

CHAPTER – III
PUBLIC HEALTH
ENGINEERING
DEPARTMENT

Chapter-III PUBLIC HEALTH ENGINEERING DEPARTMENT

Compliance Audit on “Implementation of State Rural Drinking Water Programme in Madhya Pradesh”

Summary

Audit covered the period from 2018-19 to 2020-21 and scrutinized the records in detail in 10 Public Health Engineering Divisions out of 55 Divisions of the Public Health Engineering Department and 18 Schemes out of 58 Schemes being executed by Jal Nigam Maryadit. The records of the Engineer-in-Chief, Public Health Engineering Department were also examined. During the scrutiny of records, Audit noticed the following:

- *Non-adherence to scheme guidelines and infructuous expenditure on preparation of Detailed Project Reports, Poor workmanship by the Consultants, Non-ensuring sustainability of water source, Slip back of fully covered habitations to partially covered habitations, Improper estimation led to additional cost, Non-coverage of all households of villages.*
- *Funds were lying idle with the Nigam at the end of the years 2018-19 and 2020-21, diversion of funds of Jal Jeevan Mission funds.*
- *Non-coverage of all households of villages, Irregular payment of Excise Duty to the contractors, Non-deduction of Liquidated Damages, Adoption of incorrect rate for over-head tanks, Irregular advance payment to the contractors, Failure to obtain additional Bank Guarantee from the contractors, Irregular release of Bank Guarantee to the contractors, Irregular release of Performance Security and Security Deposit to the contractors.*
- *Irregularities in Monitoring & Quality Control of Schemes, Deficiencies in Operation & Maintenance.*

These instances of shortcomings, in aggregate, involved an overall impact of ₹ 283.42 crore.

3.1 Introduction

The Public Health Engineering Department (Department) of the Government of Madhya Pradesh (State Government) is the principal agency for monitoring and managing various water resources for extending safe drinking water facilities to the rural population¹ of the State. To provide adequate safe water for drinking and other domestic needs to every rural citizen of the State, the Department implements the State Rural Drinking Water Programme (Programme). The Programme includes drilling of tube wells, installation of hand pumps and motor pumps, and implementation of Rural Piped Water Supply Scheme by providing water through tap connection to every household.

In July 2012, the State Government incorporated the Madhya Pradesh Jal Nigam Maryadit (Nigam) under the administrative control of the Public Health Engineering Department. The Nigam was envisaged as an implementing agency to execute the Multi-Village Rural Water

¹ In urban areas water supply is to be ensured by the local bodies, e.g. Municipal Corporations.

Supply Schemes (Scheme) whereas Single Village Schemes were to be executed by the department on behalf of the State Government.

The Public Health Engineering Department is headed by an Additional Chief Secretary at the Government level. The Engineer-in-Chief (E-in-C) is the head of the Department followed by Chief Engineers, Superintending Engineers and Executive Engineers. The Nigam is headed by a Managing Director who is assisted by a Project Director and General Managers.

3.2 Budget Allotment and Expenditure

Budget Allotment and Expenditure of the Programme during the period, 2018-19 to 2020-21 are detailed in **Table 3.1** below:

Table 3.1: Budget Allotment and Expenditure

(₹ in crore)			
Years	Implementing Agency	Allotment	Expenditure
2018-19	Department	536.27	446.95
	Nigam	1,274.70	1,048.30
2019-20	Department	438.57	396.35
	Nigam	1,463.00	1,441.29
2020-21	Department	352.48	344.70
	Nigam	1,858.15	1,825.05
Total	Department	1,327.32	1,188.00
	Nigam	4,595.85	4,314.64

(Source: Information furnished by Public Health Engineering Department)

3.3 Objective and Scope of Audit

This Audit was conducted between June and October 2021 covering the period from 2018-19 to 2020-21 to ascertain whether the Project planning was adequate, fund allocation was sufficient, relevant codal and contractual provisions were followed in construction, repair and maintenance of work; required quantity and quality of water was supplied to the targeted beneficiaries and effective quality control and monitoring was in existence during 2018-19 to 2020-21.

Audit examined the records in 10 Divisions² out of 55 Divisions of the Department and 18 Schemes³ (as detailed in **Appendix 3.1** and **Appendix 3.2**) out of 58 Schemes being executed by Nigam. The records of the Engineer-in-Chief were also examined at the headquarters.

Audit Findings

Audit findings related to deficiencies in planning and estimations and issues related to tendering, execution, quality control and monitoring are briefly discussed in the succeeding paragraphs.

² Barwani, Betul, Bhopal, Damoh, Mandla, Morena, Rajgarh, Raisen, Ratlam and Satna.

³ Out of the total 58 Schemes, 19 Schemes were completed and 39 were under progress. Out of 19 completed Schemes, 12 Schemes which were completed during the Audit period (2018-19 to 2020-21) and out of 30 ongoing Schemes whose financial progress as on 31 March 2021 was more than 60 per cent of the cost, six Schemes were selected for detailed scrutiny. Financial progress of the remaining nine ongoing Schemes was less than 60 per cent of the cost, hence were not selected.

3.4 Scheme planning and preparation of Detailed Project Reports

3.4.1 Non-adherence to scheme guidelines and infructuous expenditure on preparation of Detailed Project Reports by the Department

The Department issued (between May and July 2017) guidelines for the implementation of *Mukhyamantri Gram Naljal Yojana*, a Piped Water Supply Scheme under the Programme in the State. As per the guidelines, the Executive Engineer has to identify eight villages having population of more than 1,000 from each Block and forward the details of these villages to the Superintending Engineer for marking under the scheme. Thereafter, the Superintending Engineer has to forward the proposal to the Chief Engineer, who will analyse the same and issue the list of villages marked for Piped Water Supply Scheme. Further, the Executive Engineer has also to ensure availability of water sources having adequate quantity of drinkable water in all the marked villages and send the proposal to the Superintending Engineer, who will examine the proposal as to eligibility of the villages in respect of the norms⁴ for supply of water and send the same to the Chief Engineer for approval. The Chief Engineer will examine the proposal and issue the list of eligible villages.

Out of the 'eligible' villages, four such villages from each Block are to be selected where implementation of the scheme was possible as per the Detailed Project Report. Finally, the Chief Engineer will issue the list of 'selected' villages.

Audit observed that:

- The Executive Engineers of all the 10 selected Divisions had sent lists of 491 villages to their Superintending Engineers but the prescribed norms were not followed while determining the numbers of villages for inclusion in the lists. In six Divisions, the numbers of villages were more than eight per Block, whereas in two Divisions, the numbers of villages were less than eight per Block as detailed in **Appendix 3.3**. However, it was observed that no list of 'marked', 'eligible' and 'selected' villages was issued by the Chief Engineer. Hence, the villages were selected by the Department without following the requisite stages⁵ and all the 491 villages were selected for implementation of the scheme by the Divisions in the absence of the said communication from the Chief Engineer.
- Further, Para 3(ix)(d) of the above cited circular (July 2017) stipulates that after the process of marking villages, the process of ascertaining the sufficiency and quality of water will be taken up. As soon as the first four eligible villages are identified their names will be included in the list of eligible villages for execution of the programme.

Out of 491 selected villages in the 10 selected Divisions as mentioned in **Appendix 3.3**, Detailed Project Reports were prepared only for 373 villages, of which 273 Detailed Project Reports were approved and administrative approval was given accordingly. However, the scheme was actually started in 266 villages. The reasons for not taking up the scheme in the remaining 107 villages, despite incurring an expenditure of ₹ 4.96 crore (as detailed in **Appendix 3.4**) for assessment of the water source and preparation of Detailed Project Reports for these villages, were not available in the records of the Divisions.

⁴ Supply of quality water at the rate of 70 litres per capita per day, minimum seven metre pressure of water at the dead end of the villages.

⁵ 1st stage: Marking of villages as per population; 2nd stage: Assessment of adequate drinking quality water in the existing bores or taking drill for new bore; 3rd stage: Preparation of Detailed Project Report for the villages where adequate quality water is available in bore as per supply norms; 4th and the last stage: Execution of approved works against the submitted Detailed Project Reports.

The Government stated (August 2022) that the schemes for the said 107 villages were to be implemented under Jal Jeevan Mission⁶ (JJM) hence they were excluded from the Mukhyamantri Gram Naljal Yojana. These DPRs have been modified as per the JJM guidelines for implementation of the schemes.

The reply is not acceptable because records regarding selection of these villages under JJM were not shown to Audit. Consequently, audit cannot derive assurance that these villages have actually been included into Jal Jeevan Mission or not and whether additional expenditure towards preparation of the DPRs has been incurred.

3.4.2 Infructuous expenditure on preparation of Detailed Project Reports by Nigam due to absence of Identification Report

As per Paragraph 3.2 of the Manual on Water Supply and Treatment issued (May 1999) by Central Public Health and Environment Engineering Organisation, Government of India, an Identification Report is required to be prepared for a potential Scheme prior to the preparation of Detailed Project Report. An Identification Report is a "desk study", to be carried out relying primarily on the existing information. It also provides an idea of the magnitude of the cost estimates of a Scheme to facilitate bringing the Scheme in planning and budgetary cycle for obtaining sanction to incur expenditure for carrying out the next stages of Scheme preparation.

Audit observed (March 2021) that Nigam had entrusted the work of preparation of Detailed Project Report during May 2013 to October 2020 for 144 Schemes to the Detailed Project Report Consultants. However, the Identification Reports of the potential Schemes for their selection were not available on the records. Out of the selected 144 Schemes, only 64 Schemes were taken up by the Nigam of which two Schemes could not start due to the absence of water sources. The remaining 80 Schemes having estimated Project Cost of ₹ 40,817.38 crore could not be taken up by the Nigam even after lapse of one to eight years from the dates of preparation of their Detailed Project Reports after incurring ₹ 27.19 crore for its preparation, mainly due to not prioritizing the same by the State Government. Consequently, the villages to be covered under those Schemes were also deprived of safe and adequate drinking water.

In reply, the Government stated (August 2022) that 48 Schemes out of the remaining 80 Schemes have been approved for execution by the State Level Scheme Sanctioning Committee. And, NIT for 26 Schemes out of these 48 Schemes have already been issued in January 2022.

The reply is not acceptable as Nigam has not furnished such identification reports to the Audit. Further, there is huge delay ranging up to eight years in approval of the 48 Schemes after preparation of DPRs and remaining 32 Schemes are still pending for approval, which resulted into blocking up of the expenditure of ₹ 27.19 crore incurred on preparation of these 80 DPRs.

⁶ Jal Jeevan Mission is envisioned by Department of Drinking Water & Sanitation, GoI to provide safe and adequate drinking water through individual household tap connections to all households in rural India.

3.4.3 Preparation of defective Detailed Project Reports

As per Clause 3.8 of the Agreement for preparation of Detailed Project Reports, the Nigam was required to take action against the Detailed Project Report Consultant in case of poor workmanship in the preparation of Detailed Project Reports. As per Clause 9.4⁷ of the Manual, provision for a dedicated 33 kV feeder was to be made in the Detailed Project Report.

Audit observed (October 2021) that in the Detailed Project Report of Udgawan Scheme (May 2013) the consultant did not provision for suitable electric line. After completion of the Scheme, the power supply for operation of Intermediate Pumping Stations was taken from 11 kV Low Tension line.

Later, the Nigam decided (December 2019) to install a dedicated 33 kV line from Datia sub-station for Dangkarera and Palothar Intermediate Pumping Stations at an additional cost of ₹ 2.30 crore, which was however not implemented. The Nigam also did not take any penal action against the consultant in this regard. Audit observed that due to deficient supply of electricity, water supply to 25 out of total 71 villages (35 *per cent*) was affected and could be made only on alternate day basis.

In reply, the Government stated (August 2022) that the supply was considered to be taken from 11 kV line to make the scheme cost effective as the sub-station was at a distant location and alternatively, supply to Dangkarera and Palothar Intermediate Pumping Stations were shifted to agricultural feeder which regularized the power supply.

The reply is not acceptable as Nigam failed to effectively monitor the performance of the consultant(s) and take sou-moto action for preparation of defective DPRs.

3.4.4 Sustainability of water source

3.4.4.1 Non-ensuring sustainability of water source by Nigam

As per Para 9.1 read with Para 3(b) of Manual for preparation for Detailed Project Report for Rural Piped Water Supply Schemes, it shall be ensured that selected water sources shall be capable of meeting 100 *per cent* water requirement of the system for the entire design period of 30 years. Para 9.1 *ibid* further stipulates that sources selected shall be capable of meeting water requirement of the system for the design period. Source dependability shall not be less than 100 *per cent*. If the selected source is non-perennial, then desired impounding reservoir shall be created with necessary structural protection works to meet the lean period demands.

The Nigam identifies the source of raw water from river, dam, reservoir, pond, etc. at the time of planning a Scheme, for which water allocation for the quantity of water required for 30 years is provided by the Madhya Pradesh Water Resources Department. Water Supply Agreement for the supply of allocated quantity of water is also executed between the Nigam and Madhya Pradesh Water Resources Department.

Audit noticed (October 2021) in eight schemes that sustainability of water sources was not ensured by the Nigam throughout the year, as it was observed that for 72 days to 171 days, no water was available in the respective water source and for 111 days to 297 days the available water was less than the immediate requirement of the Schemes, as detailed in **Appendix 3.5**. Hence, in the above eight Schemes, identified water source was not completely dependable, as it was not perennial in all seasons.

⁷ As per Clause 9.4 of the Manual, suitable provision was to be made in Detailed Project Report for dedicated 33 kV feeder for Raw Water Pumps from nearby 132/33 kV sub-station to ensure the supply of timely and adequate drinking water in the villages covered under the Scheme.

Out of the eight schemes in respect of 82 villages under four Schemes⁸, water was supplied below the required pressure of seven metres and daily water supply was not ensured (*referred to in para 3.7.1 below*). Therefore, site selection of water sources was inappropriate and design was faulty as the department could not ensure availability of water through construction of impounding reservoirs for storage of water.

In reply, the Government stated (August 2022) that the water allocation by the Madhya Pradesh Water Resource Department has been done as per requirement of Multi Village Water Supply Schemes and thus the question of uncertainty of water availability does not arise.

The reply is factually incorrect as the Manual stipulates that the Department was to ensure sustainability of water source through all possible measures.

3.4.4.2 Non-provisioning of Security and Sustainability of Water Source by PHE Divisions

The Department had issued instructions (July 2017) that provision for ensuring security and sustainability of water source shall be made compulsorily in all the Detailed Project Reports and executed accordingly.

Audit observed that provisioning of sustainability was included in the Detail Project Reports of 147 piped water supply works of 10 Divisions, but was incorporated in 10 Agreements (four in Bhopal and six in Raisen). Furthermore, out of these 10 Agreements, it was executed under one Agreement only. Reasons for not including this provision in the remaining 137 agreements were not available in the records.

In reply, the Government stated (August 2022) that necessary structures for water augmentation of ground water sources are being constructed by the Panchayat & Rural Development Department under 15th Finance Commission and MNREGA.

The reply is not acceptable because provisions of water harvesting was already made in the above DPRs. Hence, this must have been included in the Agreements and executed accordingly. Further, the fact that in violation of the agreement, the executing agency implemented the sustainability measures for the source in only one out of 10 agreements indicated poor monitoring and weak control.

3.4.4.3 Slip back of fully covered habitations to partially covered habitations

The main aim of the drinking water schemes is to ensure that the habitations covered thereunder do not slip back⁹ from the category of covered habitations to uncovered or partially covered habitations due to depletion of the ground water level.

Audit observed that under five Divisions¹⁰ 1,914 habitations out of 11,248 habitations (March 2019) and under three Divisions¹¹ 493 habitations out of 10,829 habitations (March 2020) have slipped back from the category of fully covered habitations as detailed in **Table 3.2**.

⁸ Dhuti, Piparjhari, Devsarra and Bhatara.

⁹ Habitations shifted from category of fully covered to partially covered due to drying up of sources or contamination of water, etc. (CAG Report no. 15 of 2018 on National Rural Drinking Water Programme).

¹⁰ Rajgarh, Raisen, Mandla, Ratlam and Morena.

¹¹ Damoh, Satna and Barwani.

Table 3.2: Status of slip back of fully covered habitations to partially covered habitations

Sl. No.	Name of Districts	(in number)			
		Fully covered habitations at the end of March 2019/ March 2020	Fully covered habitations in March 2021	Slip back habitations	Percentage of slip back
1	Rajgarh	2,079	1,417	662	31.84
2	Raisen	1,629	1,505	124	7.61
3	Mandla	2,909	2,226	683	23.47
4	Ratlam	1,306	1,294	12	0.91
5	Morena	3,325	2,892	433	13.02
6	Damoh	1,278	1,247	31	2.42
7	Satna	4,324	3,945	379	8.76
8	Barwani	5,227	5,144	83	1.58
			Total	2407	

(Source: Records of Public Health Engineering Department)

From the above table, it can be seen that 2,407 habitations slipped back from fully covered habitations to partially covered habitations. The reason behind the slipping back of the habitations was the depleting ground water level.

Further, in most of the habitations, drinking water is provided through hand pumps and tube wells. As of March 2022, the Department had made 1,06,665 drillings for handpumps and tube wells during the different time span in the above Districts. The Department had, however, not maintained the details, viz. dates of drilling, water levels, etc. for these handpumps and tube wells, and did not make any effort for enhancing / stabilising the ground water level. Therefore, the Department failed to keep watch over the depleting water level.

The Government accepted (August 2022) that the habitations slipped back from fully covered to partially covered due to the reasons of expansion of rural habitations and utilisation of ground water for other purposes such as irrigation. The necessary works for water augmentation are being done by the Panchayat & Rural Development Department.

A report on the progress of augmentation measures is awaited (January 2023).

3.4.5 Improper estimation led to additional cost

In Manpur Multi Village Scheme in Umaria, Engineering, Procurement and Construction work was awarded (August 2014) to a contractor at a cost of ₹ 49.08 crore.

Audit observed that although the number of household connections (9,820) remained unchanged, there was huge increase in the quantity of two components: Clear Water Pumping Main (272 per cent) and Water Distribution Network (112 per cent) during execution of the work as detailed in **Appendix 3.6**. This resulted in an excess expenditure of ₹ 8.09 crore.

In reply, the Government stated (August 2022) that the total 9,820 Nos. of household were calculated as per projected population of the year 2025. Further, the huge variations of Clear Water Pumping Main and Water Distribution Network occurred due to inclusion of the habitations/ *majras/ tollas* located far away to fulfill the demand of villagers.

The reply is factually incorrect as total number of household (9,820 Nos.) under the schemes was already taken as per the projected population of the year 2025 of those villages covered in this scheme. Therefore, the issue of additional increase in the distribution network did not arise, as stated by the Government.

3.4.6 Non-coverage of all households of villages

As per the minutes of review meeting dated 28.12.2012 chaired by Secretary, PHED, it was decided to adopt the provisions of Manual of Preparation of DPR 2012 and population of villages to be collected from the revenue offices to calculate the total water demand as per the norms. Further, as per Para 4.1 and 4.2 of the Manual, the estimation of design population was to be done considering the census data for past decade with population projection with due regard to future growth and this design population should then be used to calculate water demand for the proposed water supply scheme.

Audit observed that the following households of the selected villages under four Schemes were not included (August 2014 to April 2017) in the Schemes by the Nigam, as detailed in **Table 3.3** below:

Table 3.3: Details of households not covered under the Schemes

S. No	Name of the Schemes	No. of villages	Total cost of the scheme (₹ in cr.)	No. of households excluded
1	Udgawan Scheme, District- Datia	19	90.35	468
2	Byarma Scheme, District -Damoh	17	36.70	589
3	Narhela Scheme, District – Morena	03 ¹²	77.66	724
4	Bankpura Scheme, District-Rajgarh	05 ¹³	122.86	526
Total			327.57	2,307

(Source: Information furnished by the Nigam)

In spite of expenditure of ₹ 327.57 crore made on the execution of four Schemes, 2,307 households out of the total 70,010 households were not included. Consequently, the benefit of the Schemes could not reach the intended beneficiaries covered under the Scheme. Further, additional expenditure will have to be made for covering the left-out villages.

In reply the Government stated (August 2022) that to make the project economic and viable, the habitations under villages with ample sources of water were not added under Piped Water Supply Scheme.

The reply is not acceptable as no reasons (with proper records) for exclusion of households were made available to Audit in support of Department's claim that left out villages had ample source of water.

3.5 Utilisation of fund

3.5.1 Improper utilisation of funds by Nigam

As per Rule 284 of Madhya Pradesh Treasury Code (Volume-I), no money shall be drawn from the treasury unless it is required for the immediate disbursement.

Audit observed that:

- During 2018-19 to 2020-21, the Nigam had not utilised the entire amount of Funds received by it. At the end of the years 2018-19 and 2020-21, ₹ 273.75 crore and ₹ 1,012.70 crore respectively were lying idle with the Nigam as detailed in **Appendix 3.7**.

Nigam replied (October 2021) that amount has been withdrawn based on anticipation of the bills which could not be disbursed and shown as unutilised.

¹² Dharod, Kunwarpura and Dhoren.

¹³ Kalakot, Bankpura, Jagnyapura, Palave and Chanderi.

The reply is not acceptable as withdrawal of amount of ₹ 1012.70 crore out of total expenditure of ₹ 1825.04 crore in anticipation of bills was not only irregular but also imprudent fiscal planning.

- The Nigam awarded the works for execution of Bankpura and Satna-Bansagar Schemes in April 2017 and July 2018 respectively under funding from the National Bank for Agriculture & Rural Development and New Development Bank, respectively to the contractors. The works of both the Schemes were still ongoing. Further, Jal Jeevan Mission was introduced (December 2019) by Government of India, in which there was provision of 50 *per cent* funding by Government of India for in-village water supply infrastructure for augmentation of the existing distribution network. The in-village supply infrastructure means distribution network of pipelines to provide the household connections in case of the requirement in augmentation of the existing distribution network in any scheme wherein additional distribution network was additionally required due to expansion of population, inclusion of additional *tola/majra* etc. However, it was not envisaged to take up those works which were already been required to be done under the scope of scheme and duly funded by another agencies NABARD and NDB.

Further, under the Bankpura¹⁴ and Satna-Bansagar¹⁵ Schemes, the Nigam paid to the contractors ₹ 1.12 crore and ₹ 43.73 crore, respectively from the Jal Jeevan Mission Fund for the various works, which were already required to be done under the existing scope of these Schemes and duly funded by NABARD and NDB. This led to diversion of ₹ 44.85 crore of Jal Jeevan Mission funds towards non-eligible works of these schemes.

In reply, the Government stated (August 2022) that Jal Jeevan Mission Fund was used for in-village infrastructure of both the Schemes on the basis of approval accorded by the State Level Scheme Sanctioning Committee.

The reply is not acceptable because Nigam failed to provide the reasons for utilising Jal Jeevan Mission funds for those in-village infrastructure which was already required to be executed in the existing scope of scheme funded by the NABARD and New Development Bank.

3.6 Award and Execution of work

3.6.1 Non-coverage of all households of villages

As per the strategic plan of the Department, 100 *per cent* connections were to be provided to the household under the piped water supply scheme.

Audit observed in 77 works out of 116 completed piped water supply works in nine Divisions, that out of 35,695 households tap water connection had been provided to 26,887 households only. In none of these Divisions, 100 *per cent* piped water connection was achieved. The shortfall in providing tap connections ranged between 13 *per cent* to 35 *per cent* as detailed in **Appendix 3.8**. Thus, the habitants were deprived of safe and potable drinking water.

In reply, the Government stated (August 2022) that in drinking water schemes, provision for the number of domestic tap water connections on the basis of the number of families residing in the respective villages was made according to the data of Samagra Samajik Suraksha Mission and accordingly the above component was included in the contracts. For more than

¹⁴ Construction of 55 Elevated Surface Reservoirs under the Scheme, these were in the scope of Scheme.

¹⁵ For construction of in-village infrastructures, which were already included in the original scope of work of the contractor.

one family residing in a household, only one or more domestic tap connections were given as per the demand of the head of the households. The households which had private tap connections in their homes were not given tap connections. Due to the reasons mentioned above lesser number of tap connections were given than contracted. The other reasons, apart from this are being investigated.

The reply is not acceptable as the fact remains that lesser number of domestic connections were provided (*vis-à-vis*) the number of households. Further, reply of the Government that provision for number of domestic tap water connection on the basis of the number of families residing in the respective villages was made according to the data of Samagra Samajik Suraksha Mission is not correct as Detailed Project Reports were prepared for the projected population in 2018 based on the 2011 census after factoring the population growth rate based on the population growth of the previous decade i.e. 2001-10.

3.6.2 Irregular payment of Excise Duty to the contractors by Nigam

The Government of India, Ministry of Finance (Department of Revenue) vide Gazette Notification No. 12/2012-Central Excise dated 17.03.2012, exempted the payment of Excise Duty in public interest on all the items¹⁶ required in setting up of water supply plant on the basis of certificate issued by the competent authority¹⁷.

Audit observed that the Nigam had invited 17 tenders on turnkey basis during 2013-14 to 2015-16 i.e., before implementation (01.07.2017) of the Goods and Service Tax Act. Clause 7.3 (Taxes) of Part-III of the Tender Document issued by Nigam specified that all the charges, taxes or duties including the Excise Duty shall be payable by the contractor. However, Nigam will help the contractors to get exemption certificates from the competent authority. The rate quoted by the contractors should include all taxes and duties. The contractors had quoted their rates including the Excise Duty payable at the rate of 12.50 per cent on the 60 per cent cost (material cost) of the tender.

Audit further observed that though all the materials required for the setting up of Water Supply Plant were exempted from Excise Duty, the contractors had been paid at their quoted rates (which were inclusive of Excise Duty) even when they had been issued certificates with respect to duty exemption. Thus, contractors were provided undue financial benefit of ₹ 72.90 crore as detailed in **Appendix 3.9**.

In reply, the Government stated (August 2022) that before applicability of the GST rates for the works were invited inclusive of all taxes (inclusive of Excise Duty) to be payable by the contractors and an Excise Exemption Certificate was issued (as per Clause 7.3 of Part III of the Tender Document) to the contractors by Nigam for the quantities of items actually used in the work. Nigam has acted in accordance with the provision stated above.

The reply itself corroborated audit contention that on one hand, contract rates were inclusive of all taxes including excise duty and payments to the contractors were also made inclusive of the excise duty, and on other hand, excise duty exemption certificate were also granted to the contractor resulting into undue financial benefit to the contractors.

3.6.3 Non-deduction of Liquidated Damages

3.6.3.1 As per Clause 13 of the “Conditions of Contract” of the executed Agreements for implementation of Schemes, the whole work was to be completed in all respect within 18 to 24 months from the date of issue of the order for commencement of work. If the whole

¹⁶ Machinery, including pipes, instruments, apparatus and appliances, auxiliary equipment and their components/parts.

¹⁷ Collector/ Deputy Collector/ District Magistrate of the District in which the Scheme is carried out.

work is not completed to the satisfaction of the Engineer-in-Charge within the said period, the contractor was liable for payment of Liquidated Damages for each default at specified rates¹⁸, subject to maximum of 10 *per cent* of Contract Value.

Audit observed that:

- Twelve Schemes were completed with a median delay of 586 days and six ongoing Schemes have a median delay of 756 days from the date of their scheduled completion.
- Out of the above, in seven completed and one ongoing Schemes, the contractors delayed the Schemes by 532 median days, but liquidated damages of ₹ 36.90 crore were not deducted by the Nigam despite the delay being attributable to the contractors, as detailed in **Appendix 3.10**.

In reply, the Government stated (August 2022) that liquidated damages would be recovered from the contractors of seven¹⁹ Schemes. In the remaining Schemes, the delays in work were caused by hindrances for which the contractors were not responsible.

A report on recovery is awaited (January 2023).

3.6.3.2 As per Clause 15 of Part-I of General Conditions of Contract, the time allowed for carrying out the work shall be strictly observed by the contractor. Failure of the contractor to adhere to the timeliness shall attract liquidated damages at the rate of 0.05 *per cent* per day of delay limited to a maximum of 10 *per cent* of the contract price.

Audit observed that out of 147 works (116 completed and 31 ongoing) in 10 Divisions only eight works²⁰ were completed in time whereas the median²¹ delay in completed works was of 257 days, while in on-going works, it was 851 days, as shown in **Appendix 3.11**.

The time extension was sanctioned by the Superintending Engineer in 18 works only. In the remaining 121 works neither time extension was granted nor was any penalty imposed on the contractors for delay in execution of works. In eight, out of 18 works of Satna Division where time extension was granted, the Superintending Engineer sanctioned time extension without analysing the reason for delay and stated that penalty should be calculated and imposed before making final payment to the contractor. In 10 delayed works²², the Superintending Engineer in nine works and the Executive Engineer in one work sanctioned time extension with penalty at 0.05 *per cent* to 2.50 *per cent* of the contract amount for the total delay of 15 to 323 days attributable to the contractor ignoring the provisions of the agreement at the rate of 0.05 *per cent* per day of delay limited to a maximum of 10 *per cent* of the contract price.

Therefore, in 129 works²³ penalty of ₹ 13.41 crore for delay was not levied while in 10 works penalty of ₹ 39.86 lakh was short levied.

¹⁸ Contract Value between ₹ 25 crore and ₹ 50 crore: ₹ 1.00 lakh per day, Contract Value between ₹ 50 crore and ₹ 100 crore: ₹ 1.50 lakh per day, and Contract Value above ₹ 100 crore: ₹ 3.00 lakh per day.

¹⁹ Udgawan, Majholi, Niwari, Manpur, Narhela, Bankpura and Niwari-Prithvipur.

²⁰ In three works total delay was of six to seven days which is treated as timely completion of work, 1: In Rajgarh, Village Limboda and Kharpa (Delay six and seven days) 2: Betul, Village Sehra (Delay six days).

²¹ The median is the middle number in a sorted, ascending or descending list of numbers and can be more descriptive of that data set than its average.

²² Damoh: Five works, Raisen: Four works and Betul: One work.

²³ 123 works (neither time extension nor imposition of penalty) + six works (no penalty imposed even after granting time extension) = 129 works.

In reply, the Government stated (August 2022) that penalty on the contractor would be imposed after analysis for delay in work. After completion of work, analysis for delay can be done by the Department and accordingly penalty would be imposed as per agreement conditions. The concerning Divisions have been instructed to impose and recover the penalty.

A report on recovery is awaited (January 2023).

3.6.4 Adoption of incorrect rate for over-head tank by PHE Divisions

As the rates for construction of overhead tanks were not in the Unified Schedule of Rate applicable in the Department, the same were decided in the 12th meeting (January 2018) of the Technical Committee of the Department as shown in **Table 3.4** below:

Table 3.4: Rates for over-head tanks determined by the Technical Committee

Capacity of over-head tank (In Kilo Liter)	Rate of over-head tank with 12 meter staging (₹/ Litre)	Rate of over-head tank with 15 meter staging (₹/ Litre)
75	15.30	The rate of Overhead Tank for 15-Meter-high staging shall be calculated by multiplying the rate mentioned in column 2 by 1.05 (five per cent more).
100	12.15	
125	10.80	
150	10.10	

(Source: Information furnished by Public Health Engineering Department)

Audit observed in 18 piped water supply works in four Divisions (Rajgarh, Raisen, Betul and Mandla) that instead of considering the rate determined by the Technical Committee, higher rates were adopted in the bill of quantity for construction of over-head tanks. This resulted in extra cost of ₹ 78.51 lakh as detailed in **Appendix 3.12**.

In reply, the Government stated (August 2022) that the matter is being examined.

3.6.5 Irregular advance payment by PHE Divisions

Clause-X of Annexure-E of the Agreement executed with the contractor stipulated that after completion of all the works and trial run/commissioning of piped water supply scheme, contractor shall operate and maintain the whole scheme for a period of 24 months including defect liability period²⁴. Operation & maintenance period shall start only after 30 days of successful trial run for two years and shall be paid²⁵ according to quarter wise period of operation & maintenance.

Audit noted in 19 piped water supply schemes in three Divisions (Damoh, Satna and Morena) that payment of ₹ 43.21 lakh for operation & maintenance period were made to the contractors even before completion of successful trial run of the schemes. In two works²⁶ of Morena District, it was noted that the amount for operation & maintenance was paid to the contractor even before completion of the schemes. This has resulted in irregular advance payment of ₹ 43.21 lakh to contractor for operation & maintenance as detailed in **Appendix 3.13**.

In reply, the Government stated (August 2022) that the matter is being examined.

²⁴ Defect liability period is trial run +12 months, and the trial run will be of 30 days.

²⁵ Payable equally in each of eight quarters.

²⁶ Village Baretha and Johan of Morena Division.

3.6.6 Failure to obtain additional Bank Guarantee by Nigam

As per the circular²⁷ issued (2 May 2016) by Madhya Pradesh Public Works Department, if the rates quoted by the contractor are found lower than 15 *per cent* of the Schedule of Rates, an additional Bank Guarantee equal to the difference of Schedule of Rates and the lowest rates must be deposited by the contractor to ensure the successful completion of the work.

Audit observed that:

- In Satna-Bansagar Scheme in district Satna, the price quoted by the contractor, was 20.64 *per cent* below the estimated cost of ₹ 1,431.41 crore. Before execution of the Agreement the Nigam should have obtained additional Bank Guarantee of ₹ 80.74 crore²⁸ from the contractor but the same was not done.
- In Basai Scheme in districts Datia and Shivpuri, the price quoted by the contractor was 21.42 *per cent* below the estimated cost of ₹ 62.92 crore. Before execution of the Agreement the Nigam should have obtained additional Bank Guarantee of ₹ 4.04 crore²⁹ from the contractor but the same was not done.

In reply, the Government stated (August 2022) that the rates received against above schemes were 10.04 *per cent* and 8.78 *per cent* below the Probable Amount of Contract (PAC) of ₹ 1,245.27 crore and ₹ 54.96 crore, respectively, hence, additional bank guarantee was not taken.

The reply is not acceptable because the PAC had been revised (August 2018) by Nigam as ₹ 1,431.41 crore and ₹ 62.92 crore, respectively. Hence, additional Bank Guarantee should have been obtained from the contractors.

3.6.7 Irregular release of Bank Guarantee by Nigam

As per Clause 3.5 of Part-III of the Agreement, the security to be taken for due performance of the contract will be equal to 10 *per cent* of the amount of the contract in the form of Bank Guarantee of a Nationalised/ Scheduled bank valid up to one year after the date of completion of the work.

Audit observed that:

- The contractor of Mohkhed Scheme in Chhindwara, had deposited a Bank Guarantee of ₹ 5.49 crore on 6 July 2015. The work was to be completed by 19 March 2017 but was still incomplete. The Nigam, however, released the Bank Guarantee of ₹ 5.49 crore to the contractor on 30 October 2019.
- The Nigam awarded (20 October 2014) the Udawan Scheme in Datia to a contractor who deposited Bank Guarantee of ₹ 9.04 crore on 30 October 2014. The work was to be completed by 31 January 2018 but was still incomplete. The Nigam, however, released the Bank Guarantee of ₹ 9.04 crore to the contractor on 30 July 2020.

Thus, the Nigam extended undue favour to the contractors by releasing the Bank Guarantee before completion of the works.

²⁷ The Works Manual of the Madhya Pradesh Public Works Department was also applicable to the MPJNM as the Department, State Government has circulated a letter dated 20.01.2017 to the Nigam in which condition of the Contract had been changed as per M.P.P.W.D Manual.

²⁸ (Estimated cost ₹ 1431.41 crore less 15 *per cent* of the Estimated cost ₹ 1431.41 crore) less the Contract cost ₹ 1135.96 crore = ₹ 80.74 crore.

²⁹ (Estimated cost ₹ 62.92 crore less 15 *per cent* of the Estimated cost ₹ 62.92 crore) less the Contract cost ₹ 49.44 crore = ₹ 4.04 crore.

In reply, the Government stated (August 2022) that in Udgawan Scheme the work had been substantially completed and an additional work amounting to ₹ 1.69 crore was to be done. In Mohkhed Scheme, the work has been completed. This is why the Bank Guarantees had been released.

The reply is not acceptable because release of Bank Guarantee before expiry of the specified period was irregular.

3.6.8 Irregular release of Performance Security and Security Deposit by PHE Divisions

Clauses 22.1 and 30 of the Agreement stipulated that prior to signing of the contract, the bidder shall have to furnish performance security of five *per cent* of the contract amount, besides, Security Deposit shall be deducted from each running bill at the rate of five *per cent*. Performance Security shall be released after completion of entire operation & maintenance period (24 months) whereas Security Deposit shall be released after defect liability period (12 months).

Audit observed that out of 50 works of Piped Water Supply Schemes in four Divisions (Raisen, Betul, Mandla and Morena):

- Forty works had been executed and completed during 2018-21 and the Performance Security was released after completion of works but before the completion of 24 months of operation & maintenance period.
- Ten works were ongoing, and the Divisions inexplicably released the Performance Security even before completion of the works.

Thus, the irregular release of Performance Security resulted in undue financial benefit to the contractors amounting to ₹ 2.44 crore as detailed in **Appendix 3.14**.

Audit further observed in five works of Mandla, that the Security Deposit was released after completion of the works but before completion of 12 months of defect liability period. This resulted in undue financial benefit to the contractors amounting to ₹ 6.73 lakh as detailed in **Appendix 3.15**.

In reply, the Government stated (August 2022) that the Executive Engineers of all the Divisions have been instructed to take necessary action and release Performance Security and Security Deposit only after the stipulated period as per the Agreement.

The reply is silent about the violation of previous Agreements already committed by the Executive Engineers.

3.7 Monitoring and Quality Control

3.7.1 Irregularities in Monitoring and Quality Control of Schemes by Nigam

The Schemes were planned and executed by the Nigam considering 55 liters *per capita* daily (LPCD) drinking water requirement at seven meter pressure, as per directions issued by the State Government (December 2012).

During the Audit period (2019-21), 12 Schemes³⁰ covering 241 villages were completed by the Nigam and their operation & maintenance was started. To ensure the quality and quantity of water being supplied by the contractors, the Nigam appointed “Operation & Maintenance-Supervision and Quality Control Consultant” for each completed Scheme.

³⁰ Narhela, Kirgi, Bhatara, Devsarra, Dhuti, Piparjhari, Byarma, Mohkhed, Manpur, Udgawan, Arniya Bahadur and Niwari Schemes.

Audit observed that:

- In five completed Schemes of 89 villages³¹ covering a population of 1,75,065 water supply ranged between 41.68 LPCD and 53.11 LPCD, which was far below the required minimum level of 55 LPCD. Further, in case of 108 villages and 712 households of nine Schemes³², the contractors did not supply water at the required seven meter pressure.
- In 82 villages coming under Narhela, Manpur, Udgawan and Niwari Schemes, the contractors did not supply water at all in the months of February 2021, December 2020, April 2021 and December 2020 as detailed in **Appendix 3.16**.
- After completion of Schemes, the Nigam recovers Water Charges for supply of water to the villages through Village Water and Sanitation Committees at the subsidized rate of ₹ 3.25 per Kilo Liter on the basis of reading of Bulk Water Supply Meters installed at the entry point of each village.

Audit observed that as on 31 March 2021, the Nigam had completed 19 Schemes³³, in which the water was being supplied by the Nigam to 785 villages. The Nigam has issued bills of ₹ 17.82 crore to the Committees for the water supplied during 2018-19 to 2020-21. However, it could recover ₹ 3.58 crore only from the Committees (31 March 2021). This resulted in short recovery of water charges to the extent of ₹ 14.24 crore³⁴.

In reply, the Government stated (August 2022) that the drinking water supply was affected due to low voltage, power failure, theft of water taps, illegal tapping, pipeline damage, etc. The reply was silent about short recovery of water charges.

3.7.2 Irregularities in Monitoring and Quality Control of Schemes by PHE Divisions

The issues pertaining to the irregularities observed in monitoring are discussed below:

- As per Clause 23 of 'Special Condition' of the Agreement, the sample of water from each source should be tested at least once in 15 days from District/ Block Laboratory after starting of trial run period.

Audit observed in five Divisions³⁵ that the periodic water quality tests were not being carried out at the prescribed intervals. In 51 completed works of two Divisions³⁶, against 1,088 water samples only 77 were tested during the year 2020-21. In the absence of mandatory periodic testing, the quality of water being supplied to households could not be ensured.

In reply, the Executive Engineers stated (October 2021) that the contractor had been directed to submit water samples to the District/ Block Laboratory at an interval of 15 days in future.

³¹ Narhela, Byarma, Manpur, Udgawan, and Niwari Schemes.

³² Narhela, Bhatara, Devsarra, Dhuti, Piparjhari, Byarma, Manpur, Udgawan and Niwari Schemes.

³³ Mardanpur, Udaipura, Punjabura, Bagod Nadia Pipaliya, Talunkhurd, Arniya Bahadur, Gangabaodi, Narhela, Udgawan, Bhatara, Piparjhari, Mohkhed, Jhurki, Dhuti, Devsarra, Byarma, Kirgi, Manpur and Niwari Schemes.

³⁴ Mardanpur (₹ 3.66 crore), Udaipura (₹ 1.76 crore), Punjabura (₹ 0.51 crore), Bagod Nadia Pipaliya (₹ 2.08 crore), Talunkhurd (₹ 1.31 crore), Arniya Bahadur (₹ 0.20 crore), Gangabaodi (₹ 0.76 crore), Narhela (₹ 0.55 crore), Udgawan ₹ 1.25 crore), Bhatara (₹ 0.36 crore), Piparjhari (₹ 0.21 crore), Mohkhed (₹ 0.08 crore), Jhurki (₹ 0.06 crore), Dhuti (₹ 0.15 crore), Devsarra (₹ 0.16 crore), Byarma (₹ 0.11 crore, Kirgi (₹ 0.54 crore), Manpur (₹ - 0.01 crore) and Niwari (₹ 0.49 crore) Schemes.

³⁵ Barwani, Damoh, Rajgarh, Ratlam and Satna.

³⁶ Betul and Mandla.

- The circular issued (July 2017) by the Department provided for water supply for 70 LPCD. According to ‘Special Condition 27’ of the Agreement, the contractors had to install a “Bulk Meter” to note the quantity of water distribution. Special Conditions 28 and 29 stipulated that the contractor shall maintain a register regarding distribution of water in the prescribed format.

Audit observed in all 116 completed works in 10 selected Divisions that Bulk Meters were not installed³⁷ by the contractors. In the absence of Bulk Meters distribution of water to the households at the rate of 70 LPCD could not be ascertained.

In reply, the Executive Engineers of Satna, Damoh, Barwani, and Morena stated (October 2021) that Bulk Meters would be installed by the contractors. The Executive Engineer, Ratlam stated (October 2021) that due to non-provision of Bulk Meter in bill of quantity in all the schemes, the same was not installed.

The reply is not acceptable because installation of Bulk Meter was included in the Bill of Quantity.

- According to the circular issued (January 2015) by the Engineer-in-Chief, a monthly roster of inspection was to be prepared by the Divisions for inspection of the established Schemes, of which 5, 15 and 25 works were to be inspected by the Executive Engineer, the Assistant Engineers, and the Sub Engineers, respectively. The inspection note of each such inspection was to be prepared and sent to the higher office.

Audit observed that the prescribed inspections were not being carried out by the departmental engineers.

In reply, the Government stated (August 2022) that Executive Engineers of all the Divisions have been instructed to take necessary action to monitor and ensure quality work in the schemes as per the Agreement, and also visit the Schemes regularly and submit inspection reports to their higher offices.

3.7.3 Results of physical verification

3.7.3.1 Physical verification of the Schemes executed by the Nigam

During joint physical verification of three Completed Schemes (Narhela, Udgawan and Niwari) and three sample villages³⁸ of each of these Schemes by the Audit Team along with officials of Nigam, the contractors and the consultants, the following deficiencies were observed:

- In five villages³⁹ water supply was deficient as some habitations were not receiving water at all and in some habitations pressure of water supply was very low.

In reply, the Government stated (August 2022) that non-supply or inadequate supply of water occurred due to wastage of water through untapped connections, corrective action in this regard was being taken.

- Even though *Gandhari Ka Dera* village under Udgawan Scheme and *Dhorera* Village under Narhela Scheme were situated in the close proximity of Intake Well/ Water Treatment Plant, but still water connections were not provided to the households of these villages.

³⁷ The fact was verified in the joint physical inspection carried out (two Schemes in each selected Division) by Audit with the divisional officers/ officials.

³⁸ Narhela Scheme: Narhela, Patel ka Pura and Kashipur. Udagawan Scheme: Gandhari ka Dera, Agora and Dangkarera. Niwari Scheme: Bhitri, Devri Kalaru and Beejour.

³⁹ Narhela Scheme: Narhela, Patel ka Pura and Kashipur. Niwari Scheme: Bhitri and Devri Kalaru.

In reply, the Government stated (August 2022) that in *Gandhari ka Dera* village connections have been provided to all the households except some households where water supply was technically not possible. Further, Dhorera village was to be covered under Chambal Multi Village Scheme.

The reply is factually incorrect as they have not provided any supporting documents to Audit.

3.7.3.2 Results of physical verification of PHE Divisions

During joint physical verification in four villages (Mandla and Barwani Divisions) with the Departmental Representatives the following deficiencies were observed by Audit:

- In *Newsamal* and *Gaujhi* villages of Mandla, sensor-based auto cut-off system was not installed at the borewell and pumphouse.
- In *Newsamal* and *Gaujhi* villages of Mandla and *Sulgaon* village of Barwani, water disinfection system was not installed.
- In *Gaujhi* village of Mandla, water level indicator and in *Semli* village of Barwani, lightening conductor on over-head tank were not installed.

Thus, monitoring of the works was deficient.

In reply, the Government stated (August 2022) that the Executive Engineers of these Divisions have been instructed to make sure that after completion of Schemes it should be operated & maintained by the contractors for the period as mentioned in the Agreements.

3.8 Conclusion

Audit observed the following deficiencies:

- The Guidelines issued by the State Government and provisions of the Manual issued by the Ministry of Drinking Water and Sanitation, Government of India, for preparation of Detailed Project Reports have not been complied with in several cases.
- Schemes have been delayed inordinately without fixing accountability in this regard.
- The contractors have been benefitted through inadmissible payments, non-recovery of liquidated damages, irregular advance payments, irregular release of Performance Security/Security Deposit, etc.
- No efforts have been made to recharge the water sources to ensure their sustainability.
- The Department and the Nigam also failed to provide water of adequate quality and quantity due to deficient Monitoring and Operation & Maintenance of the works/ Schemes.

3.9 Recommendations

Audit recommends that:

- Drinking Water Schemes should be approved after ensuring technical and sustainability aspect and it should be planed as per Guidelines and provisions of the Manual.
- Allocation of funds for the schemes and utilisation thereof should be based on assessment of requirements.
- The implementation of Schemes should be synchronised for timely completion of schemes.

- The Department should make conscious and timely efforts to recharge the water sources to ensure their sustainability.
- The Department and the Nigam should ensure an effective Quality Control and Monitoring System to ensure the supply of qualitative and quantitative drinking water to the habitants.