

CHAPTER VI MONITORING AND EVALUATION

KWA reported that Supervisory Control and Data Acquisition (SCADA) system was installed only in six water treatment plants of capacity 75 mld and above, out of 241 water treatment plants in the State. Audit also noticed that in 99 cases, the geo-tagged data captured in respect of FHTCs were related to positions outside the State.

On scrutiny of e-Abacus data pertaining to the water connections provided under JJM, it was seen that 66,134 number of connections were not billed for period ranging from three months to more than three years of connection. In the three test-checked districts, it was noticed that agreements for execution of works were entered into between KWA and executing agency only and the GP was not made party to the agreement.

In contrast to scheme guidelines which stipulated that third party inspection and certification of the quantity and quality of work done was to be conducted prior to release of any payment, Audit noticed that third party inspections were conducted after construction and processing of payments of running account bills.

Audit noticed that the KWA had launched Aqualoom, a digital portal in 2021. This portal was accessible via website/social media and individuals could upload their complaints in a simple format and track their progress. Users of the portal were to choose their district and constituency, select a problem category and provide their phone number and Customer ID to file a complaint. The portal could also be used to obtain results of water quality testing from an accredited water testing laboratory for a nominal fee.

6.1. Monitoring of functionality of tap connections

Effective monitoring mechanisms were to be in place to assess the functionality of tap connections, water quality and reliability of water supply under JJM. For both Single Village Schemes (SVS) and Multi-Village Schemes (MVS), various systems including sensors, bulk water meters and SCADA systems were required for real-time data capturing and analysis. These physical devices referred to as Internet of Things (IoT), can connect to internet and share collected information, thereby helping to monitor service level parameters regularly and over a long period. An Integrated Management Information System (IMIS) would monitor the physical and financial progress, water quality and performance with reports generated for regular reviews. Audit noticed the following:

- In the test-checked districts, KWA or VWSC did not decide upon the type of measurement and monitoring system suited for implementation of the scheme. Consequently, information on source sustainability, quality monitoring, equitable supply, leakage detection and adequate pressure at tail end was not available.

- In Palakkad and Kollam, sensors were not provided to measure the quantity of water drawn and water level in the bore well in the case of ground water-based schemes in respect of SVS. In the absence of the above data, sustainability and availability of water in SVS could not be ascertained.
- As per IMIS data, SCADA system was installed only in six major WTPs of capacity 75 mld and above out of 241 water treatment plants for rural water supply.
- The Internet of Things (IoT) platform was not currently in place.

Government stated (June 2025) in reply that the implementation of SCADA, IoT and real time systems required huge investments. However, it was also assured that the learnings from the installed system would be used for a broader implementation plan for the future.

6.2. Integrated Management Information System/ e-Abacus/ e-Service

Scrutiny of IMIS/ e-Abacus and e-Service data pertaining to monitoring of JJM for the period from April 2019 to March 2025 revealed the following irregularities:

- There were variations in figures of component-wise expenditure shown in IMIS and the figures in Utilisation Certificates (UC) certified by Statutory Auditor and furnished by WRD to GoI. GoK replied (June 2025) that there was no difference between the figures in the UC and Dashboard. However, the figures furnished by Government did not substantiate the reply.
- Though 2,020 FHTCs were shown as provided to three selected GPs⁶⁷ in IMIS, ground verification revealed that these HTC were not made functional. Government in reply stated (June 2025) that these connections would be upgraded to full-fledged FHTCs as soon as the WTP at Peruvannamuzhi was commissioned.
- There were 5,107 instances of geo-tagging done outside the designated district. In 99 cases, the geo-tagged data captured in respect of FHTCs were related to positions outside the State, including eight cases seen erroneously marked in Lakshadweep Sea.

Government replied (June 2025) that due to network limitations in certain areas, coordinates were sometimes recorded through computer systems, resulting in location data being captured based on the system's IP address rather than the actual site. It was also informed that corrective measures were initiated and were in progress.

- On analysis of data on e-Service and e-Abacus, it was noticed that 66,134 number of JJM connections were not billed⁶⁸ for period ranging from three months to more than three years of connection as shown in **Table 6.1:**

⁶⁷ Meppayur, Keezhariyur and Thikkodi

⁶⁸ KWA follows Bi-monthly billing system.

Table 6.1: Details of non-billed FHTCs

Not billed for (as on 25 November 2024)	Not billed to	Total connections
3 months	1 year	30,829
1 year	2 years	22,378
2 years	3 years	10,170
More than 3 years	-	2,757

(Source: e-Abacus data)

Non-billing of an FHTC for long period would result in huge arrears having implication of recovery and possibility of litigations. Delayed billing points out to ineffective billing system and monitoring mechanisms in KWA.

Government in reply stated (June 2025) that the issue will be closely monitored to identify any outstanding bills and action will be taken promptly to resolve them.

6.2.1. Non-execution of tripartite agreement for execution of works

The District Water and Sanitation Mission (DWSM), in consultation with GP and/or its sub-committee, was to award the work to the selected agency and enter into a tripartite contract with the GP / its sub-committee and executing agency. In case ISA is involved, it will also form part of the agreement. However, in the three test-checked districts, it was noticed that the agreements were executed between the KWA and the executing agency only and the GP was not made party to the agreement.

Government replied (June 2025) that the works were awarded as per KPWD Manual and prevailing Government orders and that even though tripartite agreement was not executed, the works were being carried out with the concurrence of GPs. Agreements were stated to have been executed directly, to expedite implementation and meet project deadlines.

However, GP level surveys and Focus Group Discussions across 21 selected GPs revealed that the GPs were not informed about the commencement of work, and trial runs were not conducted in the presence of their representatives. Had the GPs been signatories to the agreements, it would have facilitated their active participation, leading to accountability in project execution.

By not being party to the agreement, the GP was deprived of its legitimate right to proactively involve in a community driven programme.

6.3. Irregularities in conducting inspections

6.3.1. Non-conduct of combined inspection at work site

On receipt of request for release of running payment from the executing agency, a combined inspection of site was to be undertaken by i) GP and/ or its sub-committee, ii) Public Health Engineering Department (PHED)/ Rural Water Supply (RWS) Department, and iii) third-party inspection agency (TPIA) empanelled by SWSM.

However, Secretaries of test-checked GPs stated that combined inspections involving the three parties were not undertaken at the worksites in the GPs and discussion points were not seen recorded in the work registers.

Government in reply stated (June 2025) that even if GP representatives were not present during joint inspection, the JJM works were proceeded with the prior approval of Panchayat authorities, who were are also vigilant about each phase of work and its evaluation.

The reply was at variance with the Focus group discussions conducted by Audit in the 21 test-checked GPs, wherein it was stated that no prior intimation was received in the GPs from KWA on execution of works and that trial run was not conducted in the presence of the GP representatives. Further, the GP representatives had complained about the poor quality of works and materials used and frequent breakage of pipes.

6.3.2. Irregular payments made to contractor without conducting Third Party Inspection

The JJM Guidelines stipulated that third-party inspection and certification of the quality and quantity of work done, was to be conducted prior to release of any payment to the contractor. As per the Terms of References for Third Party Inspection Agencies (TPIA), the TPIAs were to carry out inspection of quantity and quality of all engineering works executed under in-village infrastructure, as per the bill for payment claimed. Audit observed that, in the test-checked GPs in Kozhikode and Palakkad, third-party inspections were conducted post-construction, after processing payments for the running account bills, which was violative of instructions in Guidelines. Audit noticed that the project 'Jal Jeevan Mission - Kadalundi Grama Panchayat' in Kozhikode district was completed in May 2021 with an approved cost of ₹4.79 crore. According to the inspection report for Kadalundi GP, site inspections related to the first to ninth running account bills occurred on 13 August 2021 and 14 August 2021. For the tenth part and final bill, inspection was conducted on 02 November 2021.

Though the Managing Director, KWA had directed (December 2020) to withhold 30 *per cent* of the bill amount and release only 70 *per cent* in case of works which had not undergone third party inspection, Audit observed that, in three out of 21 test-checked GPs, though 30 *per cent* of bill amount was initially withheld due to the absence of the third-party inspection certificate, the amount was subsequently released to the contractor, on submission of the report by the TPIA.

Government stated (June 2025) in reply that 30 *per cent* of bill amount was withheld till certification after the third party inspection. It was also re-iterated that submission of certificate was a pre-requisite for processing both the final bill payment and the corresponding inspection charges to the TPIA. The 100 *per cent* payment to the contractor was based on the inspection certificate/report submitted along with the bills by TPIA.

The instruction of KWA issued in December 2020 contravened the JJM guidelines which stipulated that no payment was to be released unless third party certification was received. The release of bill amount on submission of TPIA report at later dates, as seen in audit, was irregular as third party inspection and certification of the quality and quantity of work was to be done and report

submitted, prior to release of any payment. As the reports were submitted by TPIA at a later date after payment has been made, Audit was not in a position to ascertain whether the TPIA had actually conducted the inspection or not.

6.3.3. Lapses in monitoring by Third Party Inspection Agencies

Audit noticed the following instances of poor monitoring by TPIA in test-checked districts:

- KWA empanelled (November 2022) the manufacturers/firms of Class B multi-jet water meters which were approved to be used in schemes of water supply system. During beneficiary survey conducted at selected GPs in Kollam and Palakkad districts, Audit observed that contractors had installed unapproved meters of inferior quality at the tail end of FHTCs, which were found leaking, as captured in **Figure 6.1**.



Figure 6.1: Leaking water meter of unapproved manufacturer at Pattanchery GP, Palakkad. Photo taken by Audit party on 08 January 2025

- As per the inspection reports of Bureau Veritas India Pvt Ltd., the TPIA in Kollam district, non-brass Male Thread Adapters (MTA) and Female Thread Adapters (FTA) were used, along with non-ISI taps at Munroethuruth GP and Pooyappally GP. At Thrikkovilvattom, fewer FTAs and MTAs than those prescribed in KWA drawing were seen used. Eventhough the findings were recorded as major and severe, the agency issued certificates for satisfactory quantity and quality.

This clearly established that the inspections conducted by TPIAs were ineffective.

Government replied (June 2025) with respect to FHTC referenced in Palakkad district that part of the work was completed under KIIFB. The reply was not tenable, as the FHTC commented upon by Audit was provided under JJM and the fact was confirmed by KWA.

Government reply was silent on the performance of TPIAs.

Recommendation

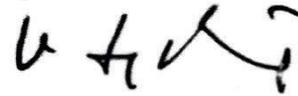
- **Government may ensure that KWA implements an appropriate measurement and monitoring system, leveraging Internet of Things (IoT) based technologies to strengthen the mechanism for data governance and validation in respect of IMIS (JJM).**



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