, these three divisions accounted for 49 *per cent* (₹665.18 crore[14]) of the outstanding water cess dues.

Board decided (January 2016), to waive dues (including principal and interest outstanding as on 30 November 2015) amounting to ₹457.75 crore in respect of all consumers[15] falling under the categories of Slum dwellers, Rajiv Gruha Kalpa (RGK[16]) and Domestic[17]. The sanction of waiver by Government (January 2016) was subject to the condition that the consumers would henceforth be prompt in payment of their monthly bills. Accordingly, Board waived off (February 2016) dues to the extent of ₹441.46 crore in respect of 2,89,077 consumers duly excluding domestic connections with more than four flats (Multistoried) and Government connections.

It was observed that, despite the waiver, most of the consumers continued to default in payment of water cess levied as detailed below:

- An amount of ₹119.63 crore, which was levied for the water supplied during November 2015 to July 2018 was still pending recovery from 1,62,636 consumers (56 *per cent* of 2,89,077).
- Of the 1,62,636 consumers, 45,347 consumers did not make any payment since date of waiver (dues: ₹52.71 crore).

[13] Despite issuing notice to consumers not having metered connections and also levying penalties for non-compliance
[14] Division VIII: ₹224.87 crore; XI: ₹214.71 crore; XXI: ₹225.60 crore
[15] Out of 8,46,872 Consumer Account Numbers (CANs), number of defaulters was 3,12,468 as of November 2015
[16] Low income housing cluster
[17] Independent houses

For complying with the provisions of the Act[18] regarding payment of water bills within 15 days after a bill was presented or served, Board had empowered a dedicated staff through creation of a Vigilance Wing. Non-collection of the water cess levied is a failure of enforcement on the part of the Vigilance Wing during 2013-17.

Government endorsed Board's reply (November 2018) that the Board faced difficulties in disconnecting the connections due to denial of road cutting permissions, depth of water pipelines, traffic issues, socio-political considerations, etc., and assured special attention for recovery of the dues from the above consumers.

Despite the waiver by Government, consumers continued to default in payment of water cess levied impacting the financial position of the Board. Further, the water cess dues have been showing an increasing trend during the period 2013-18.

2.1.7.4 Receipt of share from GHMC

In order to augment the financial resources of the Board, Government directed GHMC (July 2009) to transfer 25 *per cent* of the collection of water tax (levied by GHMC as part of the property tax) to the Board. Direction of the State Government was perhaps issued without assessing the paying capacity of the GHMC. This was later reduced (November 2015) to 15 *per cent.*

It was observed that, although an Escrow account[19] was opened (December 2009) by GHMC, only two amounts[20] were transferred to the Board's escrow account. Thereafter, GHMC stopped remitting the amount (though property tax was collected) into the escrow account. An amount of ₹3,973.35 crore[21] was collected as property tax by GHMC during 2013-17. Thus, a sum of ₹761.96 crore constituting 15 *per cent* of collection of water tax, collected as part of property tax was due[22] from GHMC to the Board on this account as of March 2017[23].

Government stated (November 2018) that, despite frequent reminders to GHMC for remittance of the due amounts to the extent of ₹761.96 crore, there was no progress.

The share of the Board of water tax collected as part of property tax by GHMC as per the Government directives was not remitted.

2.1.7.5 Dues on deposit works

Operation & Maintenance Divisions of the Board executes Deposit Contribution Works (DCW) for other agencies such as GHMC, etc. These works relate to improvement of water supply & sewerage works.

Audit scrutiny revealed that 1,740 deposit works were executed by the Board on behalf of other agencies at a cost of ₹126.71 crore during 2014-17. Only ₹62.16 crore, however, was received from the funding agencies, representing 49 *per cent* of the dues, leaving a balance of ₹64.55 crore.

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[18] Section 42(1)(b) of the Act

[19] Opened in a public sector bank with standing instructions to the Bank to transfer 15 *per cent* of property tax collected to the account of HMWS&SB every month.

[20] i.e., ₹25.35 crore (11th February 2015) and ₹22.00 lakh (01 April 2016)

[21] 2013-14: ₹879.37 crore; 2014-15: ₹1,036.08 crore; 2015-16: ₹963.64 crore and 2016-17: ₹1,094.26 crore

[22] ₹3,973.35 crore collected; amount due to be remitted: ₹787.53 crore; already remitted ₹25.57 crore; balance amount due ₹761.96 crore

[23] Amount of property tax collected by GHMC for 2017-18 was not available

Government stated (November 2018) that despite frequent reminders issued by the Board to GHMC for remittance of the dues of ₹64.55 crore there has been no progress.

Expenditure Management

An important element of containing losses was to exercise tighter control on the operating expenditure[24]. Operating expenditure of the Board grew by 40 *per cent* during the period 2013-17. Electricity charges (for pumping water from source points) was ₹751.58 crore in 2016-17 which accounted for 78 *per cent* of operating expenses. Expenditure on electricity charges increased by 45 *per cent* during 2013-17 due to commissioning of Krishna Drinking Water Supply Project (KDWSP) Phase III and Godavari Drinking Water Supply Project (GDWSP).

2.1.7.6 Avoidable payment of pumping charges

Out of 10 available sources, Board was drawing water from eight sources. Drawing of water from two water sources i.e., Himayatsagar and Singur Phase IV with installed capacities of 51 MGD was discontinued since August 2016 and in respect of Osmansagar, there was no drawal during the period from August 2016 to March 2017 and August 2017 (except minimal drawal[25] during April 2017 to July 2017, September 2017 to March 2018) (*Appendix-2.1*). It was noted that there was sufficient water[26] in these reservoirs during the period 2013-18. The water quality reports[27] were also not adverse during the same period.

Water was being drawn from Himayatsagar and Osmansagar by gravity prior to August 2016. On discontinuing the drawal from these two sources to their full potential, the Board had to rely on water pumped from Godavari river, thus incurring avoidable pumping charges[28] of ₹140.95 crore (*Appendix*-2.2)

Government endorsed Board's reply (November 2018) that, the Board intended to supply uninterrupted water from Godavari and Krishna sources (which are designed as permanent sources for drinking water). The water from Singur project, Manjeera Barrage, Osmansagar and Himayatsagar was reserved for meeting contingency needs.

In view of the precarious financial position of the Board, prudence demands that the Board draws water from the most economical source for supply, especially from those sources, where water can be drawn through gravity.

Decision to discontinue drawing (despite availability of sufficient level and appropriate quality) of water from the most economical source for supply, resulted in Board incurring additional pumping charges of ₹140.95 crore.

Recommendation 3:The Board should carry out a review of the power charges to identify cost cutting measures

[24] Operating expenditure includes expenditure on "Power", "Repairs and maintenance" and "Other expenditure"
[25] 3 to 15 MGD of water was drawn out of its installed capacity of 26 MGD
[26] collated from the certified reports on details of daily water levels at Himayatsagar and Osmansagar Reservoirs
[27] of Quality Assurance Test wing of the Board
[28] Power charges incurred in connection with pumping of water

2.1.7.7 Penalties on late payment

It was observed that electricity bills were being paid belatedly for which late payment charges were being levied by the DISCOM[29]. Late payment charges in two drinking water supply projects [30] paid by the Board worked out to ₹138.81 crore [31] during the period 2013-18. Board informed that shortage of funds was the sole reason for belated payments. The Board further added that, DISCOM had been approached for reduction of tariff and waiver of late payment charges.

Government endorsed Board's reply (November 2018) that a formal approval (August 2018) for reduction of power tariff was accorded. The revised rates are, however, yet to be implemented (November 2018).

Board's precarious financial position caused delay in payment of electricity bills, which resulted in additional financial burden to the Board from late payment charges to DISCOM of ₹138.81 crore.

2.1.8 Supply of water

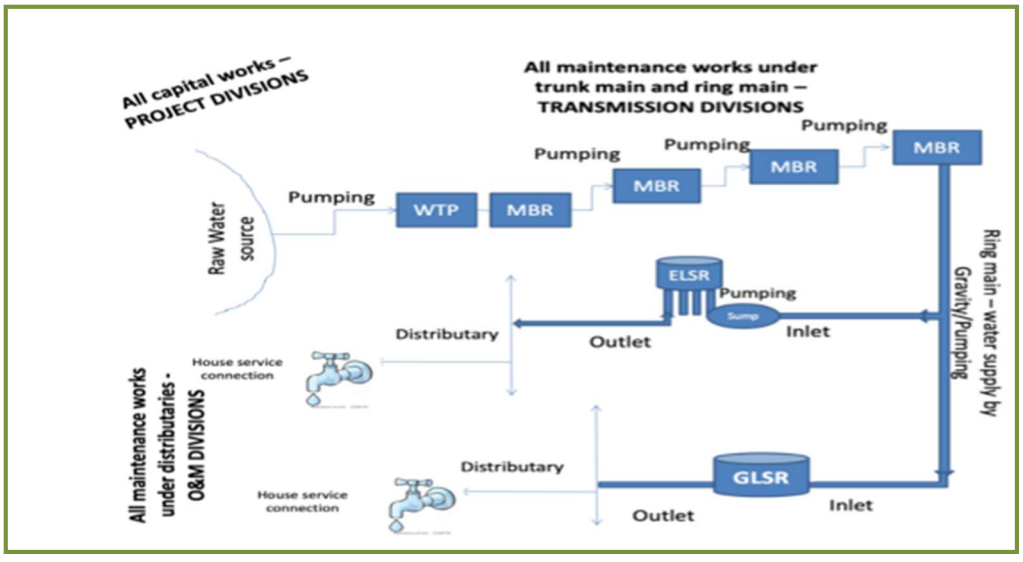
Efficient and effective water supply system

Board had installed capacity of 606 MGD (November 2015) [32] for drawal from ten identified water sources[33] to meet domestic and industrial needs. Board had lifted 330 MGD (2013-14), 345 MGD (2014-15), 335 MGD (2015-16), 352 MGD (2016-17), 434 MGD (2017-18) from these sources.

2.1.8.1 Planning and development of storage capacities

The stage-wise detail of pumping of water from the source to distribution at consumer end is indicated in *Chart-2.3* below:

Chart-2.3



[29] Telangana State Southern Power Distribution Corporation Limited (TSSPDCL)
[30] Krishna Drinking Water Supply Project (KDWSP) and Godavari Drinking Water Supply Project (GDWSP)
[31] KDWS- ₹126.20 crore and GDWS -₹12.61 crore
[32] GDWSP (172 MGD) was commissioned in Novermber 2015
[33] Osmansagar (26 MGD), Himayatsagar (18 MGD), Manjeera Phase I (18 MGD), Manjeera Phase II (36 MGD), Singur Phase III (33 MGD), Singur Phase IV (33 MGD), KDWSP Phase I (90 MGD), KDWSP Phase II (90 MGD), KDWSP Phase III (90 MGD) and GDWSP (172 MGD)

Storage reservoirs provide a suitable reserve of treated water with minimum interruptions of supply due to failure of mains, pumps, etc. They also enable meeting the widely fluctuating demands when the supply is by intermediate pumping. They are also helpful in reducing the size of the mains which would otherwise be necessary to meet the peak rates of demand. They can serve as an alternative to partial duplication of an existing feeder main as the load on the main increases. Board had been regulating water supply through Ground-Level Service Reservoirs (GLSRs) [34] , Elevated Level Service Reservoirs (ELSRs)[35] and sumps[36] under the O&M division jurisdiction.

The maximum storage capacity to be planned by the Board for installed capacity of 606 MGD was 202 MG (viz., Storage capacities/reservoir requirement computed as 1/3rd of quantity of supply volume).

During 2017-18, Board had a total storage reservoir capacity of 153.14 MG (Core city: 95.82 MG and GHMC peripheral circle: 57.32 MG). As the water supply requirement in peripheral areas was projected to increase, Board felt a need to augment the storage capacity by adopting zoning[37] system in each of the peripheral circles.

DPRs were prepared[38] wherein the available storage capacity in GHMC peripheral area had been reckoned by consultant agency as 27.50 MG, instead of existing 57.32 MG (functional storage as per the Divisional records). The Consultant assessed a requirement of 91.49 MG of storage capacity in respect peripheral areas. The development of additional storage capacities in peripheral areas was computed as 63.99 MG [39] , instead of 34.17 MG[40].

Government endorsed Board's reply (November 2018) that it had taken up building storage capacities under each hydraulic zone to match the 1/3rd of the quantity of water requirement of each zone. Further, depending upon the availability of budget, additional storage reservoirs were being developed to match the nearby prospective and ultimate design periods.

Reply of the Board is not supported by details of functional storage capacities available under each of hydraulic zones along with the quantity of water required for that zone. It was also observed that as against the required storage capacity of 202 MG, Board had planned for 217.13 MG storage[41].

Thus, Board had planned additional capacities without considering the existing capacities accurately.

[34] Ground-Level Service Reservoir (GLSR) is generally preferred as **storage reservoir** which is circular or square or rectangular in shape and is constructed either of RCC or masonry

[35] Elevated Level Service Reservoirs (ELSRs) are used principally as distributing reservoirs.

[36] Sumps are the interim water storage facility available for onward pumping to the Elevated Level Service Reservoirs (ELSRs)

[37] Zoning in the distribution system ensures equalisation of supply of water throughout the area. The Zoning depends upon (a) density of population (b) type of locality (c) topography and (d) facility for isolating for assessment of waste and leak detection. If there is an average elevation difference of 15 to 25 m between zones, then each zone should be served by a separate system

[38] Over a period of time from 2007 to 2015

[39] 91.49 MG-27.50 MG

[40] 91.49 MG-57.32 MG

[41] Core city: 95.82 MG; Existing peripheral area: 57.32 MG; Additional storage capacity planned; 63.99 MG

2.1.8.2 Accounting of water in Transmission and Distribution

Water is treated for conversion of raw water to potable water by Water Treatment Plant (WTP) installed at the source points. The CPHEEO O&M manual specifies that flow of water is to be measured for both inlet and outlet pipelines of the Water Treatment Plants and of the intermediary balancing reservoir. This is to be ensured by installation of flow meters and hourly readings shall be recorded for arriving at the exact quantity of water transmitted/supplied. Control of unaccounted for water and metering of the water connections help in reduction of wastage of water and increases the revenue of the Board to the maximum extent. It was observed that:

- SCADA[42] system meant to measure[43] quantity of water lifted, supplied and water losses along the network was found to be inadequate because of incomplete metering and unreliability of data furnished. SCADA system was not installed at all sources [44] and hourly readings of SCADA system installed under KDWSP Phase I, II & III and GDWSP were however not furnished by the Board. During Joint Physical Verification[45], no measuring devices were in place in one of the Master Balancing Reservoirs (details vide *Appendix 2.3*) and water treatment plants to ensure the exact quantity of water lifted/transmitted. This was also confirmed by the officials of the Board and hence, the exact quantity of water lifted from all sources for supply of water to its area could not be measured accurately.
- Board furnished the computed quantity of water lifted from all sources. The calculation of lifted quantity of water was, however, found to be erroneous as detailed in *Appendix 2.4*
- Board releases water through intermediate storage reservoirs or by direct supplies through transmission feeder. There was no metering for the water released to O&M divisions from transmission mains. The details of quantity of water lifted and released during 2013-18 are provided in *Appendix-2.4*. It can be seen that, quantity of water reported to have been released to O&M division during 2013-18 (except during 2016-17) was more than the quantity of water lifted from the source.

Board claimed (November 2018 in the Exit Conference) to have an information system (SCADA) for measurement of water pumped and transmitted. The data from SCADA was, however, neither reliable (as seen from the Joint Physical Verification) nor complete (as all water sources had not been covered under SCADA).

SCADA system meant to measure quantity of water lifted and supplied along the network and also measure water losses was found to be inadequate because of incomplete metering and unreliability of data furnished.

Recommendation 4:Board may consider installing comprehensive metering system along the chain of pumping, transmission and distribution of water

[42] Supervisory Control and Data Acquisition (SCADA), a computer system for gathering and analyzing real time data on water supply

[43] The hourly reading of measured flow of water in terms of cubic meter per hour for each of the running pumps were computed by the Board to arrive at daily/monthly quantity of water transmitted through water treatment plant/master balancing reservoirs

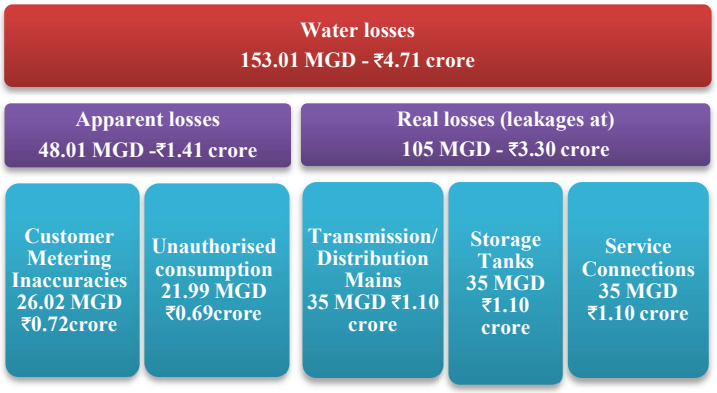
[44] SCADA not installed for Osmansagar, Himayatsagar, Manjeera Phase I,II and Singur Phase III, IV

[45] in respect of the entire stretch of pipeline from source point (Murmur village) to Ghanpur (Terminal Balancing Reservoir) in respect of Godavari project and Kodandapur (source point for Krishna project Phases I to III) to Gungal (Terminal Balancing Reservoir)

2.1.8.3 Unaccounted For Water

A separate division Unaccounted For Water (UFW) was functional in the Board for accountal of supplied potable water. One of the objectives of the Division was reduction of supply losses to 15 *per cent*. The CPHEEO Manual also prescribes a permissible loss of 15 *per cent*. As per the International Water Balance Reports prepared by the Board, the average water losses per day accounted for 153.01 MGD. Audit calculated the value of unaccounted for water at ₹4.71 crore per day during 2014-18 (*Chart-2.4*) based on the actual cost of production of water to the Board. Water losses increased by 29 *per cent* from 134.57 MGD in 2014-15 to 172.95 MGD in 2017-18 calculated by Audit on the basis of information furnished in the International Water Balance Reports. But, the UFW Division reported a static figure for unauthorized consumption (21.99 MGD) and real losses (105 MGD) for the entire period 2014-18 which raises doubts on authenticity of the data.

Chart-2.4
(Water losses Units are average of four year period)



Source: International Water Balance Report prepared by the Board for the years 2014-15 to 2017-18

Government endorsed Board's acceptance (November 2018) that the unaccounted for water was as high as 39 *per cent* (i.e., 173 MGD out of the 440 MGD). Thus, 39 *per cent* of water supplied is neither accounted for, nor generates revenue.

The Objective of UFW division to reduce supply losses to 15 per cent was not achieved as UFW remained high at 39 per cent.

Recommendation 5:There is a need for conduct of Water Audit for computation of water losses by a technically competent third party and adoption of water efficient systems

2.1.8.4 Metering of CANs

Water meter is a scientific instrument for accurate measurement of quantity of water distributed to the consumers and fulfils the need to know the quantity of water produced and distributed. As per O&M manual[46] *metering of water supply is desirable to minimize the wastage and to maintain the economic pricing of water. Section 51 of the Act entrusted a responsibility on the Board for the provision and maintenance of meters when water was supplied by measurement.*

A total of 9,34,973 Consumer Account Numbers (CANs [47]) (out of total 10,28,375 CANs (July 2018)) were sanctioned under Domestic category with 15 mm connection. The average consumption of these was 16.69 Kilo Litres (KL) for the month of July 2018. Scrutiny revealed that, only 1,69,287 CANs were actually metered

[46] Para 1.2.2 of Manual on O&M
[47] Locked: 52,613; Metered: 1,69,287; Repair: 5,18,973; Unmetered: 1,75,399 and No status: 18,701

(where measured quantity of water supplied was accounted for). The remaining 7,65,686 CANs constituting nearly 82 *per cent* of the CANs did not have measuring devices installed or were not in working condition which contravened the provisions of Section 51 of the Act.

Further analysis revealed that, as of 31st July 2018, water cess dues that were recoverable from the 10,28,375 consumers aggregated to ₹1,350.53 crore. The majority share of dues were from 9,99,356 connections falling under four categories[48]. It was noted that out of 9,55,665 domestic connections, 9,34,973 pertain to 15mm dia size whose dues amounted to ₹266.07 crore (94.77 *per cent* of dues receivable from all domestic CANs). The following is the status of the 15 mm connections from which dues are pending:

Table-2.1

Sl. No.	Connection type	No. of connections	Percentage of total connections	Total dues (₹ in crore)	Percentage of total dues
1	Metered	1,69,287	18.11%	13.18	4.95%
2	Unmetered/ under repair/ locked	7,65,686	81.89%	252.89	95.05%
Total		**9,34,973**	**100.00%**	**266.07**	**100.00%**

Source: Information/Data furnished by the Board

It is evident that, CANs whose meters are under repair/ unmetered/ locked default on payment of water cess. Moreover, HMWS&SB clarified that these connections were also charged on the basis of docket average[49] of metered CANs. Thus, there is a possibility of over/short levy as docket average does not represent actual consumption.

Government endorsed Board's reply (November 2018) that the water supply system is not 24x7 and is only intermittent to the extent of one to one and half hours (on the day of supply) as a result of which, the meters frequently go out of order. Audit is unable to accept or comment on the technical correctness of the claim of Government that 24x7 water supply is essential for the water meters to function properly. This aspect needs to be enquired into by a technically qualified third party.

Eighty two per cent of the CANs were not having any measuring devices installed or were not in working condition which contravened the provisions of Section 51 of the Act.

48

Category	Number of CANs	Amount of dues (₹ in crore)	% of total dues
Domestic	9,55,665	280.76	23.43%
Industrial	2,188	256.66	21.43%
Commercial	41,387	131.78	10.99%
Gram Panchayat	116	529.08	44.15%
Total	**9,99,356**	**1,198.28**	**100.00%**

Source: Information/Data furnished by the Board

49 docket is a collection of metered and unmetered Consumer Account Numbers (CANs), the number of which is decided by the Board. Where there are more than 5% of the CANs which are being metered in the Docket, the average of these metered CANs is worked out and applied uniformly on the remaining Unmetered/Meter under repairs, etc.

2.1.8.5 Supply of mandated quantity of water to citizens

Board is mandated[50] to supply 150 lpcd in its jurisdiction as per CPHEEO manual. Audit analysis[51] of monthly water lifted from source showed that water available for supply to HMWS&SB area ranged from 109.69 lpcd to 118.19 lpcd during 2013-18. Thus, the availability of water itself was less than the mandated 150 lpcd. The actual supply of water (as reflected in the monthly bills) of domestic customers, however, ranged from 66 to 71 lpcd during 2013-18. Details are given in the Table-2.2.

Table-2.2

Sl.No.		2013-14	2014-15	2015-16	2016-17	2017-18
1	**Requirement of water to cater to the population served (MGD)**	244.87	249.77	254.77	259.86	265.06
2	**Gross average quantity of water lifted (MGD)**	330	345	335	352	434
3	**Computed Population***	74,21,305	75,69,731	77,21,126	78,75,548	80,33,059
4	**Gross per capita (lpcd) as per water lifted**	202.15	207.19	197.24	203.18	245.61
5	**Deductions**					
	(i) Water supplied to enroute villages[$] (lpcd)	7.98	8.20	7.72	14.25	35.29
	(ii) Losses (lpcd)[#]	78.84	80.80	76.92	79.24	95.79
	Total deductions (i) + (ii) (lpcd)	86.82	89.00	84.64	93.49	131.08
6	**Net per capita available for supply to HMWS&SB area (lpcd) [(4)-(5)]**	115.33	118.19	112.60	109.69	114.53
7	**Average Supply to domestic consumers (as per monthly bills) (lpcd)**	65.66	67.89	68.78	70.45	70.72

Source: Information/Data furnished by the Board
* two *per cent* annual increase of population each year over population as per Census 2011;
[$] includes RWS, GPs, Municipalities and Industries outside HMWS&SB area;
[#] computed based on UFW figures i.e., 39 *per cent*

The difference between gross availability per capita (based on quantity lifted) and actual supply per domestic connection (based on monthly bills) is due to water losses during transmission and distribution and water supplied beyond the board's jurisdiction and to other consumers.

Government replied (November 2018) that the average supply varied from 120-140 lpcd for domestic categories and that projects were planned to meet the demand, including replacement of age old network in a phased manner. The Board further assured that, it would prioritise customers in its jurisdiction for water supply.

An analysis of the data furnished by the Board revealed that the Board assessed water supply at 120-140 lpcd by using a faulty method. The water losses (which is 39 *per cent*: Para 2.1.8.3 refers) was added to the water released for distribution and divided by the population to arrive at the water supply.

Thus, the Board could not meet its commitment of supply of 150 lpcd.

[50] As contained in Table 2.1 of Section 2.2.8.3 of CPHEEO manual
[51] per capita water supply is based on the per capita water lifted from the source after factoring quantity of water supplied to enroute villages and UFW (39 *per cent*) and per capita water consumption by domestic category was calculated based on billed quantity during the period 2013-18

2.1.8.6 Consumer Grievance Redressal

Any Citizen can register grievance on the board's services through nine channels viz., IVRS/ Phone (Grievance/ Dial your MD programme), Social Media[52], Board's website, Praja Vani (Weekly grievance redressal forum) and E-mail. Complaints can be on various issues such as water supply, sewerage, pipeline issues, etc. Metro Consumer Care (MCC) is the agency which analyses, categorizes and forwards complaints (from all the sources) to the respective divisions for resolution. On receipt of a complaint, a token number is generated and an SMS is sent to the complainant. This grievance is automatically assigned to the divisional officer concerned by the system. The officer concerned then takes necessary action to resolve the grievance and updates it on the system. A random feedback call depending on the severity of the grievance would be made by MCC.

Audit analysed the data recorded in Metro Consumer Care Database for the years 2013-18. The Board has adopted citizen charter (CC) with specific timelines[53] for resolution of complaints. The following issues in Grievance Redressal were revealed:

Tendency of Grievances

The complaints received by the Metro Consumer Care has been increasing year-on-year with complaints for various years being:

Table-2.3

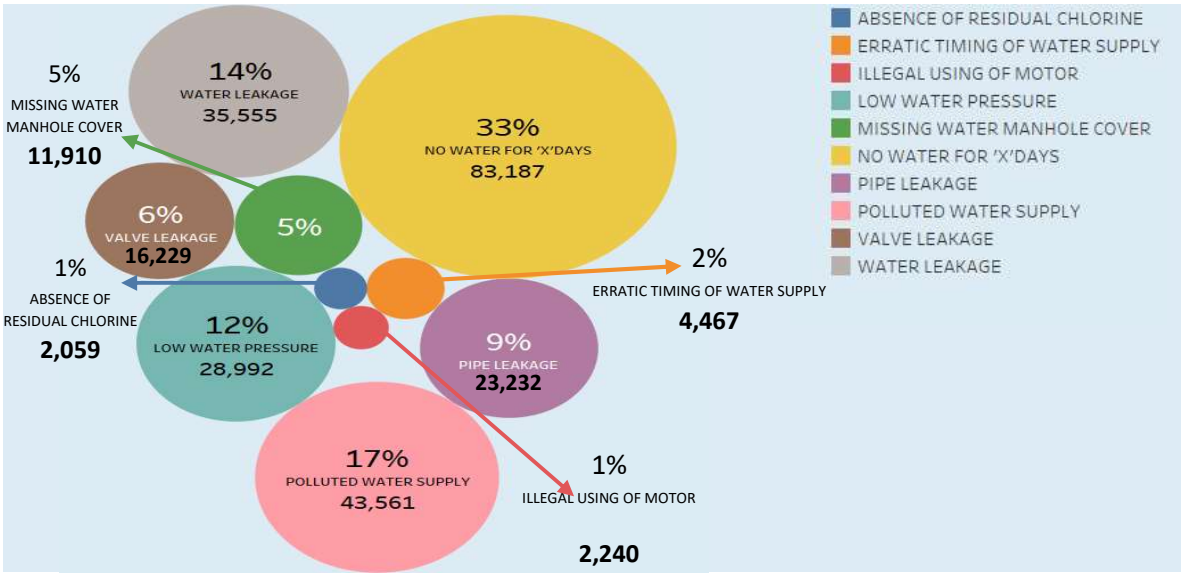
Year	2013-14	2014-15	2015-16	2016-17	2017-18
Complaints filed in MCC	27,106	34,806	46,371	57,013	86,136

Source: Information/Data furnished by the Board

Sixteen *per cent*[54] of the total complaints were only from Division VI (S.R.Nagar) where there were issues of acute water shortage, polluted water supply, water leakages, etc., suggesting that the area needed immediate attention of the board.

Major Issues in Water Supply

Chart 2.5



[52] Facebook, WhatsApp, Twitter, Mobile Applications

[53] Category wise time-lines (in water supply days): Absence of Residual chlorine (7 days); Erratic timing of water supply (3 days); Illegal using of motor (2 days); Low water pressure (4 days); Missing water manhole cover (2 days); No water for 'x' days (4 days); Pipe Leakage (2 days); Polluted Water Supply (4 days); Valve Leakage (2 Days); Water Leakage (3 days)

[54] 40,229 out of 251,432 complaints

Out of 2,51,432 complaints filed in the period, one-third of the complaints pertained to non-availability of water for certain days. The problem of non-supply of water was profuse especially in Division VI (S.R.Nagar)[55].

Almost 17 *per cent* of the complaints pertained to polluted water supply. These complaints were most frequent from Divisions V (Narayanaguda), II (Asmangadh), III (Asifnagar) and VI (S.R.Nagar) raising doubts over the quality of water supplied by the board in those areas[56].

Efficiency of Grievance Redressal

Audit evaluation of the board's performance in timely resolution of complaints[57] revealed the following:

Table-2.4

Financial Year	Complaints received	Percentage of Complains resolved	
		Within time (%)	Delayed (%)
2013-14	26,195	62	38
2014-15	33,424	56	44
2015-16	44,507	63	37
2016-17	41,418	68	32
2017-18	47,810	85	15
Total	**1,93,354**	**68**	**32**

Source: Information/Data furnished by the Board

As per Citizen Charter, the board was able to resolve 68% of the complaints within time and 32% of the complaints were resolved with delays.

2.1.9 Planning and Execution of projects to meet expected outcomes

Management of projects

Government sanctioned projects viz., drinking water supply projects and development of storage reservoirs (including distributaries networks) in the Board's jurisdictional areas. Board implements these projects after planning and preparation of Detailed Project Reports [58]. In order to reach the population in these areas, the Board undertook the following projects detailed in Table-2.5.

[55] 15,602 out of 83,187 complaints pertaining to No water for 'x' days
[56] 5953, 5758, 5545, 5187 respectively out of 43,561 complaints pertaining to Polluted Water Supply
[57] Pertaining to major categories of complaints and have effects on quality of water: No Water for 'x' days (33%), Polluted Water Supply (17%), Water Leakage (14%), Low Water Pressure (12%) and Absence of Residual Chlorine (impacts water quality)
[58] by consultants

Table-2.5

Name of the Project	Total cost of the Project (₹ in crore)	Quantity of water to be drawn (in MGD)	Date of commence-ment	Scheduled date of completion	Date of Commissio-ning
Drinking water projects					
Krishna Drinking Water Supply Project- Phase-III	1,670	90	December 2012	December 2014	April 2015
Godavari Drinking Water Supply Project – Phase-I	3,725	172	November 2008	November 2010	November 2015
Distribution network projects					
Comprehensive Water Supply Improvement in Malkajgiri	338.54	--	June 2014	June 2016	Under progress
Water supply distribution network project for the peripheral circles of GHMC	1,900	--	February 2016	February 2018	Under progress
Providing Water supply project for the 190 Villages/Gram panchayats/ Habitations falling under outside GHMC limits and within ORR.	738.26	--	July 2017	July 2019	Under progress

Source: Information/Data furnished by the Board

It was observed that there were deviations in planning of projects viz., reduction in scope of work, faulty planning and deviation in specifications as enumerated in the succeeding paragraphs:

2.1.9.1 Unwarranted reduction in scope: Augmentation

Works were taken up (November 2008) in three packages for augmentation of 172 MGD of water from Yellampally barrage to Ghanpur village under GDWSP (Phase-I). One of the components under Package-III was construction of 150 ML capacity Master Balancing Reservoir (MBR[59]) at Ghanpur. This component was intended to provide, 150 ML MBR (approximately five hours storage) and also facilitate shut down of pumps to carry out minor repairs in delivery main and pumps in case of any necessity. The work was, however, not taken up and in lieu of this, a 2.7 ML MBR at a cost of ₹8.77 crore was taken up (May 2014) and completed in December 2015.

The change in scope was attributed to the site location of MBR acquired (December 2013) from Forest Department, Hyderabad Division having rocks which were listed[60] as heritage rocks. Board's request (February 2014) to Hyderabad Metropolitan Development Authority (HMDA) for providing clearance/No Objection Certificate[61] was referred (June 2014) to a six-member technical committee [62] . The Committee

[59] intended function of the MBR is to balance the water inflows with those of outflows. From the MBR, water is supplied to Service Reservoirs for onward supply into the distribution system

[60] list at Sl. No. 14(a) i.e., rock formations around Shamirpet lake, Venkateswaragutta in Sy. No. 92 of Ghanpur Village, Medchal (G.O. Ms. No. 68MA of Municipal Administration & Urban Development (I)Dept., dated 3 February 2009)

[61] by stating that, the rocks were only loose boulders situated on the weathered soil subjected to natural erosion in near future

[62] comprising officials of HMDA(4), HMWS&SB and Secretary, Society to Save Rocks

approved[63] (August 2014) the construction of 150 ML reservoir. The Board in the meanwhile had, however, already concluded (May 2014) an agreement scaling down the capacity of the reservoir from 150 ML to 2.7 ML.

Board stated that the decision to construct 2.7 ML MBR was made since construction of 150 ML MBR would take 12 to 18 months. It was, however, noted that, the alternate 2.7 ML reservoir was completed after 19 months. As such the reasons given for the unwarranted reduction in scope was, however, not true.

The reduction of storage capacity from the envisaged 150 ML capacity MBR to 2.7 ML capacity MBR ran the risk of impacting work as follows:

- Retention capacity of the 2.7 ML reservoir allowed only four minutes storage as opposed to the capacity of five hours storage as originally envisaged. In the event of repairs upstream, the ability to serve the population downstream was limited to the extent of 2.7 ML only.
- Potential mismatch between the inflows and the outflows could result in overflow from the reservoir and consequent flooding as the retention capacity of 2.7 ML Ground Level Service Reservoir (GLSR) is capable of storing water for a period of four minutes only.

The decision of the Board to reduce the storage capacity of MBR without waiting for the clearance from the technical committee was short sighted.

Execution of Projects

Board awards contracts for implementing the various components of the projects. Deviations such as extension of undue benefit to contractors and deviation in execution was noted as enumerated in the succeeding paragraphs:

2.1.9.2 Reduction in scope of work: GDWSP

One of the components of the work included "execution of intake channel (two parallel open lined intake channels each discharging 13.50 cumecs[64]) from the foreshore of Yellampally barrage with discharge capacity of 27 cumecs including necessary desilting arrangements.

The DPR & Agreement envisaged execution of intake channel with invert level at +131 m level in the river. The Irrigation Department, however, accorded permission to draw water from a higher level of +138 m level which reduced the excavation work related to the intake channel.

As per *corrigendum 5* to the Tender notice which forms part of the contract, if there was any variation in the quantities, corresponding amount should be deducted/paid extra as the case may be. No deductions were, however, made in the detailed price break-up for intake channel, though there was a considerable reduction in quantity of earthwork excavated (4,12,166 cum). Excess payment was made to the firm to the extent of ₹1.78 crore (*Appendix-2.5*).

[63] on the condition that the facade of the reservoir be treated so as to be in harmony with the rock surroundings
[64] Cubic metres per second

Government endorsed Board's reply (November 2018) that it was an Engineering, Procurement and Construction (EPC) contract wherein deliverables for discharge of 27 cumecs is the criteria with technical specifications to develop the channel. As per scope and deliverables of the project, the contracting agency had developed the intake channel with a discharge of 27 cumecs. As such, the payment was not restricted. Board further stated that suitable notices would be issued to the contracting agency as per EPC agreement conditions.

The agreement conditions read with corrigendum, deliverables of the project includes "execution of intake channel at +131 m with discharge capacity of 27 cumecs". Due to development of intake channel at +138 m instead of +131 m there was reduction in earthwork excavation which ultimately benefited the contractor.

2.1.9.3 Deviations in Execution

Under Water Supply Distribution Network Project in Quthbullapur circle, five GLSRs and one ELSR with total capacity of 28.5 ML were taken up which included 6 ML capacity GLSR in Shapur zone.

The following was observed:

- The GLSR at Shapur Zone was constructed with two compartments of 3 ML each. But only one compartment of 3 ML was utilised for distribution for Shapur zone. The other compartment of 3 ML was being utilised to supply to another GLSR at Gajularamaram. This compartment was hence to be treated as balancing reservoir. As a result, storage capacity developed at Quthbullapur was only 25.5 ML and not 28.5 ML. This resulted in non-coverage of a population of 60,000[65] due to short creation of storage capacity to the extent of 3 ML.

- The DPR envisaged 2 ML GLSR at Gajularamaram but the capacity was revised and executed to 3 ML in order to cover surrounding GPs falling within ORR. The GPs falling within ORR were, however, already covered under a different contract[66] which led to irregular planning of storage capacities at Gajularamaram.

Government endorsed (November 2018) Board's view that originally the existing sump was contemplated as source sump (in the premises) to pump water but due to interconnection arrangements between sump and new reservoir, one suction pipe was taken from newly built reservoir (6 ML Shapurnagar Reservoir) through one compartment and assured that in due course as per further demand, a separate sump arrangement would be created.

[65] Calculated on the basis of 150 lpcd

[66] Providing water supply project for the 190 villages falling outside GHMC limits and within ORR including management of water supply system

2.1.9.4 Re-routing of pipe line: Deposit work

Board (November 2008) undertook a Deposit contribution work of 'Providing water supply[67] up to Medchal' with APIIC[68] funds. The work included laying 600 mm dia pipeline of 8,450 rmt[69].

The following was observed:

- Out of the total length of 8,450 rmt, 8,200 rmt of pipeline was laid. The balance length of 250 rmt was held up for want of permission from HMDA.
- The work was taken up without the approval of HMDA. Board was directed by HMDA (August 2015) to lower the already laid pipeline for a length of 800 rmt to below 2.5 metres ground level or to re-route the pipeline along the service road at junction for a length of 1,300 rmt. Board opted for re-routing the pipeline since the already laid pipeline would not be reusable if uprooted. As a result, the already laid pipeline to the extent of 800 rmt became wasteful. This rendered the expenditure of ₹67.32 lakh incurred on the already laid 800 rmt Bar Wired Stressed Concrete (BWSC) pipeline wasteful.
- The work of re-routing[70] the pipeline was taken up in three packages and completed (October 2017) at a cost of ₹2.23 crore with Board funds. The work of re-routing involved an additional length of 1,050 rmt which resulted in additional expenditure of ₹2.02 crore[71]. Since the lapse was on the part of Board, the additional expenditure was met by Board and not reimbursed by APIIC.

Government endorsed Board's reply (November 2018) that during the execution of the work, the ORR did not exist and as such the proposed area came under the jurisdiction of National Highways Authority of India (NHAI). The work for a length of 250 rmt was held up for want of permission from HMDA. Subsequently, the Board sought permission and the pipeline was re-routed as DCW work.

2.1.9.5 Avoidable liability on VAT

Board took up (2015-18) construction of Reinforced Cement Concrete (RCC) Service Reservoirs and Distribution network through four contracts (three packages in peripheral and one in ORR). One of the components of the work included manufacture, supply and delivery of 'Ductile Iron (DI) pressure pipes' and 'DI Gate valve'.

Telangana State Revised Standard Data specifies that Value Added Tax (VAT) should not be included in the estimates for bill of quantities (Part A) and separate provision should be made in Part B of the estimates for VAT reimbursement. It was however, observed that the estimates prepared by the Board for Part A included VAT @ 5 *per cent*. The Board reimbursed VAT @ 5 *per cent* provided in Part B of the estimate in addition to the VAT included in Part A. Illustration at Table-2.6 clarifies the reimbursement made by the board to the contractor on VAT.

[67] to M/s Shanta Biotechnics Ltd., IDA Medchal and Industrial Establishments along NH-7
[68] Andhra Pradesh (now Telangana) Industrial Infrastructure Corporation
[69] Running metre (rmt)
[70] re-routing done : 1,300 rmt – already included in original plan 250 rmt
[71] ₹2.23 crore – ₹0.21 crore (250 rmt BWSC pipeline @ ₹8,414.50 per rmt)

Table-2.6

Works contract	(amount in ₹)
Basic price as per estimate	1,000.00
Add: VAT @ 5%	50.00
Estimate rate per rmt put to tender/agreed rate	1,050.00
After laying of pipeline, value of work done and measured	1,050.00
Added VAT @ 5% to the value of work done	52.50
Gross payment made to contractor	**1,102.50**

This resulted in duplication of extension of the benefit of VAT to the contractor by allowing reimbursement (as illustrated in Table-2.6) as per the TS Revised Standard Data and also VAT @ 5 *per cent* which was included in the estimate for the item rate. Thus inclusion of VAT @ 5 *per cent* in the estimate by Board resulted in an avoidable committed liability of ₹33.94 crore.

Board accepted that under the contract, levy of VAT on two occasions are done.

It, however, held that the levies: VAT on procurement of materials and another VAT on works contract, were independent and were as per the provisions of the VAT Act, 2005.

Government endorsed Board's reply (November 2018) which is contrary to the Board of Chief Engineers orders which specifies that basic cost of DI pipe and DI valve to be adopted in the estimate is exclusive of VAT as per Standard Data, the provision for VAT @ 5 *per cent* or as fixed by the Government from time to time should be made separately in Part B of the estimate. This component was already included in the estimate and factored in the contract value.

Thus, Contractor was given undue double benefit due to addition of the VAT component both in the estimate and on the value of the work done.

2.1.9.6 Achievement of Sustainable Development Goals

The UN General Assembly adopted (September 2015) a global development vision called Transforming our World: The 2030 Agenda for Sustainable Development. The Agenda lays out 17 new SDGs and 169 targets to stimulate global action over the next 15 years. State Government designated Planning Department as the nodal department[72] to achieve the ambitious 17 SDGs in Telangana. **SDG 6** pertaining to Clean Water and Sanitation (Access to improved water, Freshwater withdrawal) and **SDG 11** pertaining to Sustainable Cities and Communities (Improved water source, piped) are applicable to the Board.

[72] for building coordination among all the stakeholders from Government and non-Government to bring them on one platform

It was observed that:

- No specific indicators were framed by the Government for adoption of SDGs in achieving universal and equitable access to safe and affordable drinking water for all. Consequently, Board did not set a plan for pollution free water supply.
- Replacement of old/worn out pipes and creation of strong distribution network is essential to prevent leakage and contamination during water supply. Board did not furnish information regarding extent of existing pipelines, age-wise analysis of pipelines, extent of pipelines proposed for replacement, actually replaced and future action plan.

Government in its reply (November 2018) attributed the non-achievement of the SDGs to increased urbanisation resulting in increase in demand for water supply, budgetary constraints hampering the completion of new augmentation source projects.

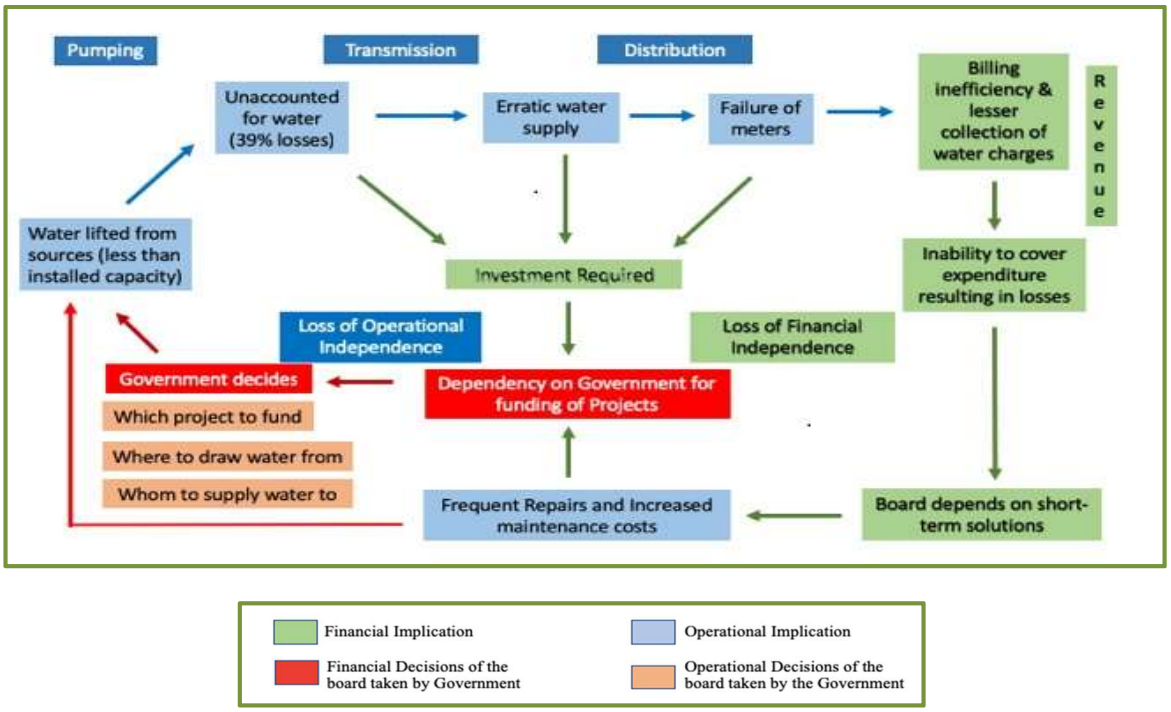
Government had not framed specific indicators to meet the SDGs.

Recommendation 6: Survey of the existing network including storage capacity and the age-wise analysis of existing pipelines, may be conducted

2.1.10 Conclusions

Audit findings has been summarised graphically in the chart below:

Chart-2.6



Board while accepting (November 2018) the audit recommendations assured that the annual accounts would be finalised on priority, comprehensive metering system would be taken up and revenue collections would be improved and focus would be on quality assurance to ensure to supply potable water to all customers and adopt the best practices on project planning and implementation.