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Report of the Comptroller and Auditor General of India Performance Audit of Rural and Urban Water Supply Schemes

SUPREME AUDIT INSTITUTION OF INDIA

लोकहितार्थ सत्यनिष्ठा

Dedicated to Truth in Public Interest

Government of Haryana

Report No. 3 of the year 2023

Report of the
Comptroller and Auditor General of India

Performance Audit
of
Rural and Urban Water Supply Schemes

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PREFACE

This Report of the Comptroller and Audit General of India has been prepared for submission to the Governor of the State of Haryana under Article 151(2) of the Constitution of India.

The Report covering the period 2016-17 to 2020-21 contains the results of Performance Audit of "Rural and Urban Water Supply Schemes in Haryana" conducted in terms of the Comptroller and Auditor General of India (Duties, Powers and Conditions of Services) Act, 1971.

The Audit has been conducted in conformity with Auditing Standards issued by the Comptroller and Auditor General of India.

Executive Summary

Executive Summary

National Water Policy emphasizes on addressing important issues regarding availability of minimum quantity of potable water to all citizens and its fair pricing, improved water supply in rural area with proper sewerage facilities, efforts to provide water supply preferably from surface water in conjunction with ground water and rainwater. Besides these, it also emphasizes on management of ground water under public trust doctrine, publishing water accounts and water audit reports indicating leakage and pilferages, undertaking artificial recharging projects and rainwater harvesting.

Rural and Urban Water Supply in Haryana is financed through various Centrally Sponsored and State Schemes namely National Rural Drinking Water Programme (now Jal Jeevan Mission), Augmentation Rural Water Supply Programme, National Bank for Agriculture and Rural Development (NABARD), Swaran Jayanti Mahagram Yojana Rural Water Supply, Mahatma Gandhi Gramin Basti Yojana (MGGBY), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Urban Water Supply State Plan and Urban NCR (Water Supply).

In the State of Haryana, Rural Water Supply is under the jurisdiction of Public Health Engineering Department (PHED) which caters to water supply requirement of 1.65 crore rural population (as per census 2011). The norms of drinking water supply in rural areas are designed as per Jal Jeevan Mission (Centrally Sponsored Scheme) guidelines at 55 litre per capita per day (LPCD) for non-desert areas and 70 LPCD for desert areas/NABARD funded projects. There were 1,737 water deficient habitations (below 55 LPCD norm) in rural areas as on July 2022. Water Supply in Urban areas is maintained and implemented by three departments viz. Public Health Engineering Department (PHED), Urban Local Bodies (ULBs) and Haryana Shehri Vikas Pradhikaran (HSVP). As per census 2011, the Urban Population of Haryana is 0.89 crore. The PHED, ULBs and HSVP assess the total requirement of drinking water supply for urban areas on the basis of prospective population for next 30 years by taking into consideration the water allowance of 135 LPCD as per Central Public Health & Environmental Engineering Organisation (CPHEEO) Manual 1999. As on March 2021, nine out of 89 towns were water deficient (below 135 LPCD norm).

Keeping in view the significance of providing adequate and potable water in rural and urban areas, a Performance Audit on Rural and Urban Water Supply Schemes in Haryana was conducted for the period 2016-21.

The objective of the performance audit was to ascertain whether (i) Proper policies/ plans in line with National Water Policy were formulated, based on assessment of requirement and availability of water to provide safe and adequate quantity of drinking water to rural and urban population as per norms;

(ii) Financial management was effective and funds were provided in a timely manner and schemes were executed and implemented within the stipulated time and cost; (iii) Adequate attention was accorded to ensure sustainability of water sources and environmental issues were suitably addressed; (iv) Repairs and maintenance of the existing water supply assets were effective for ensuring uninterrupted water supply; and (v) Mechanism for monitoring of quality of water supply and surveillance was adequate and effective.

Performance audit was conducted covering Rural and Urban Water Supply in Haryana for the period 2016-21. The field study was conducted in eight districts out of 22 districts. Audit was conducted at 36 offices of Public Health Engineering Department, Urban Local Bodies (Municipal Corporations) and Haryana Shehri Vikas Pradhikaran during field study. As part of this audit, dump data of PHED as available with the department was analysed in detail. Further, to verify the coverage, survey was conducted in MGGBY *bastis* in villages of selected districts. In addition to this, some locations were selected in these districts for assessment of (i) Quantity of water supplied by installation of flow meters and sub-meters for a month, (ii) Quality of water by jointly collecting samples with departmental representatives and sending the samples to privately hired lab (third party) as well as to State Water Testing Laboratory of PHED at Karnal. (iii) Quantity and quality of water by conducting beneficiary survey of selected locations.

The State Rural and Urban Water Policies notified (March and June 2012) in Haryana on the directions of Hon'ble Punjab and Haryana High Court were not revised in line with National Water Policy.

The main objective of the existing State Water Policies to bill the consumers on the basis of volumetric consumption of water instead of flat rates was not achieved. In rural areas, water billing was done on flat rates and metered connections were not provided.

No consolidated action plans were prepared for futuristic planning. The divisional offices were following the practice of preparing habitation wise estimates instead of a consolidated plan for the district. There was no arrangement made by PHED in 39 *per cent* (17 out of 44 test-checked villages) villages to provide water supply under Mahatma Gandhi Gramin Basti Yojana as assessed by audit during physical verification.

There was no prescribed procedure of preparing annual Operation and Maintenance (O&M) plan in Haryana Shehri Vikas Pradhikaran and in Urban Local Bodies. Involvement of Panchayati Raj Institutions (PRIs) and local communities in O&M of rural water supply was not found satisfactory.

The financial management was not effective as savings were noticed under Central and State schemes. There was lack of departmental efforts in making schemes

financially self-sustainable. The revenue collection was only one *per cent* of the overall maintenance expenditure for rural areas and in case of urban area, it was overall 15 *per cent* of maintenance expenditure for the period 2016-21. Water charges of ₹ 278.20 crore was not received from consumers as of March 2021 in the test checked departments/divisions. There was short-realisation/ collection of ₹ 69.36 crore on account of community contribution by the Gram Panchayats.

There was no metering mechanism in rural areas. No flow meter/bulk meter at supply points existed for knowing the actual water losses during transmission in the state. At 23 locations in the selected districts, where quantity of water supply was checked using flow meters, water supply in terms of LPCD was found to be less than the norms. In 72 out of 604 test-checked cases, the discharge of raw water by Irrigation department was found to be less than actual requirement. The storage capacity of storage and sedimentation tanks in 63 out of 604 cases was found to be less than the actual requirement. Against the norm of 135 LPCD, PHED and HSVP were providing 111 LPCD and 86 LPCD respectively to the inhabitants of Rewari town. There were instances of unmetered connections and illegal connections in the test checked division of Haryana Shehri Vikas Pradhikaran and Urban Local Bodies.

Water quality was found affected at some selected locations due to presence of coliforms, physical and chemical parameters found beyond permissible limits. There was shortage of manpower in the State, District and sub-divisional Laboratories. Resultantly, shortfalls in water sample testing at the District/Sub-divisional laboratories were noticed in the selected districts. Audit could not ascertain follow-up on the samples found unfit during testing as no record for the purpose was maintained by the PHED. Shortcomings were noticed in functioning of Laboratories (State, District and Sub-divisional) against the Uniform Drinking Water Monitoring Protocol. There was no facility for testing Uranium contamination in the State Laboratory.

Field testing kits were not used judiciously as neither the record related to procurement and distributions of kits was maintained nor were the unfit samples found by using FTKs sent to nearby laboratories for further examination. Cases of delay in commissioning of conversion of ground water-based schemes to surface water-based schemes were noticed thereby compromising with the quality of water supplied in these habitations.

There was non-achievement of target for construction of sustainability structures like rainwater harvesting systems, water recharging systems under NRDWP. During the period 2016-21, the ratio of newly commissioned canal-based schemes to newly commissioned tube-wells kept on decreasing indicating that lack of efforts to reduce dependency on ground water. Though timelines were fixed by the departments (PHED, ULBs & HSVP) for resolving grievances/

complaints, but the basis of categorization of the complaints was non-existent. Resultantly, the monitoring of the grievance redressal remains lax.

The department should prepare AAP with community participation to ensure that schemes are aligned to community requirements and ensure optimum and sustainable utilisation of water resources. The State Government should prepare a detailed sector programme for the next ten years period for smooth water supply in terms of coverage of water supply connections and per capita supply of water. The department/concerned entities should make efforts for recovery of arrears of water charges, collection of community contributions for making the schemes self-sustainable. Periodic assessment for upgrading water supply infrastructure must be done by preparation of half-yearly/yearly returns. Metering should be made mandatory for effective water management so that leakage/wastage of water could be avoided and fines be imposed on consumers having unmetered and illegal connections. To assess total water availability for distribution, the department should explore option of capturing realtime based data/IoT (Internet of Things) based data at source/water works so that proper monitoring may be done at any time and at any level. The department should focus on improving testing facilities by upgrading laboratories infrastructure and deploying manpower as per requirement. FTKs being an important detecting tool for initial screening of contamination, the department should ensure its usage judiciously and as per extant instructions. Timely and appropriate remedial measure are required to be taken by the department for detection of Uranium and heavy metals so as prevent the chances of people getting exposed to the contaminated underground water. The Department should prioritise timely completion of water supply projects in the quality affected habitations to ensure that potable water supply is available to the inhabitants. The Department should ensure construction of sustainability structures as envisaged and explore options for reducing dependence on ground water in the overexploited blocks. The Departments/entities should ensure proper planning for timely execution and completion of works/projects for benefit of the inhabitants. The Department should strengthen its monitoring mechanism and proper documentation should be done for each and every activity viz. awareness programme, complaints, survey reports, procurement data so that proper monitoring may be ensured at each level. It is recommended that a common portal may be devised for State level capturing of data.

Chapter-I
Introduction

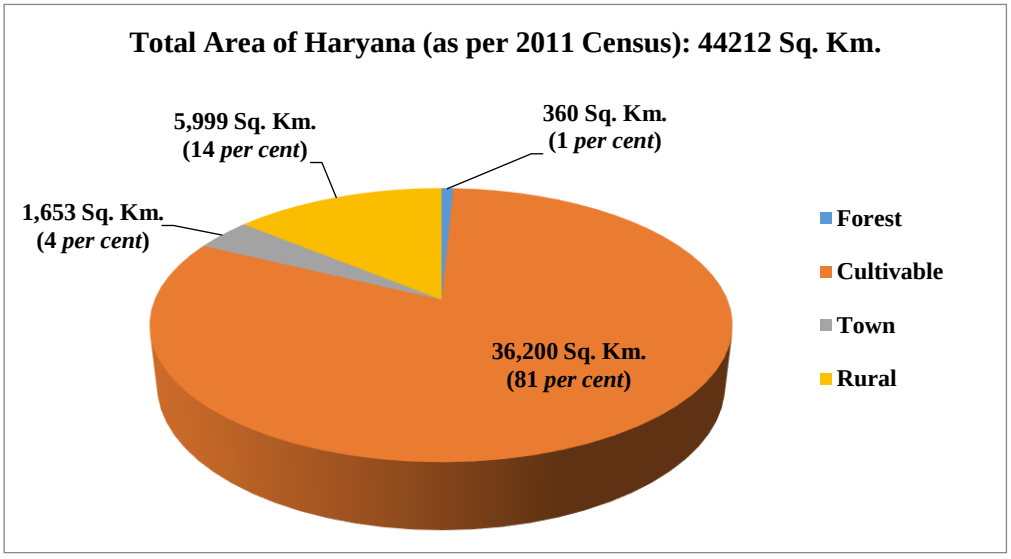
CHAPTER-I

1.1 Introduction

National Water Policy emphasizes on addressing important issues regarding availability of minimum quantity of potable water to all citizens and its fair pricing, improved water supply in rural area with proper sewerage facilities, efforts to provide water supply preferably from surface water in conjunction with ground water and rainwater. Besides these, it also emphasizes on management of ground water under public trust doctrine, publishing water accounts and water audit reports indicating leakage and pilferages, undertaking artificial recharging projects and rainwater harvesting.

Keeping in view the significance of the National Water Policy for providing adequate and potable water to all citizens, a Performance Audit of Rural and Urban Water Supply Schemes in the State of Haryana was conducted covering the period 2016-21.

Haryana is an agriculture State with approximately 81 *per cent* of the area (36,200[1] Sq.Km out of a total of 44,212 Sq. Km.) under cultivation. Town area is spread in an area of 1,653[2] Sq. Km. (approx. four *per cent*) leaving a balance of 5,999 Sq. Km. of rural area (excluding 360 Sq. Km forest area).



As per Census 2011, population of Haryana is 2.54 crore out of which Rural population is 1.65 crore and Urban population is 0.89 crore.

[1] Figures taken from Statistical Survey of Haryana 2018-19 issued by Department of Economic and Statistical Analysis, Haryana

[2] Figures taken from State Annual Action Plan prepared under Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme by Urban Local Bodies.

1.2 Rural Water Supply

In the State of Haryana, Rural Water Supply is under the jurisdiction of Public Health Engineering Department (PHED) which caters to water supply requirement of 1.65 crore rural population (as per census 2011). The norms of drinking water supply in rural areas are designed as per Jal Jeevan Mission (Centrally Sponsored Scheme) guidelines at 55 litre per capita per day (LPCD) for non-desert areas[3] and 70 LPCD for desert areas[4] and in NABARD[5] funded projects.

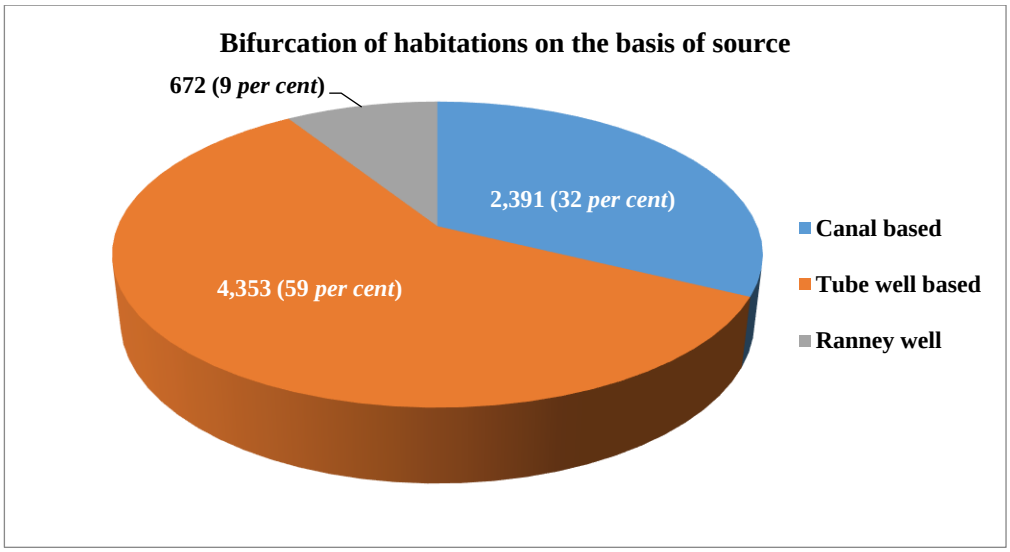
The position of water deficient habitations (below norms of 55 litre per capita per day (LPCD) is as under:

Table 1.1: Status of water deficient habitations

Sr. No.	Status as on	Total Habitations	Total Water deficient habitations
1.	April 2016	7,948	1,878
2.	July 2022	7,336	1,737

Source: Information supplied by PHED

In Haryana, water supply is based on three main sources i.e. canal based, tube well based and ranney well[6] based. The status of different sources in respect of rural water supply as on May 2021 is as under:



[3] Non-DDP areas: Ambala, Faridabad, Jind, Kaithal, Karnal, Kurukhestra, Panipat, Gurugram, Sonipat, Mewat, Yamuna Nagar, Panchkula, Rohtak and Palwal.

[4] DDP areas: Hisar, Fatehabad, Sirsa, Bhiwani, Jhajjar, Mahendragarh, Rewari and Charkhi Dadri.

[5] National Bank for Agricultural and Rural Development.

[6] Ranney well means a water well or collection system including a central chamber with horizontal perforated pipes extending out into an aquifer. The perforated pipes may extend out under a surface water body such as a lake or river.

Rural Water Supply Schemes

Rural Water Supply is financed through various Centrally Sponsored Schemes and State Schemes, the details are given in ***Table 1.2***:

Table 1.2: Rural Water Supply Schemes

Scheme	Department	Funding
Centrally Sponsored Schemes		
National Rural Drinking Water Programme (NRDWP) now renamed as Jal Jeevan Mission (JJM)	PHED	Funding shared by Centre and State in the ratio of 50:50 (JJM)
National Institution for Transforming India (NITI) Aayog Assistance/Scheme.	PHED	A one-time assistance 100 *per cent* centrally sponsored.
State Plan Schemes		
Augmentation Rural Water Supply Programme	PHED	100 *per cent* State funded
National Bank for Agriculture and Rural Development (NABARD) Aided Projects/schemes	PHED	85 *per cent* loan from NABARD and 15 *per cent* from State
Special Component Sub Plan (SCSP) (Rural)	PHED	State funded
Swaran Jayanti Maha Gram Yojana Rural Water Supply	PHED	100 *per cent* State funded
Mahatma Gandhi Gramin Basti Yojana (MGGBY)	PHED	100 *per cent* State funded

The details of these schemes are given in ***Appendix 1***.

1.3 Urban Water Supply

Water Supply in Urban areas is maintained and implemented by:

1. Public Health Engineering Department (PHED)
2. Municipal Corporations (ULBs)
3. Haryana Shehri Vikas Pradhikaran (HSVP).

The details of towns and area of their jurisdiction is given in ***Appendix 2.***

As per census 2011, the Urban Population of Haryana is 0.89 crore. The PHED, ULBs and HSVP assess the total requirement of drinking water supply for Urban Areas on the basis of prospective population for next 30 years by taking into consideration the water allowance of 135 LPCD as per Central Public Health & Environmental Engineering Organisation (CPHEEO) Manual 1999.

The position of water deficient towns (below norms of 135 LPCD) is as under:

Table 1.3: Status of water deficient towns under the jurisdiction of PHED

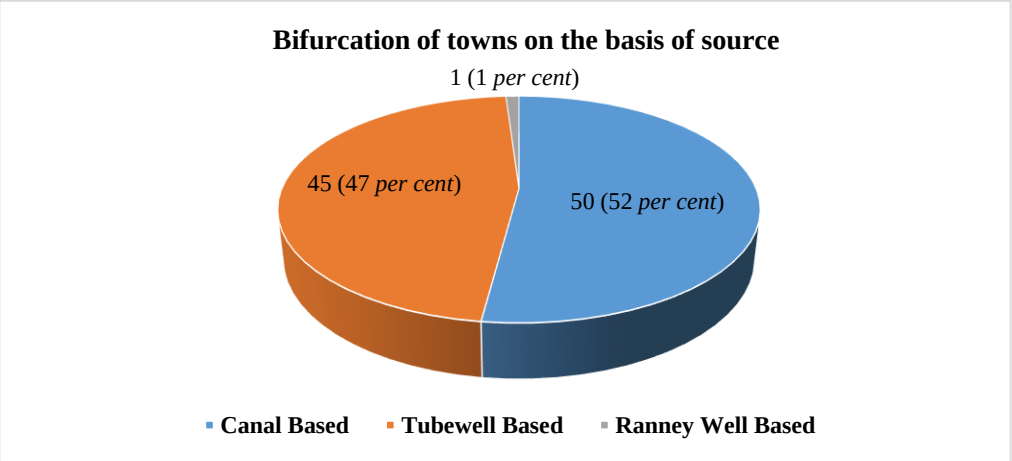
Sr. No.	Status as on	Total towns	Total Water deficient towns (below norms of 135 LPCD)
1.	April 2016	87	9
2.	March 2021	89	9[7]

Source: Information provided by PHED

As on August 2022, there are 96 towns in Haryana and water supply is based on three main sources i.e. canal based, tube well based and Ranney well based. The

[7] No. of towns with water supply < 110 LPCD: 5
No. of towns with water supply > 110 LPCD < 135 LPCD: 4

status of different sources in respect of Urban Water Supply as on August 2022 is as under:



Urban Water Supply schemes

Urban water supply is financed through various Centrally Sponsored Schemes and State Schemes, the details of various schemes are as follows:

Table 1.4: Urban Water Supply Schemes

Scheme	Department	Funding
Centrally Sponsored Schemes		
Atal Mission for Rejuvenation and Urban Transformation (AMRUT)	ULBs	1/3rd and 1/2nd of project cost as grant from centre for cities with population of above 10 lakh and upto 10 lakh respectively
State Sponsored Schemes		
Urban Water Supply State Plan	PHED	100 *per cent* State funded
Urban NCR (Water Supply)	PHED	75 *per cent* loan and 25 *per cent* from State

The details of these schemes are given in ***Appendix 1***

Other funding components

1. In Urban Local Bodies, the expenditure incurred on water supply services by Municipal Corporations Karnal, Faridabad, Gurugram and Sonepat are met from their own resources viz. property tax, water charges, development charges, stamp duty etc.

2. The expenditure incurred on water supply including operation and maintenance under Haryana Shehri Vikas Pradhikaran (HSVP) is met from its own resources (sale of plots) and grants received from Town and Country Planning Department.

The financial management of Rural and Urban water supply schemes is discussed in Chapter III.

1.4 Departments/Entities involved in Water Supply

There are three departments/entities involved in providing water supply services in the state of Haryana which are as follows:

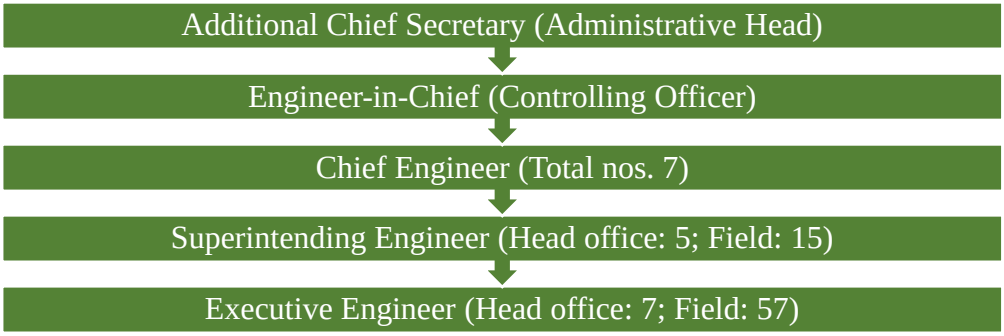
I. Public Health Engineering Department

The functions/activities of the PHED are:

- To plan, implement and monitor all Central and State funded programmes and schemes for safe drinking water in rural and urban areas,
- Construction & maintenance of Water Works, Boosting Stations and laying of pipe distribution system in the rural and urban areas,
- Recognizing and awarding Panchayats and organisations for excellent work in rural water supply sector,
- Providing inputs to other Departments/Ministries for formulation of policies impacting water issues.

Organisational Structure of Public Health Engineering Department

The Additional Chief Secretary to Government of Haryana (ACS), PHED is the administrative head at Government level and is responsible for implementation of policies, programmes and schemes. The Organisational structure is as under:



II. Urban Local Bodies (i.e. Municipal Corporations)

Section 277-A[8] of HM Act, 1973 provides that the State Government may entrust the duties and responsibilities relating to water supply and sewerage in municipal area to PHED. Accordingly, the State Government transferred (April 1993) the core functions of municipalities related to water supply and sewerage to PHED except Municipal Corporation, Faridabad. Subsequently, the State Government transferred the core functions of water supply and sewerage back to three other Municipal Corporations i.e. Gurugram (w.e.f. 2013), Karnal and Sonepat (w.e.f. 2018). Thus, presently four out of 92 ULBs are performing water supply and sewerage activities in their respective municipal areas and in rest of the municipalities, these activities including collection of water and sewerage charges are performed by PHED.

[8] Inserted by Haryana Municipal Act 6 of 1993.

III. Haryana Shehri Vikas Pradhikaran (HSVP)

The main functions of the HSVP are to promote and secure development of urban areas (including municipal areas) by acquiring undeveloped land. Water supply is being maintained by HSVP in the sector/area maintained by them.

The organisational structure of ULBs/HSVP is given at ***Appendix 3***.

In addition to above, the authorities/agencies involved in planning/decision making and for conservation, management and regulation activities are as under:

1. Haryana State Water Supply and Sewerage Board (WSSB), under the Chairmanship of the Chief Minister (CM), accords approval for sewerage and water supply schemes and provides funds for their implementation.
2. Haryana Water Resources (Conservation, Regulation and Management) Authority notified in December 2020.

1.5 Audit Objective

Performance audit was taken to assess whether:

i. Proper policies/ plans in line with National Water Policy were formulated, based on assessment of requirement and availability of water to provide safe and adequate quantity of drinking water to rural and urban population as per norms;

ii. Financial management was effective and funds were provided in a timely manner and schemes were executed and implemented within the stipulated time and cost;

iii. Adequate attention was accorded to ensure sustainability of water sources and environmental issues were suitably addressed;

iv. Repairs and maintenance of the existing water supply assets were effective for ensuring uninterrupted water supply; and

v. Mechanism for monitoring of quality of water supply and surveillance was adequate and effective.

1.6 Audit Criteria

Audit criteria were derived from the following sources:

- Guidelines for implementation of the scheme/programme- National Rural Drinking Water Programme (NRDWP), Jal Jeevan Mission (JJM), Uniform Drinking Water Quality Monitoring Protocol (UDWQMP), Atal Mission for Rejuvenation and Urban Transformation (AMRUT), Mahatma Gandhi Gramin Basti Yojana (MGGBY), Mahagram Yojana.

- Detailed Project Reports (DPRs) and Feasibility Study Reports (FSRs) of various projects.
- Haryana Public Works Department Code (PWD Code).
- Central Public Health & Environmental Engineering Organisation (CPHEEO) Manual on Water Supply and Treatment, 1999 and CPHEEO Manual on Operation and Maintenance, 2013.
- National Water Policy 2012, Haryana State Rural and Urban Water Policy 2012.
- Other orders and Instructions of Centre/State Government.

1.7 Audit scope and methodology

Performance audit was conducted covering Rural and Urban Water Supply in Haryana for the period 2016-21. The field study was conducted in eight districts out of 22 districts. The detailed methodology of the audit and offices visited are detailed in ***Appendix 4***.

Entry conference was held in May 2022 under the chairmanship of Additional Chief Secretary, Finance & Planning Department along with representatives of PHED, Town and Country Planning Department (TCPD), Urban Local Bodies Department (ULB) wherein the audit objectives, criteria and selection of units were discussed. The exit conference was held in November 2022 under the chairmanship of Special Secretary Finance & Planning Department along with representatives of PHED, TCPD & ULB wherein audit observations were discussed in detail. The deliberations of exit conference have been appropriately incorporated in the report.

1.8 Organisation of Audit findings

The audit was conducted keeping above stated audit objectives in mind. However, while compiling the audit findings, it emerged that these findings conversed broadly under these areas viz. Planning, Financial management, Inadequacy and Poor Quality of water, deficient emphasis on Sustainability and insufficient monitoring. Therefore, the audit observations are presented in following chapters:

Chapter-II- Inadequate Planning

Chapter-III- Improper Financial Management

Chapter-IV- Inadequate Supply of Water

Chapter-V- Poor Quality of Water Supplied

Chapter-VI- Deficient emphasis on Sustainability and insufficient Monitoring.

Chapter-II
Inadequate Planning

CHAPTER-II

Inadequate Planning

The State Rural and Urban Water Policies have not been revised in line with National Water Policy. The objective of the existing State Water Policies to bill the consumers on the basis of volumetric consumption of water instead of flat rates remained unachieved. In rural areas, water billing was done on flat rates and metered connections were not provided. No detailed action plan for the next ten years had been prepared in the state for urban area. No Water Security Action Plan was prepared under Jal Jeevan Mission. There was no prescribed procedure of preparing annual Operation and Maintenance plan both in Haryana Shehri Vikas Pradhikaran and in Urban Local Bodies. Involvement of Panchayati Raj Institutions (PRIs) and local communities in Operation and Maintenance of rural water supply was not found satisfactory. The timelines set for different activities under JJM remained unachieved. The PHED failed to provide water supply infrastructure under Mahatma Gandhi Gramin Basti Yojana even after a lapse of 13 years from the launch of the scheme. Under AMRUT, total households were not considered for service connections in selected districts.

2.1 Formulation of policies/plans in line with National Water Policy

The State Water Policies were required to be drafted/ revised in accordance with the National Water Policy, 2012. However, the State Rural and Urban Water Policies which were already notified (March and June 2012) in Haryana on the direction of Hon'ble Punjab and Haryana High Court were not revised in line with National Water Policy.

Moreover, shortcomings were noticed in the implementation of the existing State Water Policies which are as follows:

2.1.1 Shortcomings in implementation of State Water Policies

1. **Metered connection**: - The main objective of the existing State Water Policies is to bill the consumers on the basis of volumetric consumption of water instead of flat rates. Thus, the policies emphasize on converting all the existing unmetered connections into metered connections within a period of one year from the date of notification of policy in case of Urban areas. In case of Rural areas, 50 *per cent* of rural households were to be provided metered connection by the end of 12th Five-year plan i.e. up to March 2017. Contrary to the policy, water billing was done on flat rates in rural areas and metered connections were not provided. In case

of urban areas, domestic consumers have been given the option[1] of either metered or unmetered connection (flat rate). However, during scrutiny of records in selected offices of HSVP and ULBs, large number of unmetered and illegal connections was noticed as discussed in Paragraph 4.4.

2. **Insanitary connection**: As per policy, any insanitary connection (connections which are enough to endanger health), if detected, by the department was to be disconnected immediately without giving any notice and should be restored only after necessary rectification by consumers. Insanitary connections[2] were found during household survey conducted by PHED under Jal Jeevan Mission in rural areas. But, documentary evidence to verify action taken by department on these insanitary connections was not made available.

3. **Jurisdiction of Police Stations**: The State Water Policies emphasize on setting up of Water Thana and Power Thana across the State whose domain includes enforcement of law for implementation of this policy but no such practice is in existence in the State.

4. **Role of Village Water and Sanitation Committee (VWSC):** The revenue collected through water charges was to be given to the Panchayats for development works and for carrying effective maintenance of the schemes. Revenue collection is being done by PHED officials and the same has been kept deposited in the revenue head of the department. During 2016-21, ₹ 30.25 crore had been collected as receipts from rural water supply consumers (As discussed in paragraph 3.3) but the same was not transferred to VWSC. Resultantly, neither maintenance estimates were made as per recommendations of VWSCs nor was revenue collection provided to Panchayats for development works for effective maintenance of schemes.

During exit conference (November 2022), the departments[3] admitted the audit observation. PHED stated that department has been charging flat rate of water charges as per Government notification issued in April 2017. PHED is focusing on providing Functional Household Tap Connection to each and every household in the first instance under JJM and later on shall move towards metering of connections. The reply is not acceptable as the department could not ensure 50 *per cent* metered connections in rural areas as envisaged under State Water Policy i.e. by the end of March 2017.

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1 Notification issued (August 2018) by Urban Local Bodies Department, Govt. of Haryana regarding revision of water tariff in urban areas.

2 4,88,979 Insanitary connections as per information available on departmental website as on February 2022.

3 PHED, HSVP and ULB.

2.2. Preparation of Annual Action Plan under NRDWP

Para 14 of National Rural Drinking Water Programme (NRDWP) guidelines required States to prepare their Annual Action Plans (AAPs) detailing activities proposed to be taken up during the year.

During scrutiny of records in the office of Engineer-in-Chief, PHED, Haryana and selected divisions, it was observed that inputs while formulating schemes were not taken from various levels viz. village, district or State as a whole. AAPs prepared under NRDWP neither had any input from the village/GP nor detailed Strength Weakness Opportunities and Threat (SWOT) analysis was found on record. It indicates that the Department prepared the AAPs without involving various stakeholders and SWOT analysis based on needs, resources and challenges of rural areas was not conducted.

The department admitted (June 2022) that no scientific or systematic SWOT analysis was carried out but engineers were very well conversant with these attributes which would be introduced during preparation of future projects. The reply is an acceptance of the fact that the inputs from various stakeholders were not taken and SWOT analysis was not undertaken before preparation of AAPs.

During exit conference (November 2022), PHED stated that annual action plans were prepared and the same were uploaded on Integrated Management Information System (IMIS). Moreover, all the agendas related to yearly planning of works to be executed are approved in the meeting of Water Supply and Sewerage Board (WSSB). The reply is not acceptable as the basic information for preparation of AAP was lacking.

2.3 Planning in urban areas

Ministry of Urban Development, Government of India issued an advisory note (April 2012) for improving urban water supply and sanitation services. States were advised to prepare detailed action plan for next ten years for the Urban Water Supply and Sanitation sector.

During scrutiny of records[4], it was seen that no such detailed action plan for next 10 years as prescribed in the advisory note for futuristic planning was made in the state of Haryana for improving urban water supply services. PHED was approving works relating to urban areas in the meeting of Water Supply and Sewerage Board (WSSB) yearly without any proper planning whereas in Haryana Shehri Vikas Pradhikaran (HSVP) and Urban Local Bodies (ULBs), no concrete planning existed. HSVP and ULBs continue to focus on individual projects/works. Even the adhoc committee[5] on water supply to look after the

[4] EIC(PHED); Director (ULB); Chief Administrator (HSVP).

[5] Consisting of elected members of ULB and experts for discharge of any particular function or providing advice on any matter.

water supply affairs was not formed in ULBs. There is absence of a systematic planning in these departments. In the absence of detail action plan, overall futuristic planning remained unaddressed.

During exit conference (November 2022), the departments[6] admitted that there was no long term planning, but yearly planning procedure was followed in HSVP jurisdiction. For this purpose, annual estimate has been framed for continuity of water supply in urban areas and gave assurance for compliance in future. ULB admitted the facts and assured for compliance in future.

2.4 Non-assessment of requirement of water for institutions under urban areas

Norms for institutional requirement of water are laid down in the CPHEEO Manual, prepared by Ministry of Urban and Housing Affairs (MoU&HA).

During scrutiny of records for the period 2016-21, it was noticed that the PHED, ULBs and HSVP assess the total requirement for domestic consumers of urban areas on the basis of prospective population for next 30 years by taking into consideration the water allowance of 135 LPCD as per Central Public Health & Environmental Engineering Organisation (CPHEEO) Manual 1999. However, while assessing the total requirement, the institutional[7] requirements are not considered by the PHED and ULB in the manual stated ibid.

2.5 Preparation of Operation and Maintenance Plan

(a) According to CPHEEO Operation & Maintenance manual 2013, a comprehensive operation and maintenance[8] plan (O&M plan) shall be prepared to cover all the facilities. The objective is to provide safe and clean drinking water in adequate quantity and desired quality, at adequate pressure at convenient location and time and as economically as possible on a sustainable basis. In urban areas, ULBs have been entrusted the task of O&M work of water supply in four towns i.e. Gurugram, Faridabad, Sonepat & Karnal and in Panchkula town, it is done by HSVP. In rest of the towns and rural areas, O&M work of water supply falls under the jurisdiction of PHED.

During scrutiny of records for the period 2016-21, it was observed that:

- In PHED, yearly scheme wise maintenance estimates were being prepared and approved by competent authority.

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6 HSVP and ULB.

7 For hospitals: 340 to 450 LPCD (per bed), hostels and boarding schools/colleges: 135 LPCD, day schools/colleges: 45 LPCD, restaurants: 70 LPCD (per seat) and for cinema and theatre: 15 LPCD.

8 Maintenance is defined as the art of keeping the plant, equipment, structures and other related facilities in optimum working order. It includes preventive maintenance or corrective maintenance, mechanical adjustments, repairs and corrective action and planned maintenance.

- In HSVP[9] as well as in ULBs (MC Faridabad and Karnal), O&M plan was not being prepared at any level. There was no prescribed procedure of preparing annual O&M plan in any of the two departments.

During exit conference (November 2022), HSVP stated that annual planning for operation and maintenance of water supply is being done. The reply is not acceptable as no such record was found maintained during audit. Further, HSVP and ULB gave assurance for compliance in future.

(b) Handing over O&M to VWSC: Engineer-in-Chief (EIC), PHED, Haryana directed (December 2019) all Superintending Engineers, PHED that payment to contractor (of works under Jal Jeevan Mission (JJM) through running bills was to be made by Village Water and Sanitation Committees (VWSCs). For this, VWSCs need to open bank account for receipt and expenditure of funds for incurring expenses on O&M. However, during scrutiny of records in EIC, PHED, it was found that 1,413 VWSCs had submitted resolution for taking over O&M but none of these VWSCs/Gram Panchayats had been handed over O&M work till 24 February 2022.

Further, payment to contractors for the works executed under JJM was being done by PHED through treasury instead of the bank accounts maintained by VWSC. Thus, involvement of Panchayati Raj Institutions (PRIs) and local communities was not satisfactory.

During exit conference (November 2022) PHED stated that Government of India had directed to open single account under PFMS under JJM but due to non-constitution of new VWSCs (due to non-conduction of Panchayat elections and dissolution of earlier Gram Panchayats), handing over of O&M to VWSCs could not be done.

2.6 Preparation of Water Security Action Plan

According to the Jal Jeevan Mission, all villages are supposed to prepare a Village Water Security Plan (VWSP) to ensure sustainability of the drinking water sources and optimize the usage of the available resources. The VWSPs are to be consolidated into District action plans (DAP) at the district level and into State action plans (SAP) at the state level. It was observed during audit that no Water Security Action Plan has been prepared by the PHED. The divisional offices were following the practice of preparing habitation wise estimates instead of a consolidated plan for the district. The Water Supply and Sewerage Board allocated work-wise funds under JJM in its annual meetings.

On being pointed out by Audit, PHED stated (December 2021) that Water Security Action Plan had not been prepared. Instead, drinking water supply

[9] Chief administrator, HSVP.

schemes were conceived before preparation of the project estimates on the basis of a comprehensive field survey. The reply is not convincing as preparation of estimates should be done on the basis of a long-term plan.

The State of Haryana had notified (December 2020) Haryana Water Resources (Conservation, Regulation and Management) Authority (HWRA) for conservation, management and regulation of water resources (ground water and surface water) within the State of Haryana. Its main function is preparation of an Integrated State Water Plan based on water plans prepared for every block. However, HWRA is still in its initial phase of working on its objectives like preparation of Integrated State Water Plan, State Ground water and Surface water plan, State Water Security Plan, etc.

Audit observed that HWRA had assessed in its draft report that against the demand of 40.70 billion cubic meter (BCM), state has water availability of only 22.26 BCM (55 *per cent*), based on the groundwater level data thereby highlighting a water gap of 45 *per cent*. It becomes even more pertinent in the said circumstances to have a long-term plan for water security in the state.

Further, the State Water Policies are not inclusive of the measures meant for effective water management (as discussed in Paragraph 2.1), as these are not aligned with the National Water Policy, 2012.

During exit conference (November 2022), PHED agreed to the observation of audit and assured for compliance in future. As such, the issues related to water management and water security remain unaddressed.

2.7 Achievement against the planned/set targets

During 2016-21, Target and Achievement in respect of Rural/Urban Water Supply Schemes where targets were fixed by Centre/State Government was given in ***Table 2.1***.

Table 2.1: Target vis-à-vis achievement

Sr. No.	Name of scheme	Target	Achievement
1.	Jal Jeevan Mission	100 *per cent* Functional Household Tap Connection (FHTC) by the year 2022	The department claimed 100 *per cent* FHTC in rural household. The shortcomings noticed in achieving the targets is discussed in succeeding *paragraph.*
2.	Mahagram Yojana	In first phase, work in 20 villages was to be completed by 31 March 2021	Work was completed in only two villages up to March 2021 as discussed in *paragraph 6.6.*
3.	AMRUT	Completion of project up to March 2020	15.89 *per cent* households not considered for service connections in selected districts as discussed in *paragraph 2.7 (c).*

For other schemes, the Central/State Government did not fix separate targets.

(a) Jal Jeevan Mission

Jal Jeevan Mission (JJM) is intended to provide safe and adequate drinking water through individual household tap connections by 2022 in rural Haryana area. To implement the scheme in Haryana, instructions were issued by Engineer-in-Chief (EIC), PHED to all the Superintending Engineers of PHED circles, Haryana (December 2019) and timeline given for various activities was as under in ***Table 2.2***.

Table 2.2: Timelines prescribed for implementation of Jal Jeevan Mission in Haryana in PHED

Sr. No.	Tasks	Last date for all categories of habitations
1.	Administrative Approval	30 September 2020
2.	Procurement of material	31 December 2020
3.	Work allotment	31 December 2020

It was seen in audit that:

- PHED had accorded administrative approval to *45 per cent* works (2,992 works out of total 6,678 works) after the stipulated timeline i.e. after 30 September 2020.
- Similarly, there were 1,070 works (as per data dump provided in October 2021) where tenders were not allotted till December 2020 indicating that these works were not allotted and hence not commenced.
- Furthermore, department was issuing supply orders for the procurement of pipes for the works required to be executed under JJM even after the deadline of 31 December 2020. Total length of the pipeline purchased upto 31 December 2020 by PHED was only 11.18 *per cent* against the required length. The details are given in ***Table 2.3***.

Table 2.3: Status of pipelines procured/to be procured under JJM as on August 2022

Total requirement (km) of pipeline for works in JJM Coverage (a)	Budget required for procurement of 'a' (₹ in crore)	Total pipeline (km) purchased by PHED (b)	Total pipeline (km) received by divisional offices	Total expenditure (₹ in crore) incurred on purchase of pipeline	Total pipeline (km) procured and received after 31 December 2020 till August 2022 (c)	Total expenditure on purchase of 'c' (₹ in crore)	Balance pipeline (km) which is to be procured after August 2022 d = a-(b+c)	Budget required (₹ in crore) for this balance length
		till 31 December 2020						
11,161	1,363.11	1,248	1,248	143	5,594	620.11	4,319	600

Source: Information provided by PHED

The department set the deadlines without assessing the requirement of works to be executed or requirement of funds for the implementation of scheme. Due to this, progress of the department in executing works under JJM was not as per the committed timelines.

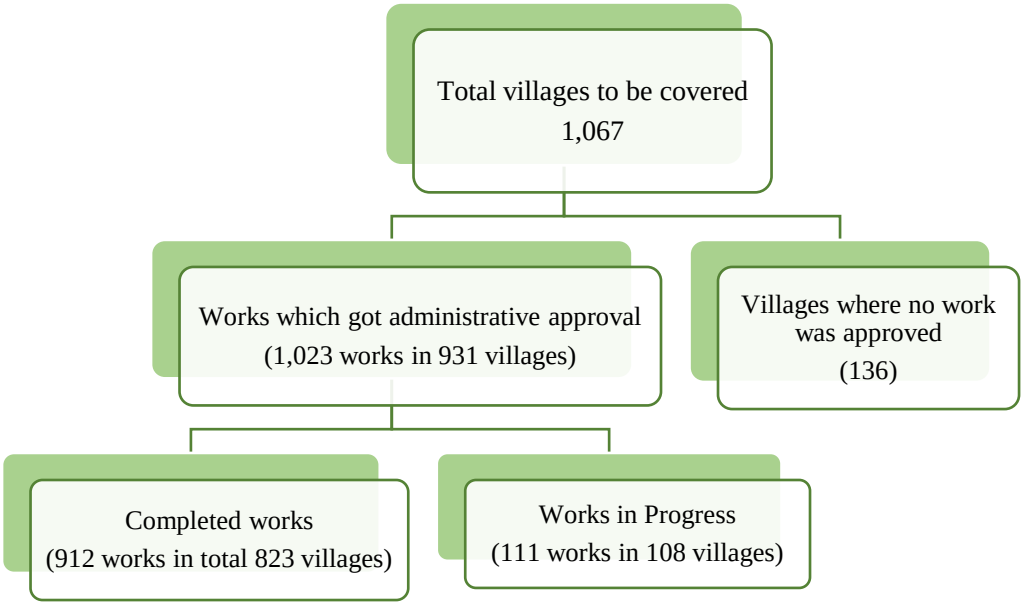
As mentioned earlier, no consolidated action plans were prepared for futuristic planning. Instead, the Water Supply & Sewerage Board allocates funds work-wise. The divisional offices were following the practice of preparing habitation wise estimates instead of a consolidated plan for the district.

During exit conference (November 2022), PHED stated that the State had achieved the target under JJM for providing 100 *per cent* Functional Household Tap Connection (FHTC) in April 2022. It was also stated that creation/up-gradation of infrastructure was being done in a phased manner under JJM and the target could not be achieved as per timelines due to COVID-19. The reply is not tenable as providing of FHTC cannot be termed as functional in the event of non-creation of infrastructure.

(b) Mahatma Gandhi Gramin Basti Yojana

Government of Haryana launched (2008) a scheme titled Mahatma Gandhi Gramin Basti Yojana (MGGBY) to allot 100 square yards residential plots (free of cost) to the eligible Below Poverty Line, Scheduled Caste and Backward Classes (Category-A) families in the villages. Under this scheme, the work of providing drinking water was entrusted to the PHED as a deposit work of Development & Panchayat Department.

The department claimed 100 *per cent* FHTC (functional household tap connection) in rural household. However, during scrutiny of the records[10], the following observation was made:



Thus, it was observed that no work was approved in 13 *per cent* villages and 10.12 *per cent* works in 10 *per cent* villages are still in progress. Moreover, the department failed to provide a list of the villages where no work was approved.

[10] EIC, PHED Haryana.

Survey results: To verify the status of coverage of water supply services in MGGBY *bastis*, physical verification was conducted in 44 villages[11] **(*Appendix 5*)**. During verification, it was found that in 39 *per cent* (17 out of 44) villages, no arrangement has been made by PHED to provide water supply to the habitants of these *bastis* till date**.** The inhabitants of all these *bastis* manage their drinking water needs from nearby fields/Panchayati hand pumps.

During exit conference (November 2022), PHED stated that coverage would now be done under JJM. The fact remains that the department failed to provide water supply infrastructure in MGGBY *bastis* till August 2022 even after a lapse of 13 years.

(c) Atal Mission for Rejuvenation and Urban Transformation

As per the guidelines issued by Ministry of Urban Development (MoUD), the primary purpose of the Atal Mission for Rejuvenation and Urban Transformation (AMRUT) scheme is to cover all households with water supply and sewerage.

During scrutiny of records in selected Municipal Corporations, works[12] estimates for ₹ 278.33 crore (work allotted between October 2018 and December 2018) were prepared by ULBs to provide new water supply pipelines in newly approved colonies, replacement of old and worn-out pipeline falling under missing links. The details of household covered before and after implementation of project are given in ***Table 2.4.***

Table 2.4: Details of household connections

Sr. No	Name of ULB	Total household (a)	Household covered before execution of project (b)	Household to be covered in this project (c)	Total no. Households covered after project implementation (d=b+c)	Remaining household with no tap connection after project completion (e=a-d)	Percentage of household remaining (e/a*100)
1	MC Hisar	74,731	46,996	7,000	53,996	20,735	27.75
2	MC Faridabad	2,24,575	1,45,110	56,076	2,01,186	23,389	10.41
3	MC Rewari	28,702	23,597	1,909	25,506	3,196	11.14
4	MC Rohtak	1,08,644	82,174	22,508	1,04,682	3,962	3.65
5	MC Karnal	72,093	36,220	6,297	42,517	29,576	41.02
Total		**5,08,745**	**3,34,097**	**93,790**	**4,27,887**	**80,858**	**15.89**

It was observed that enough provisions were not made to cover all households and hence, 15.89 *per cent* households (80,858 out of 5,08,745) were not considered for service connection and people were deprived of the benefit of getting potable water even after implementation of project despite the scheme emphasizing on providing every household access to a tap with assured supply of water.

[11] As pilot study, six villages in Rewari district were manually selected and thereafter selection was done by Computer Assisted Audit Techniques (CAAT).

[12] Providing water supply system for Civic Amenities and infrastructure deficient areas including villages in selected district along with Operation & Maintenance under AMRUT programme.

2.8. Non-functional schemes due to non-obtaining of electric connection for the water works

As per information made available to audit by PHED Ground Water Inspection (GWI) division[13], Rewari, six tube-wells drilled for water supply were not made functional (May 2022) as shown in ***Appendix 6*** due to non-obtaining of electric connection by divisional offices.

The reasons for pending electric connection was not found on record. In the absence of electric connection, it is assessed that the schemes of installation of tube-wells remained non-functional.

During exit conference (November 2022), PHED stated that two tubewell schemes have been energized and balance will be energized soon.

Conclusion

The State Rural and Urban Water Policies have not been revised in line with National Water Policy. The objective of the existing State Water Policies to bill the consumers on the basis of volumetric consumption of water instead of flat rates remained unachieved. In rural areas, water billing was done on flat rates and metered connections were not provided. Detailed action plan for the next ten years had not been prepared in the state for urban area. No Water Security Action Plan was prepared under Jal Jeevan Mission. There was no prescribed procedure of preparing annual Operation and Maintenance plan in Haryana Shehri Vikas Pradhikaran and in Urban Local Bodies. Involvement of Panchayati Raj Institutions (PRIs) and local communities in O&M of rural water supply was not found satisfactory. The timelines set for different activities under JJM remained unachieved. The PHED failed to provide water supply infrastructure under Mahatma Gandhi Gramin Basti Yojana till August 2022 even after a lapse of 13 years from the launch of the scheme. Under AMRUT, total households were not considered for service connections in selected districts.

Recommendations

In view of the above audit observations:

1. *The department should prepare AAP with community participation to ensure that schemes are aligned to community requirements and ensure optimum and sustainable utilisation of water resources.*
2. *The State Government should prepare a detailed sector programme for the next ten years period for smooth water supply in terms of coverage of water supply connections and per capita supply of water.*

[13] EE, PHED, Kosli, Rewari divisions are under EE, PHED (GWI), Rewari and other units are under other GWI divisions which was not in selection.

Chapter-III
Improper Financial Management

Chapter-III

Improper Financial Management

Financial management was not effective as savings were noticed under Central and State schemes. There was lack of departmental efforts in making schemes financially self-sustainable as the revenue collection was very poor. Water charges of ₹ 278.20 crore was not received from consumers as of March 2021 in the test checked departments/divisions. There was short-realisation/collection of ₹ 69.36 crore on account of community contribution by the Gram Panchayats.

3.1 Overview of finances

Gross State Domestic Product (GSDP) is the value of all the goods and services produced within the boundaries of the State in a given period of time. The expenditure incurred by the state of Haryana on water supply vis-à-vis GSDP during 2016-17 to 2020-21 is given in ***Table 3.1*** below:

Table 3.1: Comparative expenditure on water supply vis-à-vis GSDP

Year	Expenditure on water supply (PHED) (₹ in crore)	Expenditure on water supply (ULBs) (₹ in crore)	Expenditure on water supply (HSVP) (₹ in crore)	Total expenditure on water supply (₹ in crore)	GSDP of Haryana State (₹ in crore)	Expenditure on water supply as a percentage of GSDP
2016-17	675.00	50.48	188.16	913.64	5,61,424	0.16
2017-18	777.77	26.20	255.09	1,059.06	6,44,963	0.16
2018-19	1,040.69	101.74	213.55	1,355.98	7,04,957	0.19
2019-20	930.20	229.04	117.86	1,277.10	7,80,612	0.16
2020-21	742.53	273.13	98.47	1,114.13	7,64,872	0.15

From the above table, it can be seen that expenditure incurred by the state on water supply as a percentage of GSDP of the State (at current price) ranged between 0.15 to 0.19 *per cent* during the five years period of 2016-17 to 2020-21.

3.2 Budget and Expenditure

The funding under water supply component during 2016-2021 is as under:

Rural Water Supply

Funds/budget are being received from various Central and State sponsored schemes. The budget provision and expenditure there against for different Rural Water Supply Schemes during 2016-21 is shown in ***Table 3.2 (a)***.

Table 3.2 (a): Details of Budget and Expenditure from 2016-17 to 2020-21

(₹ in crore)

Sr. No.	Name of scheme	Budget Provision	Expenditure	Savings	Percentage of savings
1.	NRDWP or JJM	1,524.35	1,026.30	498.05	32.67
2.	NITI Aayog*	2.66	2.66	--	--
3.	Rural Augmentation	1,595.00	1,464.34	130.66	8.19
4.	NABARD	965.09	855.65	109.44	11.34
5.	SCSP	73.50	47.27	26.23	35.69
6.	MahagramYojana	92.57	81.79	10.78	11.65
7.	MGGBY[1]	66.00	54.01	11.99	18.17
	Total	**4,319.17**	**3,532.02**	**787.15**	**18.22**
***NITI Aayog assistance was a one-time assistance.**					

From the above, it is evident that underutilisation of the funds ranged between 8.19 to 35.69 *per cent* during 2016-21.

The year-wise detail of budget and expenditure during the period from 2016-17 to 2020-21 under major schemes/programmes is as follows:

Name of scheme		2016-17	2017-18	2018-19	2019-20	2020-21	Total
NRDWP/JJM	Budget (₹ in crore)	383.84	343.14	227.27	280.60	289.50	1,524.35
	Expenditure (₹ in crore)	299.23	162.05	176.68	140.31	248.03	1,026.30
	Savings	84.61 (22.04)	181.09 (52.77)	50.59 (22.26)	140.29 (50.00)	41.47 (14.32)	498.05 (32.67)
Rural Augmentation	Budget (₹ in crore)	225.00	350.00	398.00	397.00	225.00	1,595.00
	Expenditure (₹ in crore)	167.55	313.87	390.22	368.71	223.99	1,464.34
	Savings	57.45 (25.53)	36.13 (10.32)	7.78 (1.95)	28.29 (7.13)	1.01 (0.45)	130.66 (8.19)
NABARD	Budget (₹ in crore)	50.00	130.00	315.09	300.00	170.00	965.09
	Expenditure (₹ in crore)	44.85	112.87	289.43	258.67	149.83	855.65
	Savings	5.15 (10.30)	17.13 (13.18)	25.66 (8.14)	41.33 (13.78)	20.17 (11.86)	109.44 (11.34)

Note: Figures in parenthesis show percentage of savings.

As is evident from the above, there were persistent savings ranging between 0.45 and 52.77 *per cent* in all three major schemes/programmes during the period 2016-17 to 2020-2021

Urban Water Supply

The budget allotment/Grant and expenditure there against for different Urban Water Supply Schemes is shown in ***Table 3.2 (b)***.

[1] MGGBY was a deposit work for PHED and an amount of ₹ 66 crore had been deposited by Development & Panchayat Department from October 2015 to March 2020. An amount of ₹ 54.01 crore had been spent up to July 2022.

Table 3.2 (b): Details of budget and expenditure from 2016-17 to 2020-21

(₹ in crore)

Sr. No.	Name of scheme	Budget allotted	Expenditure incurred	Savings	Percentage of savings
1.	Urban Augmentation	844.01	759.09	84.92	10.06
2.	Urban NCR	114.50	87.13	27.37	23.90
3.	AMRUT	1,462.81	420.89	1041.92	71.23
4.	Fund earmarked for water supply in ULB	545.80	259.70	286.10	52.42
5.	Expenditure done by HSVP	1,321.86	873.13	448.73	33.95

The percentage of saving ranged between 10 to 71 *per cent* during 2016-21.

The year-wise detail of budget and expenditure of Urban Water Supply Schemes is detailed below:

Name of scheme		2016-17	2017-18	2018-19	2019-20	2020-21	Total
Urban Augmentation	Budget (₹ in crore)	305.38	204.00	122.63	140.00	72.00	844.01
	Expenditure (₹ in crore)	292.63	166.73	115.35	114.43	69.95	759.09
	Savings	12.75 (4.18)	37.27 (18.27)	7.28 (5.94)	25.57 (18.26)	2.05 (2.85)	84.92 (10.06)
Urban NCR	Budget (₹ in crore)	55.00	25.00	15.00	10.00	9.50	114.50
	Expenditure (₹ in crore)	41.34	15.46	13.26	8.37	8.70	87.13
	Savings	13.66 (24.84)	9.54 (38.16)	1.74 (11.60)	1.63 (16.30)	0.80 (8.42)	27.37 (23.90)
Other funding (ULB)	Budget (₹ in crore)	90.25	36.04	67.20	86.74	265.58	545.81
	Expenditure (₹ in crore)	50.48	20.03	51.25	68.26	69.68	259.70
	Savings	39.77 (44.07)	16.01 (44.42)	15.95 (23.74)	18.48 (21.31)	195.90 (73.76)	286.11 (52.42)
Other funding (HSVP)	Budget (₹ in crore)	373.43	285.38	306.86	184.57	171.60	1,321.84
	Expenditure (₹ in crore)	188.16	255.08	213.55	117.86	98.47	873.12
	Savings	185.27 (49.61)	30.30 (10.62)	93.31 (30.41)	66.71 (36.14)	73.13 (42.62)	448.72 (33.95)
AMRUT	Budget (₹ in crore)	136.75	130.25	75.70	500.52	619.59	1,462.81
	Expenditure (₹ in crore)	0	6.17	50.49	160.78	203.45	420.89
	Savings	136.75 (100)	124.08 (95.26)	25.21 (33.30)	339.74 (67.88)	416.14 (67.16)	1,041.92 (71.23)

Note: Figures in parenthesis show percentage of savings.

As is evident from the above, there were persistent savings ranging between 2.85 and 100 *per cent* in all Urban Water Supply schemes during the period 2016-17 to 2020-2021.

3.3 Lack of departmental efforts in making schemes self-sustainable

As per para 2.3 of JJM guidelines, the 14thFinance Commission (2015-2020) recognized health, education, drinking water and sanitation as public services of national importance and defined the sustainable drinking water supply systems as 'those being operated under a formal management model, have 100 *per cent* household meters installed and whose net revenues from water tariffs and subsidies are sufficient to cover at least the Operation & Maintenance (O&M) costs of the system'. It has also recommended 100 *per cent* metering of individual connections in both rural and urban households, commercial establishments and institutions and individual connections be provided only

when functional water meters are installed. During scrutiny of records in PHED, following shortcomings were noticed:

1. Department had not initiated any steps for installation of metered connection rather focus of the department is on providing household connection instead of metered connections.

2. Audit analysed the data (department website) of O&M expenditure vis-à-vis receipts generated from rural and urban water supply schemes and the revenue collection worked out to merely one *per cent* of the overall maintenance expenditure for rural areas and in case of urban area, it was overall 15 *per cent* of maintenance expenditure for the period 2016-17 to 2020-21 as shown in ***Table 3.3***.

Table 3.3: Operation & Maintenance expenditure vis-a-vis Receipts

(₹ in crore)

Year	Operation & Maintenance expenditure in rural areas	Receipts from Rural Water supply	*Per cent* of receipts to O&M	Operation & Maintenance expenditure in urban areas	Receipts from urban water supply	*Per cent* of receipts to O&M
2016-17	566.90	3.13	0.55	270.78	51.97	19.19
2017-18	558.93	11.37	2.03	265.38	48.31	18.20
2018-19	616.76	8.07	1.31	298.15	37.03	12.42
2019-20	605.03	4.57	0.76	279.95	38.54	13.77
2020-21	888.51	3.12	0.35	378.58	42.98	11.35
Total	**3,236.14**	**30.25**	**0.93**	**1,492.84**	**218.83**	**14.66**

This indicated that the revenue generated was not adequate to cover the O&M function of the water supply system thereby making operation of the schemes financially unsustainable.

During exit conference (November 2022), PHED stated that in rural areas, water charges were taken on flat rate as per Government notification. Resultantly there was a gap in revenue generation/collection to meet the O&M cost. Further, it was briefed that a proposal of involving Panchayat and Self Help Groups for collection of outstanding water charges was under consideration which would improve the revenue collection to meet the O&M cost.

Water Charges and Arrears

3.4 Non-recovery of water charges amounting ₹ 278.20 crore

Public Health Engineering Department

3.4.1 Government of Haryana notified (April 2017) rates on tariff of water charges for General category beneficiaries as ₹ 40 per month and Scheduled Caste (SC) category beneficiaries as ₹ 20 per month in villages which are not falling under any Municipal area. Scrutiny of records[2] revealed that water user charges to the tune of ₹ 263.64 crore (Rural: ₹ 128.17 crore; Urban: ₹ 135.47 crore) was

[2] Selected divisions of PHED.

to be collected from consumers during April 2016 to March 2021 whereas only an amount of ₹ 76.30 crore (28.94 *per cent*) had been collected during the period by divisional offices leaving a balance of ₹ 187.34 crore (Rural: ₹ 119.29 crore; Urban: ₹ 68.05 crore) (***Appendix 7***) as water charges arrears in respect of selected divisions of PHED. The details are represented in the ***Chart 3.1(a) &(b)***.

Chart 3.1 (a): Collection of Water Charges in Rural Areas (2016-2021)

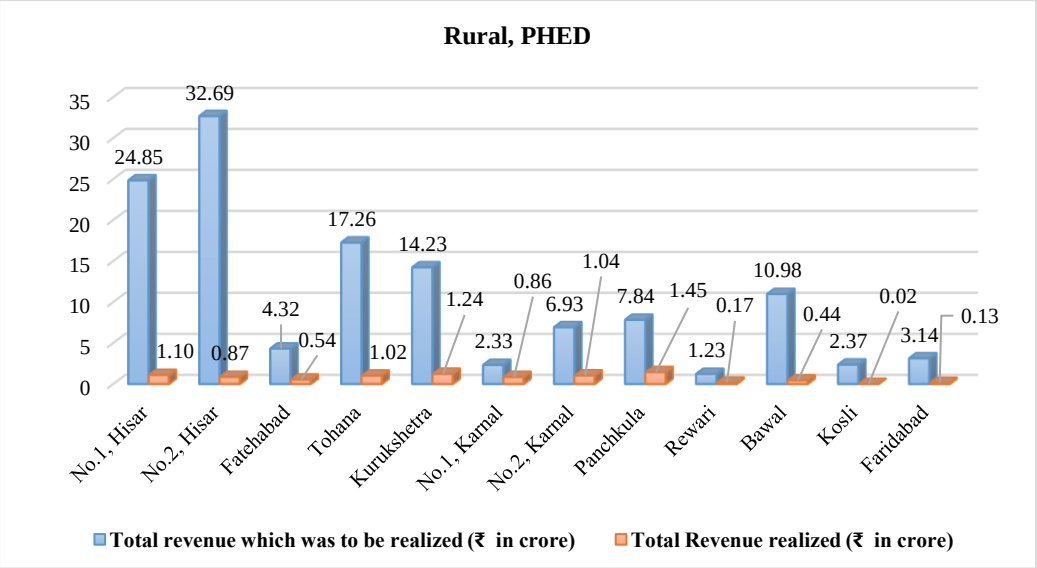
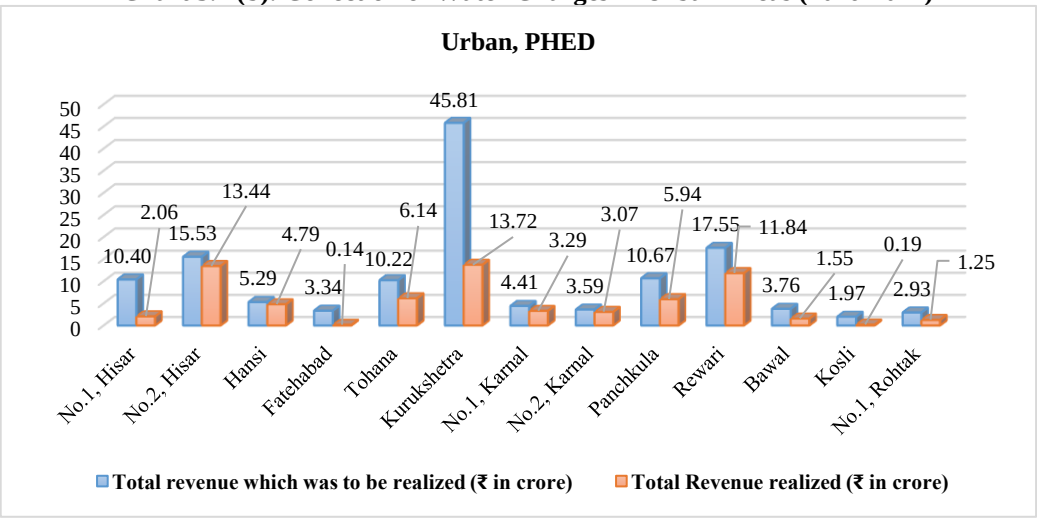


Chart 3.1 (b): Collection of Water Charges in Urban Areas (2016-2021)



This indicated absence of efforts by the department towards revenue collection especially in rural areas where only seven *per cent* water charges were collected/realized during 2016-21.

Haryana Shehri Vikas Pradhikaran

3.4.2 Rule 13 (iii) of the HUDA (now renamed as HSVP) Water Regulation 2001emphasized that a consumer who fails to pay water charges by the due date shall be liable to pay penalty thereon @ 10 *per cent* of the amount of water charges due from him within 15 days from the date of default failing which his water connection shall be disconnected after giving him a notice of seven days.

During scrutiny of the records in selected divisions of HSVP, it was noticed that ₹ 19.18 crore water charges were outstanding as on 31 March 2021 which were to be recovered from consumers in selected districts but no action as per rules had been taken by concerned offices. Details of outstanding water charges in selected divisions of HSVP is given in ***Appendix 7***.

Urban Local Bodies department

3.4.3 ULB Department, Government of Haryana notified the revised water user charges in August 2018. During scrutiny of the records in selected districts of ULB Department, Haryana, it was noticed that in two MCs namely Faridabad[3] and Karnal, water user charges amounting to ₹ 71.68 crore were outstanding as on 31 March 2021 (***Appendix 7)***. There was no mechanism in the ULB for monitoring the recovery of water user charges.

It is assessed that non-assessment of revenue is a lapse on the part of the authorities viz. PHED, ULB & HSVP. It also indicates absence or lack of accountability mechanism on the part of higher formations viz. EIC/Director/ CE/SE, etc.

During exit conference (November 2022), departments assured for taking necessary action on the matter.

3.5 Collection of community contribution

Para 6.1.2 of JJM guidelines stipulated that for in-village piped water supply infrastructure and related source development to be implemented by Gram Panchayats and/or its sub-committee, i.e. Village Water & Sanitation Committee (VWSC)/Panni Samiti/User Group, etc; communities would contribute 10 *per cent* of the capital cost in cash and/or kind and/or labour and would be paid to agency/vendor as decided by District Water & Sanitation Mission (DWSM).

During scrutiny of records[4], it was revealed that 6,129 GPs (***Appendix 8***) were required to deposit community contribution amounting to ₹ 69.76 crore during 2016-21 but only ₹ 0.39 crore were deposited with the department till August 2022. Thus, there was short realisation/collection of ₹ 69.36 crore.

During exit conference (November 2022), PHED admitted the facts and assured for future compliance.

3.6 Late release of State share

In 2017-18, demand for funds under NRDWP was sent (April 2017) to Finance Department (FD), Haryana by PHED (Central share of ₹ 26.06 crore plus

[3] Faridabad, Division 1 2016-21, Division no. 3 & 5 2019-21, Division no. 2 & 4 did not provide related information.

[4] EIC, PHED, Haryana.

₹ 19.74 crore as matching State share). The Letter of Credit (LOC) of ₹ 26.06 crore as Central share was released (19 May 2017) by Finance Department but corresponding State share was not released. The said matching State share of ₹ 19.74 crore was released only in October 2017 by Finance Department, Haryana. As per instructions, State share was to be released to the implementing agency within 15 days of receipt of Central share. Thus, there was lack of coordination between departments as there was a delay of more than five months in release of State share.

3.7 Release and utilisation of Central and State funds in NRDWP/JJM

As per the Utilisation certificates furnished by the PHED, Haryana to Ministry of Drinking Water and Sanitation (MDWS) for the year from 2016-17 to 2020-21, the release and utilisation of Central and States share of funds for implementation of NRDWP/JJM during 2016-21 is detailed in ***Table 3.4***.

Table 3.4: Funds and Expenditure under NRDWP/JJM during 2016-2021 (₹ in crore)

Year	Total available funds	Expenditure	Savings	Percentage of savings against available funds
2016-17	383.84	299.23	84.61	22.04
2017-18	343.14	162.05	181.09	52.77
2018-19	227.27	176.68	50.59	22.26
2019-20	280.60	140.31	140.29	50.00
2020-21	289.50	248.03	41.47	14.32
Total	**1,524.35**	**1,026.30**	**498.05**	**32.67**

As seen from the table, the percentage of savings ranged between 14.32 *per cent* and 52.77 *per cent* during 2016-17 to 2020-21. Overall funds amounting to ₹ 498.05 crore remained unutilised as of March 2021**.**

The component-wise position of funds available and expenditure incurred under NRDWP/JJM during 2016-21 is detailed in the ***Tables 3.5, 3.6*** and ***3.7*** below:

Coverage: The funds under this component were to be utilised for providing safe and adequate drinking water supply to uncovered, partially covered and slipped back habitations (in NRDWP) and under JJM for infrastructure for Har Ghar Jal (in terms of FHTCs provided to rural households).

O&M: The funds under this component were to be utilised for expenditure on running, repair and replacement costs of drinking water supply projects.

Water quality: The funds under this component were to be utilised for providing safe drinking water to water quality affected habitations.

Sustainability: The funds under this component were to be utilised for encouraging states to achieve drinking water security at the local level through sustainability of sources and systems.

Table 3.5: Expenditure incurred on Coverage, Water Quality, Sustainability, O& M components during 2016-2021

(₹ in crore)

Year	Total available funds	Expenditure	Percentage utilisation of available funds
2016-17	373.76	293.06	78.41
2017-18	333.09	155.95	46.82
2018-19	209.52	168.84	80.58
2019-20	260.26	131.46	50.51
2020-21	269.34	234.09	86.91

Support Activities:

Support activities include (i) engagement of consultants by Water and Sanitation Support Organization and District Water and Sanitation Mission, (ii) setting up and running of BRCs[5], (iii) supporting awareness creation and training activities, (iv) giving hardware and software support at district and sub-divisional level, (v) research and development activities relevant to the State, etc.

Table 3.6: Expenditure incurred on Support Activities component during 2016-2021

(₹ in crore)

Year	Total available funds	Expenditure	Percentage utilization of available funds
2016-17	5.99	3.79	63.27
2017-18	6.34	3.86	60.88
2018-19	9.11	4.97	54.56
2019-20	12.03	5.20	43.23
2020-21	11.78	6.72	57.05

Water Quality Monitoring and Surveillance (WQM&S):

The funds under this component are to be used for monitoring and surveillance of water quality in habitations at field level and for setting up and upgrading water quality testing laboratories at State, district and sub-district levels.

Table 3.7: Expenditure incurred on Water Quality Monitoring and Surveillance (WQM&S) component during 2016-2021

(₹ in crore)

Year	Total available funds	Expenditure	Percentage utilization of available funds
2016-17	4.09	2.38	58.19
2017-18	3.71	2.24	60.38
2018-19	8.64	2.87	33.22
2019-20	8.31	3.65	43.92
2020-21	8.38	7.22	86.16

It is evident that funds under the main components viz. Coverage, Water Quality, Sustainability and O&M remained unutilised to the extent of 13.09 to 53.18 *per cent*. Under Support activities, short-utilization of funds was between 36.73 to 56.77 *per cent*. Under-utilization in WQM&S related activities was ranging between 13.84 to 66.78 *per cent*.

[5] Block Resource Coordinators.

3.8 Non-completion of work within time frame leads to extra liability on the State Government

Augmentation of water supply scheme, Hisar Town was proposed (2013) for execution at estimated cost of ₹ 79.58 crore under 13th Finance Commission (TFC) Urban[6] (Shivalik and Southern Haryana). The project was scheduled for completion by 31 March 2016 to avoid lapse of funds under TFC. The work[7] was allotted (October 2013) with a completion time of 18 months. But due to site dispute and department's negligence, the work did not start on time and resultantly could not be completed within stipulated time period. Meanwhile, the central assistance provided under TFC scheme lapsed on 31 March 2016, the department could utilize only ₹ 48.54 crore from the grant of TFC till the time.

To complete the project, the department prepared supplementary estimate (approved July 2016) amounting to ₹ 31.04 crore and spent an amount of ₹ 31.04 crore from State Plan (Urban Augmentation scheme). Had the work been completed in time, extra burden on state exchequer could have been avoided. In response to audit observation, the department replied (September 2021) that TFC grant could not be utilised due to delay in possession of land and late approval of design and drawing. The fact, however, is that timely action by the department would have avoided the liability.

During exit conference (November 2022), PHED stated that detailed reply will be conveyed to audit after examining the matter. Reply is awaited (December 2022).

Conclusion

Financial management was not effective as persistent savings were noticed under Central and State schemes. There was lack of departmental effort in making schemes financially self-sustainable as the revenue collection was very poor. Water charges of ₹ 278.20 crore was not received from consumers as of March 2021 in the test checked departments/divisions. There was short-realisation/collection of ₹ 69.36 crore on account of community contribution by the Gram Panchayats.

Recommendation

3. *The department/concerned entities should make efforts for recovery of arrears of water charges, collection of community contributions for making the schemes self-sustainable.*

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6 Scheme meant for urban areas and funded under central assistance from 13th Finance Commission by creating head P-01-38-4215-01-101-99-97.

7 Augmentation Water supply scheme Hisar Town, Designing, constructing, testing and commissioning of Programmable Logic Controller (PLC). Const. of RCC, NP3 pipe inlet channel and other connected works and all other works contingent thereto" complete including operation and maintenance for five years after trial run of three months.

Chapter-IV
Inadequate Supply of Water

CHAPTER-IV

Inadequate Supply of Water

Flow meters were installed at 32 locations against the requirement of 58 locations. Out of these 32 locations, water supply in terms of LPCD found less than the norms at 23 locations. It was observed that in 72 out of 604 test-checked cases, the discharge of raw water by Irrigation and Water Resources Department was lesser than actual requirement whereas the storage capacity of Storage and Sedimentation tanks in 63 out of 604 cases was found to be less than the actual requirement. In urban area, 48 *per cent* of 3.16 lakh connections were unmetered. Records related to history of pumping machinery were not found maintained.

4.1 Assessment of quantity of water supplied

Assessment of quantity of water being supplied was one of the objectives of this Performance Audit. During audit, it was observed that elaborate data regarding operational hours of water motors/tubewells and machinery details viz. Brake Horse Power (BHP), Litre per minute (LPM) etc. was not available in divisions.

Hence, to determine actual quantity of water supplied, 58 locations were selected where the concerned departments (i.e. PHED, HSVP, ULBs) agreed to install flow meters at water works. The details are given in ***Table 4.1*** below:

Table 4.1: Status of installation of flow meter

Name of department	No. of locations where flow meter was to be installed	No. of locations where either flow meter was not installed/related record not provided to audit	No. of locations where water supplied was found less than the prescribed norms
PHED	15	3	8
HSVP	31	11	15
ULB	12	12	--
Total	**58**	**26**	**23 out of 32**

From the above, it can be assessed that out of 12 locations of PHED, water supply in respect of 8 locations and out of 20 locations of HSVP, water supply in respect of 15 locations was below the prescribed norms. The details are given in ***Appendix 9***. Thus, the departments failed to provide water supply to the inhabitants as per prescribed norms.

Beneficiary survey: 95 out of 608 beneficiaries (16 *per cent*) stated that water supply was available after gap of one or more than one day whereas 125 out of 608 beneficiaries (21 *per cent*) stated that there was shortage of water supply in summer season. However, people met their needs through tankers (either departmental or private).

4.2 Status of Water supply to consumers in PHED

PHED has adopted norms of water supply for the Rural as 55 LPCD in Non-DDP areas and 70 LPCD for Desert Development Programme (DDP) areas. As per the CPHEEO manual published in May 1999, the project components viz. water treatment units and clear water reservoirs and balancing tanks are designed by taking design period of 15 years. Components viz. raw water and clear water conveying mains and distribution systems are designed by taking design period of 30 years. The data dump related to water supply and its related components available on departmental website was provided by the Office of the EIC, PHED, Haryana. The dump data of eight selected districts was analysed as per methodology detailed in ***Appendix 10***.

The results of analysis revealed the following:

4.2.1 Sanctioned discharge for water works less than required discharge

In surface water supply schemes, Irrigation department sanctions outlet at any particular location. Raw water is taken from Irrigation department from sanctioned outlet and is stored in Storage and Sedimentation tank for fulfilling the water requirement/demand during canal closure. While sanctioning size of outlet, several components are taken in consideration like futuristic prospective population considering two *per cent* increase per year, canal closure, canal running period. The sanctioned discharge may be revised by Irrigation and Water Resources Department due to change in canal running and closure period.

To calculate the required discharge[1] of raw water from Irrigation department, audit worked out the actual status by taking prospective population for the year 2021, canal running days, canal closure days, 55 LPCD requirement for Non DDP areas and 70 LPCD requirement for DDP areas (***Appendices 11 and 12***). It was noticed that in 12 *per cent* cases[2] (72 out of 604 cases) in selected districts, actual sanctioned discharge was much lesser than the required discharge, with maximum number of cases having a shortage in discharge of 26 *per cent* to 50 *per cent* as given in ***Table 4.2 (a)*** and ***4.2 (b)***.

[1] Total requirement of water in litre: Total Population * LPCD (55/70) + 15 *per cent* evaporation losses.

[2] There were 58 cases in DDP areas and 14 cases in non-DDP areas where discharge sanction was less than required sanction.

Table 4.2 (a): District-wise number of water works/cases where sanctioned discharge was less than the requirement

Name of District	Hisar	Fatehabad	Karnal	Rewari	Rohtak
Total water works for which outlet sanctioned by Irrigation department	259	120	1	86	138
Cases where sanctioned discharge was less than the required discharge	53	4	0	1	14
Cases in terms of percentage	20	3	--	--	10

Table 4.2 (b): Bifurcation of water works/cases on the basis of shortage in terms of percentage

District/Range	0-10 *per cent*	11-25 *per cent*	26-50 *per cent*	51-75 *per cent*	76-100 *per cent*
Hisar	5	7	20	14	7
Fatehabad	0	1	1	2	0
Rewari	0	0	0	0	1
Rohtak	3	4	6	1	0
Total cases	**8**	**12**	**27**	**17**	**8**

Thus, it is assessed that Litre Per Capita per Day (LPCD) as per norms is unlikely to be achieved due to lesser sanctioned discharge than the required discharge.

4.2.2 Less Storage capacity of Storage and Sedimentation (S&S) tank

For the required capacity of S&S tank during the closure period of canal, audit worked (***Appendix 10***) out the requirement by taking prospective population for the year 2021, canal running days, canal closure days, S&S tank capacity, evaporation losses @ 15 *per cent*, 55 LPCD requirement for Non DDP areas and 70 LPCD requirement for DDP areas.

It was observed that in selected districts where water is supplied through canal water supply, the storage capacity of S&S tanks in 11 *per cent* cases[3] (63 out of 604 cases) was found to be less than the actual requirement of population during closure period of canal as indicated in ***Table 4.3 (a) & 4.3 (b)***. The details can be seen in ***Appendices 13 and 14***.

Table 4.3 (a): District wise cases where storage capacity of S&S tank was less as per requirement

Name of District	Hisar	Fatehabad	Karnal	Rewari	Rohtak
Total storage & sedimentation tanks	259	120	1	86	138
Cases where storage capacity was less than the required	47	12	0	2	2
Cases in terms of percentage	18	10	--	--	--

Table 4.3 (b): Bifurcation of cases on the basis of shortage in terms of percentage

District/Range	0-10 *per cent*	11-25 *per cent*	26-50 *per cent*	51-75 *per cent*	76-100 *per cent*
Hisar	15	15	5	8	4
Fatehabad	2	2	3	3	2
Rewari	0	1	0	1	0
Rohtak	0	0	1	1	0
Total cases	**17**	**18**	**9**	**13**	**6**

[3] In DDP area, 61 cases where water requirement is 70 LPCD whereas in non-DDP areas where water requirement is 55 LPCD, two cases were detected.

Thus, it is assessed that in the absence of full storage capacity of water during canal closure period, department is unlikely to provide 55/70 LPCD for the habitants.

4.3 Case study of Rewari town

A case study of Rewari town was carried out to assess the performance towards supply of water in the town against the requirement and efficiency in revenue collection of water charges. The result of the case study is as under:

In Rewari town, the main source of water supply is canal based (JLN Feeder) and tube wells have also been installed to meet the requirement during canal closure period. The following agencies are responsible for providing and up-gradation of structures related to water supply in Rewari town:

Sr. No.	Name of agency	Population served (till 2021)	Jurisdiction/Area	Actual water supply against 135 LPCD	Capacity of Water Treatment Plant (WTP) under the jurisdiction
1.	PHED	1,79,001	Entire town area (except HSVP sectors)	111	30 MLD (168 LPCD)
2.	HSVP	43,966	Sector areas of HSVP	86	7 MLD (159 LPCD)

As is evident from the above, adequate capacity of water treatment plants were available to treat the drinking water in Rewari Town.

The status of water supply under the jurisdiction of the agencies is as under:

- **Areas under the jurisdiction of PHED:** There are two canal based water-works (one is situated at Kalaka and another at Lisana) to provide water supply to the inhabitants residing in Rewari town under the jurisdiction of PHED. Apart from these, there are two tube-wells which are installed to meet the requirement. The storage capacity of sedimentation tanks (636.87 million litres) was found less than the requirement (1,039.10 million litres). Due to insufficient storage capacity, as against the requirement of water supply of 135 LPCD, PHED could supply only 111 LPCD.

  To provide water supply as per norms, the work of construction of additional storage tank and other allied works was administratively approved in June 2019. Till March 2021, an amount of ₹ 20.62 crore (2019-20: ₹ 7.94 crore, ₹ 2020-21: ₹ 12.68 crore) had been allocated for execution of the above said project. Due to delay in finalization of land, the construction work of additional storage tank could not be started. Thus, despite availability of funds and raw water, construction work of additional storage tank was not started thereby depriving the citizens to intended benefit of the facility.

- **Areas under the jurisdiction of HSVP:** As per information provided by Divisional Office, HSVP, it was noticed that people were getting 86 LPCD water as against the requirement of 135 LPCD.
- **Areas under the jurisdiction of MC:** The main objective of the AMRUT scheme to provide household tap connection to every citizen in town area remained unachieved as nearly 11.14 *per cent* households were not considered for providing tap connection even in approved Detailed Project Report of Rewari town under AMRUT. The details are as follows:

Total households	Households covered before execution of project	Households proposed to be covered in this project	Total no. Households covered after project implementation	Remaining households with no tap connection after project completion	Percentage of households remaining
(a)	(b)	(c)	(d) = (b) + (c)	(e) = (a) – (d)	(f) = (e)*100/(a)
28,702	23,597	1,909	25,506	3,196	11.14

Other issues regarding water supply in Rewari Town

- During scrutiny of records for the period 2016-21, it was noticed that PHED assess the total requirement for domestic consumers of Urban Areas on the basis of prospective population for next 30 years by taking into consideration the water allowance of 135 LPCD as per CPHEEO Manual. However, while assessing the total water requirement for Rewari town, the institutional[4] requirements were not considered by the PHED.
- No record was maintained by PHED for maintenance of pumps and motors to ascertain the efficiency of machinery.
- Log-books were not maintained in PHED where O&M was done by outsourcing staff.

Efficiency in Revenue collection

During the period 2016-21, an amount of ₹ 20.70 crore (PHED: ₹ 17.55 crore + HSVP: ₹ 3.15 crore) was to be collected from the consumers of Rewari Town as water charges. Out of this, ₹ 6.50 crore (PHED: ₹ 5.71 crore + HSVP: ₹ 0.79 crore) was pending from consumers as on 31 March 2021. However, an expenditure of ₹ 47.93 crore (PHED: ₹ 32.02 crore + HSVP: ₹ 15.91 crore) had been incurred by both these departments on Operation & Maintenance of water supply component during 2016-21. Thus, revenue generated was not adequate to cover the O&M expenditure of the water supply system.

[4] For hospitals: 340 to 450 LPCD (per bed), hostels and boarding schools/colleges: 135 LPCD, day schools/colleges: 45 LPCD, restaurants: 70 LPCD (per seat) and for cinema and theatre: 15 LPCD.

4.4 Some specific systemic issues

For the canal based water supply, the running and closure period is modified by the Irrigation and Water Resources Department based on the availability of water in the canals. Audit observed delays in works planned/undertaken by the PHED for providing water supply during the closure period due to improper planning, the details are as under:

4.4.1 Lack of planning leading to delay in construction of additional storage tank

Scrutiny of records[5] revealed that the work "Augmentation of raw water storage capacity by construction pumping station and new S&S tanks at Pataudi Road and Lisana (W/W) Renovation and updating of structures of Lisana (W/W) for Rewari Town District Rewari" was given administrative approval (June 2019) by Water Supply and Sanitation Board for the year 2019-20 under "***Augmentation Urban Water Supply***". The estimate amounting to ₹ 50.58 crore was framed to cover the cost of Construction of new S&S tanks at Pataudi Road & Lisana WW, renovation & updating of structures of existing WW Lisana for Rewari town.

Scrutiny revealed that despite administrative approval, detailed estimate of the project had not been approved till date. Till date, an amount of ₹ 20.62 crore (2019-20: ₹ 7.94 crore; 2020-21: ₹ 12.68 crore) had been allocated for execution of the said project but divisional office failed to commence the project. Storage capacity of both the tanks was 636.87 million litres and tube wells were installed to meet out the balance requirement, which on an average ran 8 hours daily per day as per information furnished by divisional office. Audit worked out the quantity of net water provided (LPCD) during the canal closure of 24 days as given in ***Table 4.4***.

Table 4.4: Quantity of water provided during canal closure

1.	Capacity of raw water tanks	636.87 million litre
2.	Water available from tube wells (considering 100 *per cent* efficiency factor)	2.3 million litre[6]
3.	Total water available	639.17 million litre
4.	Deducting 25 *per cent* evaporation loss	159.79 million litre
5.	Net water available for distribution for 24 days	479.38 million litre
6.	Population of Rewari town as per 2011 census	1,43,201
7.	Considering 2.5 *per cent* increase per year (2021)	1,79,001
8.	Net water provided per day per person	479.38 million litre/(1,79,001[7] x24) = 111 LPCD

From the above, it was assessed that department was providing 111 LPCD to the inhabitants of Rewari town as against the norms of 135 LPCD. Thus, despite availability of funds and availability of raw water, divisional office was not able

[5] EE, PHED-1, Rewari.

[6] 8 hours x 60 x 200 LPM x 24 days.

[7] Population of the town as per 2011 census plus 2.5 *per cent* increase per year till 2021 (1,43,201+35,800=1,79,001).

to start the work (delay in constructing additional storage tank) due to lack of planning (delay in finalization of land) thereby depriving the citizens to access to required quantity of potable water.

4.4.2 Planning failure leading to non-provision of water supply as per norms

Para 6.5.5 of Haryana Public Works Department code provides that the divisional officer shall keep on record complete plans of works (i.e. plans of roads, canals, distributaries, drains, sewers, water supply lines etc.) under his charge as actually constructed, with any subsequent alteration.

Scrutiny of records of Executive Engineer, Public Health Engineering Division, Fatehabad, it was seen that work of Augmentation of Canal based WW in Bhuna could not be made operational as the work of Inlet channel could not be completed on time, the details are given in ***Table 4.5***.

Table 4.5: Status of work Augmentation of canal based water works in Bhuna town

Sr. No	Name of work	Name of agency	Date of start of work	Scheduled completion of work	Status of work as on May 2022	Remarks
1.	Augmentation of canal based WW in Bhuna	Maha Laxmi Construction Company	19 December 2017	18 March 2019	In progress	Two different agreements (mains and inlet channel) were made to complete work. The work of Inlet Channel could not be completed due to non-availability of land.
		Sunder Lal Sharma Contractor	19 December 2017	18 December 2018	Completed	

The department was lifting raw water from minor[8] through Syphon for storing water in Storage tanks as a temporary arrangement. Despite availability of sanctioned raw water (5.33 cusec) for this project and even after incurring an expenditure of ₹ 21.09 crore against the estimated cost of ₹ 24.76 crore on this work, required LPCD water supply to the inhabitants could not be possible. Further, possibility of water losses due to the temporary arrangement cannot be ruled out.

During exit conference (November 2022), PHED stated that reply would be conveyed after verification of the details. Reply is awaited as of December 2022.

4.5. Provision of metered connection

Haryana State Rural Water Policy 2012 emphasizes on providing individual household metered connections to 50 *per cent* rural populations by the end of 12th Five Year Plan (2012-17) i.e. up to year 2017.

[8] Channel taking off from the main canal or distributary with head discharge of less than one cumec.

During scrutiny of records[9], it was observed that department is collecting water charges on flat rate basis (by following the notification[10] dated 03 April 2017 according to which tariff charges for General category beneficiaries and SC category beneficiaries is ₹ 40 per and ₹ 20 per month respectively in villages which are not falling under any MC areas instead of billing as per meter reading. Thus, the department failed to achieve desired target of covering 50 *per cent* rural population under metered connections.

4.5.1 Haryana Shehri Vikas Pradhikaran

HUDA (now renamed as HSVP) vide notification (19 April 2017) has clearly indicated that no water supply services will be provided to Institutional, Industrial, Commercial etc. consumers having no metered connection.

During scrutiny, audit observed that amongst domestic beneficiaries, 37 *per cent* unmetered and 0.7 *per cent* illegal connections were found. Similarly, in case of other than domestic beneficiaries 32 *per cent* unmetered and 1.4 *per cent* illegal connections were found (***Appendix 15***).

Till date, no action has been taken (nor any penalty imposed) by the HSVP authorities on these unmetered as well as illegal connection holders.

4.5.2 Urban Local Bodies Department

Urban Local Bodies Department notified (August 2018) that if the water meter is not working then it will be treated as unmetered connection and the users will be charged on flat rate basis depending upon the size of the plot. However, no unmetered water supply connections shall be allowed in the Institutional/ Commercial/Industrial establishment in future. Even for the existing water supply, unmetered connections shall be converted to metered ones by the occupants in a period of three months from the date of order otherwise rate of bill charges shall be minimum ₹ 2,000 per month.

Amongst domestic beneficiaries in MC divisions[11], 53 *per cent* unmetered and 22 *per cent* illegal connections were found. Similarly, in case of other than domestic beneficiaries 41 *per cent* unmetered and 18 *per cent* illegal connections were found as detailed in ***Table 4.6***.

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9 Public Health Engineering Department

10 The notification provides details of water tariff to be collected from each category of consumers along with rate per Kilolitre for metered supply and flat rate for unmetered supply.

11 MC-Faridabad & Karnal. The figures are provided by concerned MCs and there are mismatch in the data provided by both MCs as number of total consumers is not matching with the total number of connections (domestic as well as other than domestic beneficiary).

Table 4.6: Details of water connection in MCs

Name of District	Total Consumer	Domestic Beneficiary				Other than Domestic Beneficiary			
		No. of Connections	Metered Connections	Unmetered Connections	Illegal Connections	No. of Connections	Metered Connections	Unmetered Connections	Illegal Connections
Faridabad	1,91,711	1,34,625	27,598	1,07,027	49,932	5,629	2,277	3,352	1,525
Karnal	38,671	37,516	27,070	10,446	0	1,155	1,064	91	0
Total	2,30,382	1,72,141	54,668	1,17,473	49,932	6,784	3,341	3,443	1,525

Till date, no action has been taken (nor any penalty imposed) by the MC authorities on these unmetered as well as illegal connections holders.

4.5.3 Public Health Engineering Department

The information related to unmetered connection in other than domestic (Institutional, Commercial, Industrial, etc.) beneficiaries was not furnished.

4.6 Conduct of Water Audit

As per Central Public Health & Environmental Engineering Organisation (CPHEEO) Operation & Maintenance Manual (Chapter-15), water audit of Water Supply Schemes is defined as the assessment of the capacity of total water produced by the authority and the actual quantity of water distributed throughout the area of service of the authority, thus leading to an estimation of the losses.

During scrutiny of records, it was noticed that both the departments viz. Haryana Shehri Vikas Pradhikaran and Urban Local Bodies had not conducted any water audit as ibid in the manual. No such exercise to detect estimated water losses by calculating water availability and further distribution to consumers had ever been conducted by these departments. In the absence of water audit, estimation of water losses is not possible, which is a cause of concern.

4.7 Leakage in distribution system leading to generation of non-revenue water

Chapter-15 of O&M Manual for Rural Water Supply defines Non-Revenue Water/ Un-accounted for Water (NRW/UFW) as the expression used for the difference between the quantity of water produced and the quantity of water billed or accounted for.

NRW/ UFW = Quantity of water produced – Quantity of water billed/ accounted for

In surface water supply schemes, Irrigation department sanctions outlet at any particular location. From this outlet, raw water is carried through Inlet channel and ultimately the water gets stored in storage & sedimentation tank for further supply to inhabitants. Scrutiny of records in EIC, PHED for the period 2016-21, it was seen that the bulk flow meters were not installed at production points to quantify the raw water availability from Irrigation department. In rural areas also, the water meters did not exist. In absence of the metering systems,

department was not having the data regarding total availability of raw water and total water distributed to consumers.

Similarly, in tube well based supply, no such metering mechanism was available to know the exact quantity of water extracted from tube wells (for further supply to inhabitants). In absence of proper metering of the water supplied, audit could not ascertain the actual loss of water in the distribution system.

In response to audit query, the department stated (December 2021) that size of the outlet was used as measuring tool to quantity the raw water supplied. Similarly, in case of tube well based supply, the quantity of water extracted was measured by considering the actual pumping hours and capacity of pumping set.

The reply of the department is not acceptable as the facts as stated were not supported by any documentary evidence. It was also noticed that log books of the installed pumping sets were not maintained at places where contractual staff was hired for the purpose.

Thus, department had no sound mechanism to assess the quantity of water available with department for supply (either received from I&WRD[12] or by pumping out ground water from tube wells) vis-à-vis quantity of water actually being supplied to the consumer.

The department (June 2022) while agreeing to the audit observation stated that a detailed action plan would be unveiled and posed to the Government for additional financial support so that an in-built mechanism of measurement of flow is maintained for each scheme which would be beneficial in effective water management.

Beneficiary survey: 118 out of 564 beneficiaries (21 *per cent*) complained about leakage of water whereas 211 out of 564 beneficiaries (37 *per cent*) complained about low pressure of water.

4.8 Non-maintenance of records related to history sheets of pumping machinery

Para 11.3 of O&M Manual for Rural Water Supplies published by Ministry of Drinking Water & Sanitation, Government of India (May 2013) provides details regarding pumping machinery maintenance. As per Para 11.3.2, a history sheet of pump and motor should be maintained indicating its specifications, date of installation/commissioning, records of periodical maintenance, repairs, inspections and tests.

Scrutiny of records[13] revealed that no such record was maintained by divisional offices related to pumps and motors. In the absence of the record related to

[12] Irrigation & Water Resources Department.

[13] PHED: Rewari, Fatehabad, Kosli, Tohana, Bawal, Faridabad, No.1 & 2: Rohtak.

maintenance of the pumps and motors, audit could not ascertain the efficiency of the operation and maintenance of the machinery.

Conclusion

At 23 locations, where quantity of water supply was checked using flow meters, water supply in terms of LPCD was found less than the norms. It was observed that in 72 out of 604 test-checked cases, the discharge of raw water by Irrigation department was lesser than actual requirement whereas the storage capacity of Storage and Sedimentation tanks in 63 out of 604 cases was found to be less than the actual requirement. Department is collecting water charges on flat rate basis in rural areas which was against the provisions of Haryana State Rural Water Policy 2012. In urban areas, 48 *per cent* of 3.16 lakh connections were unmetered. Records related to history of pumping machinery were not found maintained

Recommendations

In view of the above audit observations:

4 *Periodic assessment for upgrading water supply infrastructure must be done by preparation of half-yearly/yearly returns.*

5 *Metering should be made mandatory for effective water management so that leakage/wastage of precious water could be avoided and fines be imposed on consumers having unmetered and illegal connections.*

6 *To assess total water availability for distribution, the department should explore option of capturing realtime based data/IoT (Internet of Things) based data at source/water works so that proper monitoring may be done at any time and at any level.*

Chapter-V
Poor Quality of water supplied

CHAPTER-V

Poor Quality of water supplied

Water quality was found affected at some selected locations due to presence of coliforms and physical and chemical parameters beyond permissible limits. There was shortage of manpower in the State, District and Sub-divisional laboratories. Resultantly, shortfalls in water sample testing at the District/Sub-divisional laboratories were noticed in the selected districts. Audit could not ascertain follow-up on the samples found unfit during testing as no record for the purpose was maintained by the PHED. Shortcomings were noticed in functioning of laboratories (State, District/ Sub-divisional). There was no facility for testing Uranium contamination and only one facility existed for testing of heavy metals in the State. Field testing kits were not used judiciously as neither the record related to procurement and distributions of kits was maintained nor were the unfit samples found by using FTKs sent to nearby laboratories for further examination.

Uniform Drinking Water Quality Monitoring Protocol (UDWQMP) issued by the Ministry (February 2013 and revised in March 2019) lays down specific requirements for monitoring drinking water quality by establishing water quality testing laboratories in the States. The parameters for these laboratories are also specified in terms of infrastructure, manpower and water quality testing facilities.

Audit observed that the laboratories i.e. State laboratory, District laboratories and sub-divisional laboratories were under the jurisdiction of PHED. No laboratory testing facilities/infrastructure was available in other entities responsible for water supply i.e. ULBs and HSVP, which led to non-fixation as well as non-achievement of targets for testing water samples as required under CPHEEO manual as illustrated in subsequent paragraphs.

5.1 Assessment of quality of water supplied

Water Treatment Plants (WTPs) were installed on canal based schemes in Urban Areas. In case of urban areas, where tube-well based supply is in existence, disinfection is done by way of chlorination before supply of water to the consumers. There are 108[1] WTPs under the jurisdiction of PHED, HSVP and ULBs in Urban areas. In six[2] out of the eight selected districts, though 38 WTPs were installed audit observed deficiencies in the quality of water being supplied as discussed below:

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1 PHED: 87, HSVP: 18 and ULB: 3.

2 Karnal: 1, Fatehabad: 5, Hisar: 12, Panchkula: 4, Rewari: 2 and Rohtak: 14.

To assess quality of water being supplied by PHED, ULB and HSVP, joint sampling (water sample collected for testing) was carried out on 25 locations[3] from consumer end in collaboration with the departmental representatives.

Further, to cross check the results of various parameters[4] of water samples, one set of water sample was sent to State Level Water Testing Laboratory of PHED at Karnal and another set of same sample was send to Shri Ram Institute of Industrial Research (SRI)[5], New Delhi for analysis. Bacteriological analysis (including presence of residual chlorine) and Physical & Chemical analysis of various parameters were carried out in both the laboratories.

Audit observed the following while collecting the water samples and physical verification of various sites:

1. **Chlorination:** It was observed that at 12 locations (out of selected 25 locations), chlorination was not detected in the water samples. The chlorination testing was done on site by chemists of PHED by using Orthotolidine (OT) kits. At 11 locations chlorination was found to be more than the prescribed limit (maximum value of three parts per million (PPM) as against the requirement of 0.2 PPM) and at two locations[6] Chlorination was found within permissible limit. However, when these 25 samples were analyzed at SRI, chlorination was found slightly above permissible limit in two samples and in rest of the 23 samples, chlorination was not detected at all.

2. At all 25 locations, it was observed that no record related to dosing of chlorination was maintained. In its absence, it is assessed that water pump operators/J.E.s were negligent about proper dosing for chlorination.

3. **Cleanliness:** Out of 25 locations, at seven locations Clear Water Tank (CWT)/ Over Head Service Reservoir (OHSR) were in use and at three locations, cleaning status of CWT/OHSR was not satisfactory (formation of *algae* inside CWT in Katesra, frogs in CWT in Sahu, CWT without cover in Kabrel), growth of *sarkanda* in SS tank at Khijuri as evident from the picture given below:

[3] PHED-13, ULB-8 and HSVP-4.

[4] Uranium parameter has been analysed at five locations only.

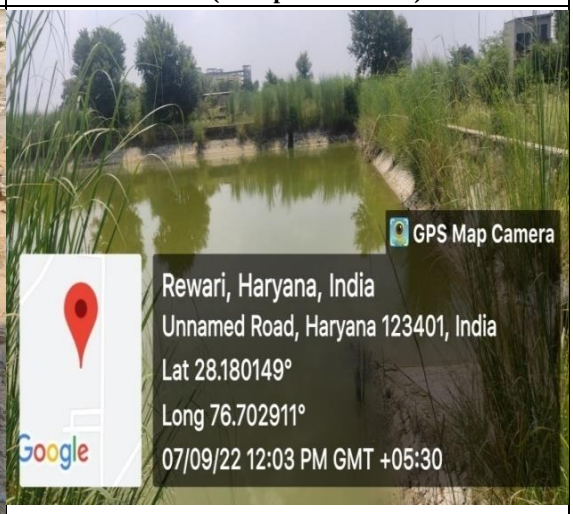
[5] Third party laboratory hired by this office.

[6] 1. Kalwa (PHED-Kurukshetra); 2. Khaleta (PHED-Bawal, Rewari).

Katesra (07 September 2022)

Sahu (08 September 2022)

Kabrel (08 September 2022)



Khijuri (07 September 2022)

5.1.1 Results of water samples analyzed at both laboratories:

1. **Bacteriological analysis:** In bacteriological analysis of water sample, presence of Coliforms confirms that water was not potable. It was observed that presence of Coliforms (***Appendix 16***) was detected in 19 samples (76 *per cent* water samples) out of 25 samples, as per analysis done at PHED laboratory. However, as per analysis at SRI laboratory, the same was detected only in five samples (20 *per cent* water samples). Thus, water supplied was found as not potable as presence of Coliforms was detected (***Appendix 16***).

2. **Physical & Chemical analysis:** In respect of physical & chemical parameters, test reports/results indicate that situation was not encouraging in Municipal Corporation, Faridabad. Total eight locations were selected in MC, Faridabad. At seven locations, various parameters (as detailed in ***Appendix 17***) were found beyond permissible limit as per analysis done at PHED laboratory. Even analysis at SRI laboratory had

detected the range of various parameters beyond permissible limit in respect of five locations.

Further, for the sake of consistency, Audit made a comparison between results of common parameters[7] tested in both the laboratories. Results of some of the common parameters are given in ***Appendix 18***. Test result of water samples clearly indicates that the department failed to supply potable water supply to the inhabitants.

During 2016-21, 2901 cases of water borne diseases and 14 deaths related to these cases were reported as per information furnished by Health Department. In four[8] out of eight selected districts, 1,382 cases of water borne diseases and 12 death cases against these cases were noticed during 2016-21. It is pertinent to mention that 10 WTPs (Karnal -1, Fatehabad-5 and Panchkula 4 WTPs) were installed in these districts on the canal based water supply under the jurisdiction of PHED/HSVP and for tube/ranney well based water supply, chlorination was being done in these districts for areas under ULBs.

Beneficiary survey: 50 out of 564 beneficiaries[9] (*nine per cent*) complained about bad quality of water. Out of these 50 beneficiaries, 44 beneficiaries were from Faridabad district.

5.2 Analysis of water samples tested at various laboratories of PHED

As per 4.1 of UDWQMP, 2019 Water Quality laboratories are the backbone of water quality monitoring. Provision of safe drinking water necessitates a strong well located and well equipped laboratory network within the state for water quality assessment. Audit analysis in respect of water sample reports (***Appendix 19***) for the year 2016-21 are as follows:

- During the period 2016-17 to 2020-21, samples found unfit for Physical and Chemical testing ranged between 0.12 *per cent* to 25.57 *per cent*.
- During the period 2016-17 to 2020-21, samples found unfit for Bacteriological samples testing ranged between 0.17 *per cent* to 14.50 *per cent*. 1,382 cases of various water borne diseases and 12 death cases were noticed in four[10] selected districts as per information furnished by the Health Department , Haryana.

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7 Colour, Odour, pH, Turbidity, Total Dissolved Solids, Total Hardness, Calcium, Chloride, Fluoride, Iron, Magnesium Manganese, Nitrate, Sulphate, Total Alkalinity, Zinc, Lead, Total Arsenic, Residual Chlorine and Total Coliform.

8 Fatehabad, Karnal, Kurukshetra and Panchkula.

9 Beneficiaries have been selected from 20 locations selected randomly from the 58 locations which was already selected for installation of flow meter selected through Computer Assisted Audit Technique.

10 Fatehabad, Karnal, Kuruksehtra and Panchkula.

- There was no facility of Physical and Chemical testing in respect of Kalka, Assandh, Indri and Hansi Sub Divisional Water Testing laboratories.

In selected districts, a total of eight district laboratories and seven sub divisional laboratories were there. As per guidelines, there was target of 3000 water samples fixed for each laboratory. The shortfall in achievement of targets by different district/sub-divisional labs is given in ***Table 5.1***.

Table 5.1: Shortfall in achievement of targets in District/Sub-divisional Laboratory

Year	2016-17		2017-18		2018-19		2019-20		2020-21	
Laboratory	**A**	**S**	**A**	**S**	**A**	**S**	**A**	**S**	**A**	**S**
Sub-divisional laboratory, Hansi	2,832	168	2,626	374	1,791	1,209	2,267	733	3,595	0
Sub-divisional laboratory, Assandh	1,898	1,102	3,018	0	2,581	419	2,378	622	1,920	1,080
Sub-divisional laboratory, Indri	0	3,000	509	2,491	1,378	1,622	1,460	1,540	1,621	1,379
Sub-divisional laboratory, Kosli	3,203	0	3,007	0	2,978	22	1,253	1,747	3,098	0
District laboratory, Rewari	4,200	0	3,340	0	3,000	0	1,968	1,032	2,796	204
District laboratory, Faridabad	3,012	0	3,933	0	3,126	0	2,958	42	3,196	0
District laboratory, Fatehabad	3,285	0	3,868	0	3,454	0	2,832	168	3,345	0
Sub-divisional laboratory, Pehowa	4,353	0	3,774	0	3,628	0	3,598	0	2,761	239
A: Achievement, S: Shortfall										

During 2020-21, there was improvement in achievement of targets for testing by the district/sub-divisional laboratories over 2019-20. Testing below the prescribed norms was carried out by four (50 *per cent*) out eight district/sub-divisional laboratories as against seven out of eight district/sub-divisional laboratories in 2019-20.

5.3 Lack of mechanism for re-testing of failed sample

Scrutiny of records in selected PHED Divisions revealed that there was no practice of record maintenance for follow up of failed samples/samples found unfit. As per data provided by divisional offices regarding testing of water samples, it was noticed that a total of 2,64,025 water samples were tested during the period April 2016 to March 2021 out of which 18,104 samples (6.86 *per cent*) were found unfit. The details are given in ***Table 5.2***.

Table 5.2: Total number of samples tested for the period 2016-17 to 2020-21

Year	Total samples tested	Fit samples	Unfit samples	Percentage unfit samples
2016-17	51,637	48,291	3,346	6.48
2017-18	60,601	57,394	3,207	5.29
2018-19	54,430	51,093	3,337	6.13
2019-20	47,422	43,694	3,728	7.86
2020-21	49,935	45,449	4,486	8.98
Total	**2,64,025**	**2,45,921**	**18,104**	**6.86**

Audit enquired (August 2021 to May 2022) follow up action of the department on the unfit samples, the divisions failed to provide the relevant record. In absence of record related to action taken on failed sample, audit could not ascertain whether timely action was carried out by the Department to ensure safe and potable drinking water for the inhabitants of areas where water sample were found unfit.

During exit conference (November 2022), the department/ entities assured that suitable steps would be taken to improve the quality of water.

5.4 Testing of source prior to commissioning of schemes

As per Clause 6.0 of the Inspection and Testing Plan for Certification of Drinking Water as per IS 10500:2012 under scheme IV of BIS (Conformity Assessment), Regulations 2018, the source water used in production of Drinking Water shall be initially tested for Organoleptic and physical parameters, Chemical requirement, and all microbiological requirements possible to be tested in house. Further as per clause 6.3, as and when there is change in source water or addition of new source of raw water, it shall be intimated to BIS. The raw water collected from the new source shall be tested in accordance with Clause 6 and the treated water produced from such source water shall be tested for conformity to IS 10500 before commissioning for regular production. Marking and records of the same should be maintained.

During scrutiny of records[11], it was noticed that various tube-well based schemes were in operation under the divisional offices of PHED, HSVP and ULB/MCs to provide water supply to the inhabitants. But no such practice was prevalent in the state of Haryana as all the concerned departments/ entities failed to provide any documents regarding request to BIS for change of source or new source of raw water as per the Regulations 2018 mentioned *ibid*. In case of PHED, only regular testing was being done for those parameters for which testing facilities were available in the local PHED laboratories whereas the other department viz. HSVP and ULB/MCs are not even doing the routine testing. During exit conference (November 2022), PHED stated that all the sources are tested before commissioning. The reply is not acceptable as record/supporting documents were not furnished by divisional offices during field visit.

5.5. Laboratory infrastructure

Para 9.8.3 of CPHEEO manual states that water quality laboratory is the main backbone of water quality surveillance. A well-located and well-equipped analytical laboratory with competent staff is very essential to evaluate the efficiency of water utility services in terms of water quality.

The State of Haryana is equipped with 43[12] water testing laboratories besides a mobile water testing van. During physical verification of laboratories (August 2021 to May 2022), various shortcomings were noticed which are as under:

[11] EE, PHED, (Fatehabad, Faridabad, No. 1 & No. 2, Karnal, Kurukshetra); HSVP Divisions-Faridabad, Rohtak, Rewari, Karnal; MC Faridabad & Karnal

[12] State Level Water Testing laboratory at Karnal-1, Zonal level water testing laboratory at Sirsa-1, District level water testing laboratory-20 and block/sub-divisional water testing laboratory-21.

5.5.1 Shortcomings in functioning of Laboratories as per Uniform Drinking Water Quality Monitoring Protocol (UDWQMP) 2019

(i) State Level Water Testing Laboratory

Chapter 5 of UDWQMP 2019 elaborates the functioning of state water testing laboratories who is headed by Chief Chemist. The roles and responsibilities of Chief Chemist are given in Chapter 8 of UDWQMP 2019. He is overall in-charge of the drinking water quality testing laboratories set up in the State. During physical verification of state laboratory (May 2022), it was noticed that very little attention was paid towards implementation of these functions. Deficiencies noticed are detailed in ***Table 5.3***:

Table 5.3: Functions envisaged vis-à-vis Functions in practice in the State Laboratory

Sr. No.	What was envisaged	What is prevalent
1.	Act as a referral institute to analyze specific or new/emerging water quality problems.	No referred samples were ever received from any of the departmental/inter-departmental labs.
2.	Preparation of State and district annual action plans, identification of newly emerging contaminants, instruments/equipments required and approval in State Level Scheme Sanctioning Committee (SLSSC).	The state laboratory was working like a routine district laboratory with no involvement in preparation of action plan for effective WQM&S.
3.	To monitor the performance of district, Sub-divisional/block/ mobile laboratories and ensure Quality Assurance & Quality Control (QA & QC) in these laboratories.	There was no practice prevalent to monitor the performance of other laboratories which was one of the main functions to guide and ensure the Quality Assurance & Quality Control.
4.	Ensure proper AMC/CAMC/calibration of all instruments/equipments using Certified Reference Material (CRM) as per "IS/ISO/IEC 17025:2017".	The AMC/CAMC was done in respect of only two equipments viz. Atomic Absorption Spectrophotometer i.e. AAS (for testing of heavy metals) and GC-MS/MS (for testing Pesticide residue) whereas protocol emphasises on doing AMC/CAMC for all instruments. In rest of the Haryana, no AMC/CAMC was done in respect of available instruments/equipments available in concerned laboratories.
5.	Analysis of targeted samples of State laboratories including the positively tested samples of district, sub-divisional/block/mobile laboratories.	District/sub-divisional laboratories had never referred positive samples to State Laboratory. Even, State laboratory had not asked either from concerned laboratories to refer positively detected samples.
6.	Preparation of documents/manuals related to water quality testing and monitoring.	No such practice was prevalent in State laboratory.
7.	Data analysis and follow-up corrective action for ensuring safe drinking water.	No such practice was prevalent in State laboratory.
8.	Coordination with similar laboratories of other departments in the State and to establish a mechanism for cross verification of test results carried out by different labs.	No such co-ordination was ever made.
9.	Ensuring supervision and monitoring of results carried out by Gram Panchayats (GPs)/VWSCs using Field Test Kit, sanitary surveillance and strengthening community in water quality monitoring and surveillance.	There was no monitoring done by state laboratory in respect of samples tested by GPs and VWSCs by using FTK, sanitary surveillance. Even the District consultant at Karnal and Chief Chemist, State laboratory had no coordination with each other for strengthening the community in water quality monitoring and surveillance.

Sr. No.	What was envisaged	What is prevalent
10.	Networking and coordination with Department of Atomic Energy (DAE) approved laboratories /NABL accredited laboratories for monitoring radioactive and virological parameters.	State laboratory had not made any correspondence with DAE approved laboratories for monitoring of radioactive and virological parameters despite the fact that presence of Uranium contamination was pointed out by CGWB in its report (2020) at some places in Haryana.
11.	Para 9.1 of the UDWQMP, 2019 states that the State level laboratory should concentrate on analysis of specific parameters of local importance like pesticides, toxic substances, microbiological and virological parameters, Poly Aromatic Hydrocarbons (PAH), Poly Chlorinated Biphenyls (PCB) and Disinfection byproducts like Tri Chloro Methane (TCM) etc.	In respect of specific parameters, state laboratory had started testing only Pesticide residue and that too from year 2022 onwards and none of the other specific parameters as mentioned in the protocol were tested at all.
12.	Para 7.2 of UDWQMP, 2019 states that the performance of laboratory at all levels should be one of the factors for evaluation in the annual performance appraisal reports of concerned engineers and laboratory personnel.	The performance of laboratories was not part of evaluation in APAR of the concerned chemists and engineers.

Had the department considered the performance of laboratories as the criteria for evaluation of annual performance appraisal reports of concerned engineers and laboratory personnel (as defined in protocol) the concerned engineers and chief chemist would have paid special attention towards lab functioning. But in the absence of such criteria, the State laboratory was not performing functions which are required to be performed as per UDWQM Protocol, 2019.

(ii) District and Sub-Divisional Water Testing Laboratory

Chapter 5 of UDWQMP 2019 elaborates functioning of district and sub-divisional water testing laboratories. District laboratory headed by Chemist and sub-divisional laboratory by Junior Chemist. Executive Engineer of the district and the Chemist of the district laboratory are responsible for the performance of the laboratories in their jurisdiction. The functions of these laboratories besides water quality testing, monitoring and surveillance of the water sources is strengthening of community participation in the activities of monitoring and surveillance.

During scrutiny of selected seven[13] district level and seven[14] sub-divisional laboratories, it was observed that:

- Only regular testing of selected parameters of which testing facility was available was being done in these laboratories and results of water testing were sent to concerned Sub-Divisional Engineers.
- There was no practice prevalent in the department for intimation of results to Zila Parishad and Gram Panchayat for corrective action.

[13] District laboratory- Hisar, Kurukshetra, Rewari, Fatehabad, Rohtak, Faridabad and Panchkula.

[14] Sub-divisional laboratory- Assandh, Indri, Hansi, Kosli, Kalka, Pehowa and Tohana.

In order to assess the factual position of the infrastructure available as well as working of these laboratories, joint physical verification was done with departmental officials. Shortcomings noticed during physical verification are shown in ***Table 5.4 (a) and 5.4 (b)***.

Table 5.4 (a): Infrastructure status of District Laboratories

District laboratory/ category	**Fatehabad**	**Faridabad**	**Panchkula**	**Rewari**
1. Space 2. Storage facility 3. Equipment/kits	1. No sample collection room because Bill branch was running in store room of laboratory. 2. One Laminar Flow[15] amounting to ₹ 0.50 lakh was lying unutilized since October 2020 (date of purchase) and Arsenic FTK-500 was found unutilized. 3. One bacteriological instrument amounting to ₹ 6.25 lakh was lying abandoned since February 2021 (date of purchase). 4. E. Coli/Coliform Test Kit (25 test) amounting to ₹ 0.28 lakh got expired without being used.	Nephelometer (turbidimeter) & Bacteriological incubator were not in working condition	No space for Bacteriological testing. Storage facility for Glassware/Equipment/ Chemical was not available.	No space for Bacteriological testing.
***NABL accreditation of District Water testing Laboratory, Fatehabad (PHED) has been suspended w.e.f. 08 May 2022.**				

Table 5.4 (b): Infrastructure status of Sub Divisional Laboratories

Sub-divisional lab/ category	**Indri**	**Hansi**	**Kosli**	**Tohana**
1. NABL Accreditation 2. Space 3. Storage facility 4. Equipment/kits	1. NABL not accredited 2. Space not as per UDWQMP, 2019 3. Computer, Internet facility was not available.	1. NABL not accredited	1. Space available was not as per UDWQMP,2019	1. NABL not accredited. 2. One room is occupied by WSSO. 3. One Voltas refrigerator (570 litre) supplied of different specification was lying unutilised since February 2022.

(iii) Non completion of laboratory buildings

During scrutiny of records[16], it was noticed that the civil work of upgradation of laboratory buildings at Panchkula, Kalka and Hansi was completed (April 2019- March 2020) but these could not be made operational (March 2022). The details are given in ***Table 5.5***.

[15] Laminar Flow is an enclosed bench designed to maintain a working area devoid of contaminants.

[16] EE, Hansi and Panchkula.

Table 5.5: Status of various laboratory buildings

Name of Laboratory	Status
District Laboratory, Panchkula	• The civil work of upgradation of laboratory building was completed in April 2019, but balance work (construction of stairs, plastering, flooring, painting) which was allotted in February2021 was not completed till date (March 2022). • The laboratory was running in old building.
Sub divisional laboratory, Kalka	• The civil work of up gradation of laboratory building was completed in April 2019. • Due to non-installation of infrastructure, the sub divisional laboratory was not operational for doing Physical and Chemical testing and laboratory was running in old building.
Sub-divisional laboratory, Hansi	• The works for "Renovation & Up-gradation of Laboratory" and "Supplying & Fixing AC, Fan, Solar lighting, etc." were allotted in March 2020 and these works were required to be completed up to June 2020. • The building work was physically completed but the infrastructure such as AC, Fan, Solar Lighting, Fire Extinguishers, Modular Laboratory Furniture, etc. were not installed till July 2022. The work was delayed by more than 14 months from the schedule completion date of laboratory. • The laboratory work operates from a single room and no proper infrastructure was available in the room as required under UDWQMP.

5.6 Non-testing of water sample as per Uniform Drinking Water Quality Monitoring Protocol's parameters

As per UDWQMP, the State Level Water Testing Laboratory should have the capability and facilities for testing 73 parameters, the District Level Water Testing Laboratory should have the capability and facilities for testing 32 parameters and the Sub-divisional/block Level Water Testing Laboratory should have the capability and facilities for testing 19 parameters. Further, Department of Drinking Water and Sanitation, Government of India also directed (December 2021) for ensuring NABL accreditation of various level laboratories.

During scrutiny of records of selected district and sub-divisional laboratories it was noticed that the laboratories were not testing parameters as per UDWQMP as detailed in ***Table 5.6*** below:

Table 5.6: Details of parameter tested at various laboratories of PHED

Laboratory	Location	Norms of parameters as per UDWQMP	No. of parameters (Physical & Chemical) tested by April- May 2022	Shortfall	No. of parameter NABL accredited
State Level	Karnal	73	43	30	15
District	Hisar	32	15	17	06
	Kurukshetra		12	20	09
	Panchkula		15	17	07
	Fatehabad		11	21	06
	Rewari		15	17	15
	Faridabad		11	21	11
	Rohtak		11	21	07
Sub-Divisional	Asandh	19	00	19	--
	Indri		00	19	--
	Hansi		00	19	--
	Pehowa		15	04	11
	Kalka		00	19	--
	Tohana		15	04	--
	Kosli		15	04	11

From above table, it can be concluded that there were shortfalls in terms of number of parameters tested and NABL accreditation was not sought for all the parameters. This is indicative of absence of monitoring mechanism for compliance to the UDWQMP and government instruction for ensuring supply of safe drinking water to the inhabitants.

5.7 Non-fixation of targets in respect of water sampling

Para 15.3.4 of Central Public Health & Environmental Engineering Organisation (CPHEEO) manual provide details about frequency of water sample testing. It is necessary to collect samples of both raw and treated water for the examination of toxic substances at least every three months. For bacteriological sampling, the samples should be taken from the different points on each occasion to enable overall assessment. The minimum number of samples to be collected from a distribution system is given in ***Table 5.7***.

Table 5.7: Norms of testing of water quality in urban areas

Population Served	Maximum Intervals between successive sampling	Minimum no. of samples to be taken from entire distribution system
Upto 20,000	One month	One sample per 5,000 of population per month
20,000-50,000	Two weeks	
50,001 – 1,00,000	Four days	
More than 1,00,000	One day	One sample per 10,000 of population per month

During scrutiny of records, it was seen that the departments i.e. PHED (regular water testing is being conducted) and ULB did not have readily available data on population pertaining to the areas under their jurisdiction which hampered fixing of targets. Thus, fixation of targets was left to the discretion of divisional officer to conduct and test without any scientific analysis. The situation was not encouraging in Urban Local Bodies department as scrutiny in selected offices[17] revealed that the department had not followed any mechanism regarding fixation of targets for test sampling. Neither had any instructions been issued at higher level nor were the tests conducted by the department despite provisions in the CPHEEO manual. The department failed to provide the relevant record as to how many tests had been conducted during the audit period. In absence of records, audit could not comment on the quality aspect of the water supplied by the selected divisions/ offices.

Scrutiny of records in selected divisions of HSVP revealed that divisional offices were conducting tests without fixing any targets. The details of tests conducted by HSVP divisional offices during 2016-21 in different laboratories of other department/private laboratories are detailed in ***Table 5.8***.

[17] MC, Karnal and Faridabad.

Table 5.8: Details of water samples tested by selected HSVP divisions during 2016-21

Unit Name	Norms as per CPHEEO Manual (One sample per 10000 of Population per month)	Total no. of sample Tested under water works	Unfit Sample
Town and Country Planning Department			
HSVP I, Panchkula	2,711	2,638	0
HSVP-II Panchkula	1,314	427	14
HSVP, Karnal	975	2,371	0
HSVP, Kalaka, Rewari	477	270	0
HSVP I, Faridabad	470	11	0
HSVP III, Faridabad	87	5	0
HSVP I, Hisar	1,200	3	0
HSVP II, Hisar	600	29	0
Total	**7,834**	**5,754**	**14**

From the above, it can be seen that selected divisional offices had conducted 5,754 water tests against requirement of 7,834 water tests. There was a shortfall of 26 *per cent* as against the norm/requirement.

5.8 Shortage of manpower in laboratory

UDWQMP 2019 provides a suggestive staffing pattern for Sub-Divisional/ Block Level Water Quality Testing Laboratory. Information on the sanctioned strength of laboratories personnel was not provided by the PHE Department. The shortage of manpower in the State laboratory, district laboratories and sub-divisional laboratories was assessed during audit using the UDWQMP norms (State Level laboratory at Karnal; District laboratories and sub-divisional laboratories). The shortage of manpower in respect of State Water Testing Laboratory, Karnal, ranged between 67 *per cent* and 100 *per cent* under different category of posts, are shown in ***Table 5.9***.

Table 5.9: Staff position at State Water Testing Laboratory, Karnal

Sr. No.	Name of post	As per UDWQMP	Karnal State lab		*Percentage* of shortage
			Actual position	Shortage	
1	Chief Chemist/Chief Water analyst	1	1	0	-
2	Senior Chemist/Senior Water Analyst	1	0	1	100
3	Chemist/ Water Analyst	2	0	2	100
4	Microbiologist/Bacteriologist	1	0	1	100
5	Laboratory Assistant	3	1	2	67
6	Lab Attendant	2	0	2	100
7	Data Entry Operator	2	1 (RME staff posted)	2	100
8	Field Assistant (task/need based field staff)	2	0	2	100

During audit, it was noticed that the shortage of manpower in respect of District laboratories ranged between 50 *per cent* and 100 *per cent* and in respect of sub-divisional laboratories, it was upto 100 *per cent (**Appendix 20**)*.

Audit analysis of the data related to staff required and positioned (including contractual staff) in the laboratories during 2016-2021 revealed the following:

- In State Laboratory, against the requirement of 14, average 10 posts remained vacant during 2016-2021.
- In selected seven district laboratories, against the requirement of eight

posts in each district laboratory, posts ranging between two and six remained vacant during 2016-21.

- In selected seven sub-divisional laboratories, against the requirement of six posts in each sub-divisional laboratory, posts ranging between one and five remained vacant during 2016-21.

As is evident from the above, during 2016-21, adequate staff was not deployed in all the laboratories.

Thus, shortage of staff is hampering the activities of the laboratory resulting in non-achievement of target of water sampling (Paragraph 5.2) and less number of parameters being tested (Paragraph 5.6).

5.9 Shortcomings in utilisation to Field Testing Kits (FTKs)

5.9.1 In-judicious expenditure on procurement of FTKs valuing ₹ 0.78 lakh

Para 4.2 of UDWQMP states that the FTK for examination of physico-chemical contamination not only serves the purpose of initial screening of contamination but also is an effective tool for generating awareness amongst the community to consume safe drinking water. This multi parameter field test kit can carry out 100 tests. For bacteriological examination, a simple Presence/Absence (P/A) water test kit is also available which indicates the presence/ absence of Coliforms in water samples.

During test check of records[18], it was seen that 31 chemical kits (Rewari-8, Rohtak-23) which were capable of testing 11 parameters were procured at a cost of ₹ 0.78 lakh during the year 2016-17 to 2020-21. It was observed that the divisional offices tested only one to five parameters (Rewari-two parameters and Rohtak-one to five parameters) leading to injudicious use of these kits. The details are shown in ***Table 5.10***.

Table 5.10: Information relating to Chemical kits (FTK)

Name of District	Year	No. of chemical kits procured/purchased/received	Rate (per kit) in ₹	No. of parameters tested	Expenditure incurred
Rewari	2016-17	No Kit Procured			
	2017-18				
	2018-19				
	2019-20	8	2,500	2 parameters	20,000
	2020-21	No Kit Procured			
Rohtak	2016-17	13	2,500	1 to 5 parameters	57,500
	2017-18	0	-		
	2018-19	5	2,500		
	2019-20	5	2,500		
	2020-21	0	-		

Further, it was observed that the other divisions did not maintain record related to purchase, distribution, sample testing from FTKs. In response to audit

[18] EE, PHED, Rewari and EE, PHED-2, Rohtak.

enquiry, District Consultants[19] failed to produce stock register of FTKs which were procured and distributed by WSSO staff. In the absence of record, the authenticity of information furnished by the divisional office could not be ascertained.

Neither the controlling authorities at headquarters office nor the divisional officer ever examined the stock register related to FTK in disregard to Punjab Financial Rules (PFR). This was indicative of lack of monitoring mechanism which led to non-maintenance of records of procurement and distribution of FTKs.

5.9.2 Non-referring of unfit samples found through FTKs to nearby laboratories

As per Chapter 10 of JJM guidelines, the water quality surveillance activities include use of FTKs at GP level to know the extent of contamination and refer the positively tested samples to the nearby water quality testing laboratory for confirmation.

During scrutiny of records/analysis of data furnished by the WSSO staff in the selected divisions[20], it was noticed that contrary to the guidelines, none of the failed FTK samples were ever referred to nearby laboratory.

5.9.3 Non-uploading of detailed test results of FTKs on Integrated Management Information System (IMIS) website

As per JJM guidelines, the JJM IMIS portal will capture the following:

- Water quality monitoring through laboratory tests at all levels as per the frequency;
- Water quality surveillance undertaken by community through FTKs in all villages as per the frequency of testing.

During scrutiny of records[21], it was noticed that details of FTKs test reports were not uploaded on website during the period 2016-17 to 2020-21. As a routine practice, test results were kept separately in files without uploading the results on portal. The uploading of results of unfit samples detected by using FTKs on portal could have helped the department in identifying the source of contamination for corrective action. Thus, the envisaged objective of ensuring Water quality surveillance through the portal was defeated as neither the results

[19] District Consultants are hired by PHED as WSSO staff for providing support for awareness creation (IEC) and training activities (HRD) and work under the supervision of State Consultant and overall supervision is done by Director (WSSO).

[20] Rewari, Fatehabad, Rohtak-2, Karnal-1, Hisar, Kurukshetra, Panchkula and Faridabad.

[21] EE, PHED, Fatehabad, Rewari & No. 2: Rohtak, Karnal, Hisar, Kurukshetra, Panchkula and Faridabad.

were uploaded nor were the samples found unfit by using FTKs referred to nearby laboratories for detailed analysis.

5.10 Lack of testing facilities to detect presence of Uranium and non-testing of water samples for heavy metals in areas where water supply is ground based

Uranium

As per report (June 2020) of Central Ground Water Board, Ministry of Jal Shakti, Department of Water Resources, River Development and Ganga Rejuvenation on "Uranium Occurrence in Shallow Aquifers in India", there were 19.5 *per cent* samples (88 out of total 450 samples) analysed where Uranium concentration was found more than 30 ppb[22] (permissible limit for drinking water prescribed by World Health Organization) in state of Haryana with maximum value observed as 131.4 parts per billion (detected in Sahu village of Hisar district). The districts which were partly affected by high Uranium in ground water were - Ambala, Bhiwani, Faridabad, Fatehabad, Gurugram, Hisar, Jhajjar, Jind, Kaithal, Karnal, Kurukshetra, Mahendergarh, Palwal, Panipat, Rohtak, Sirsa, Sonipat and Yamuna Nagar.

It was observed that there was no testing facility for testing uranium contamination in the State laboratory situated at Karnal. No efforts had ever been made to tie up with other laboratories for checking the presence of uranium in ground water in the areas where tube well based water supply was in practice whereas UDWQMP, 2019 emphasizes that state laboratories should coordinate with Department of Atomic Energy (DAE) approved laboratories /NABL accredited laboratories for monitoring radioactive and virological parameters.

The Department stated (April 2022) that contamination of Uranium in drinking water drawn from shallow tube wells would have given rise to kidney diseases in that segment/ region which would have been easily captured through an epidemiological survey but no such evidence has ever been reported across the State. Audit is of the view that timely and appropriate remedial measure was required to be taken in respect of Uranium contamination so as to timely restrict the chances of people getting exposed to the contaminated underground water as traces of Uranium presence (though within permissible limit) have been detected at three out[23] of five randomly selected locations during sampling exercise.

Heavy Metal

EIC, PHED issued instructions (December 2017) to the sub-ordinate officers for testing chemical contamination for every ground water source i.e. tube well and spring based sources and were directed to submit samples of ground water

[22] Parts per billion.

[23] Locations: Thana (Kurukshetra), Moond (Karnal) and Ballabgarh.

sources to the State Water Testing Laboratory, Karnal. Each test report was required to be scrutinized by concerned Executive Engineer for failed samples and remedial measures were required to be taken on priority. For the purpose, Atomic Absorption Spectrophotometer (AAS) had been installed (October 2016) in the State Water Testing Laboratory, Karnal which had the capacity to test presence of heavy metals in drinking water. As per data provided by the department, it was noticed that 2,835 deep tube wells (2,480-Rural, 355-Urban) and 268 (244-Rural, 24-Urban) shallow tube wells were operated by PHED Haryana in selected divisions. Year wise number of samples received in State laboratory from selected divisional offices and percentage of source tested is shown in ***Table 5.11*** below:

Table 5.11: Year-wise number of sources tested for heavy metals at State Lab, Karnal

Sr. no.	Name of division	Total number of sources to be tested (as on May 2022)	No. of sample received	Percentage of sources actually tested	No. of sample received	Percentage of sources actually tested	No. of sample received	percentage of sources actually tested	No. of sample received	Percentage of sources actually tested
			2017-18		2018-19		2019-20		2020-21	
1.	PHED Hansi	44	30	**68**	01	**2**	0	**0**	11	**25**
2.	PHED Kurukshetra	789	154	**20**	282	**36**	12	**2**	0	**0**
3.	PHED, Panchkula	248	67	**27**	159	**64**	0	**0**	0	**0**
4.	PHED Rewari	104	0	**0**	20	**19**	0	**0**	0	**0**
5.	PHED Bawal	287	25	**9**	118	**41**	0	**0**	0	**0**
6.	PHED Kosli	183	0	**0**	0	**0**	0	**0**	0	**0**
7.	PHED Fatehabad	85	11	**13**	42	**49**	15	**18**	0	**0**
8.	PHED Tohana	145	22	**15**	58	**40**	58	**40**	0	**0**
9.	PHED 1 Karnal	393	601	**153**	288	**73**	406	**103**	530	**135**
10.	PHED 2 Karnal	370	152	**41**	314	**85**	169	**46**	607	**164**
11.	PHED 1 Rohtak	64	0	**0**	0	**0**	0	**0**	0	**0**
12.	PHED 2 Rohtak	42	0	**0**	0	**0**	0	**0**	0	**0**
13.	PHED Faridabad	349	89	**26**	40	**11**	0	**0**	35	**10**
	Total	**3,103**	**1,151**	**37**	**1,336**	**43**	**660**	**21**	**1,183**	**38**

From the above, it can be seen that during 2017-21, PHED division 1, Karnal had got water samples tested for heavy metals more than the number of sources but no data in this regard was available to confirm whether all the sources had actually been tested or not. Therefore, audit cannot comment on 100 *per cent* coverage of sources. Whereas in case of other divisions percentage of source tested was ranging from zero to 68 *per cent* during 2017-21. Thus, instructions of higher authorities to test all sources for chemical contamination was not adhered to as the divisional offices had not sent samples for all the sources under their jurisdiction.

5.11 Non-installation of Community Water Purification Plants (CWPP) resulted in depriving the habitants of potable water

As per IMIS of Ministry of Drinking Water and Sanitations, there were 128 quality affected habitations (April 2017) in state of Haryana. In this regard EIC, PHED had informed (April 2017) all the SEs that out of these above 128 habitations, 90 habitations had been taken up for coverage under various projects and there were

still 38 habitations which were not taken up under any projects for providing alternate safe source. EIC, PHED directed to all SEs to submit project for coverage of balance these 38 quality affected habitations by January 2018.

During scrutiny of records/website (IMIS of Ministry of Drinking Water and Sanitations) data (February 2022) it was seen that the department had not installed any CWPP as an interim measure in the selected districts despite detecting water quality affected habitations continuously from 2016-17 to 2020-21 as shown in ***Table 5.12*** below:

Table 5.12: Details of quality affected habitations detected year-wise

District	2016-17	2017-18	2018-19	2019-20	2020-21
Hisar	--	--	11	15	16
Rewari	36	25	0	2	19
Panchkula	--	--	--	--	2

Further it was observed that habitations from the above districts remained quality affected for two or more consecutive years (***Appendix 21)***.

It was observed that in Hisar, eight habitations of the district remained quality affected habitation (Fluoride and Total Dissolved Solid) continuously from 2018-19 to 2020-21. In Rewari, eight habitations of the district were found as quality affected habitation (Fluoride) for two consecutive years during the period of 2016-17 to 2017-18. Besides this, in Panchkula, two habitation namely Baladwal and Dunga were found fluoride affected during chemical testing in the year 2020-21 and 2021-22.

The department did not install any CWPPs in these habitations and the inhabitants were forced to consume non-potable water. Superintending Engineer, PHE circle, Hisar (December 2021) admitted that to cater to the needs of inhabitants during shortage of canal-based water, shallow tube wells were installed. The reply confirms the audit observation.

5.12 Delay in commissioning of conversion of tube well based scheme to canal based scheme

During scrutiny of the records[24], it was noticed that tube well based water supply was provided in nine habitations/colonies (***Appendix-22***) where ground water had been detected with fluoride contamination[25].

Out of these nine[26] locations of tubewell supply, the department had planned (2018-21) to shift water supply from tubewell based to canal based at four[27]

[24] EE, PHED, Fatehabad.

[25] Source: PHED laboratory reports.

[26] 1. Ajeet Nagar, Aherwan; 2. Majra; 3. Noorki Ahli; 4. Daulatpur (two installation as per electricity account number); 5. Dhani Binja Lamba; 6. Hanspur; 7. Chanderwal; 8. Hans Colony; 9. Kairan.

[27] 1. Aherwan, 2. Majra, 3. Noorki Ahli and 4. Daulatpur.

habitations. Out of these four habitations, work for only one habitation had been physically completed in 2021 and other three works were still in progress (May 2022). No interim measures had been taken by the department for providing safe drinking water. These habitations continued to consume non-potable water as is evident from electric meter bill showing the tube wells to be operative.

Audit observed delays in other projects/schemes related to conversion of tube well based supply to canal based supply, the details are shown in ***Appendix 23***.

5.13 Regular Cleaning of Over Head Tanks (OHTs)/Clear Water Tanks (CWTs) not done

As per CPHEEO O&M Manual, OHTs/reservoirs are to be cleaned at regular interval (at least once in six months) and sample of water and silt/mud accumulated in the tank is to be collected for biological analysis to see the presence of snails and worms.

It was observed in selected divisions[28] that records were not maintained to substantiate that periodic cleaning of OHTs/reserviors was being done at divisional level. This indicated non-compliance to the extant instructions/ guidelines. In absence of the records, cleanliness of water supplied to inhabitants could not be ascertained in audit.

Conclusion

Water quality was found affected at some selected locations due to presence of coliforms, physical and chemical parameters found beyond permissible limits. There was shortage of manpower in the State, District and sub-divisional Laboratories. Resultantly, shortfalls in water sample testing at the District/Sub-divisional laboratories were noticed in the selected districts. Audit could not ascertain follow-up on the samples found unfit during testing as no record for the purpose was maintained by the PHED. Shortcomings were noticed in functioning of Laboratories (State, District and Sub-divisional) against the Uniform Drinking Water Quality Monitoring Protocol. There was no facility for testing Uranium contamination and only one facility existed for testing of heavy metals in the State. Field testing kits were not used judiciously as neither the record related to procurement and distributions of kits was maintained nor were the unfit samples found by using FTKs sent to nearby laboratories for further examination. In some quality affected areas, Community Water Purification Plants were not installed and delays were noticed in conversion of ground water based scheme to canal based scheme in the quality affected habitations.

[28] EE (PHED, No.1&2, Rohtak, Faridabad, Kosli), EE (HSVP, No.1&2, Panchkula, Rewari, No.1 &3, Faridabad), MC (Karnal).

Recommendations

In view of the above audit observation it is recommended that

7. *The department should focus on improving testing facilities by upgrading laboratories infrastructure and deploying manpower as per requirement.*

8. *FTKs being an important detecting tool for initial screening of contamination, the department should ensure its usage judiciously and as per extant instructions.*

9. *Timely and appropriate remedial measure are required to be taken by the department for detection of Uranium and heavy metals so as prevent the chances of people getting exposed to the contaminated underground water.*

10. *The Department should prioritise timely completion of water supply projects in the quality affected habitations to ensure that potable water supply is available to the inhabitants.*

Chapter-VI

Deficient emphasis on Sustainability and insufficient Monitoring

Chapter-VI

Deficient emphasis on Sustainability and insufficient Monitoring

Target set for construction of sustainability structures, rain water harvesting systems, water recharging systems under NRDWP remained unachieved. There was lack of efforts by the department to reduce dependency on ground water. Monitoring mechanism was poor as delays were noticed in completion of water supply works, non-maintenance of record related to consumer complaints.

6.1 Non-preparation/implementation of sustainability measures

Para 3 under Guidelines for implementation of Sustainability (NRDWP guidelines) states that sustainability of drinking water sources ensures safe drinking water even during distress periods through conjunctive use of groundwater, surface water and roof water harvesting. This is achieved through construction of sustainability structures such as water harvesting systems, water recharging systems and surface water impounding systems aimed at improving rural drinking water supply.

During scrutiny of records[1], it was noticed that PHED set target[2] for construction of sustainability structures such as harvesting systems, water recharging systems and surface water impounding system etc. under NRDWP with water works which were unachieved. The department closed seven works which were administratively approved (May 2015) for amount of ₹ 111.81 lakh without incurring any expenditure. The reasons for closing the work was not furnished to audit.

Audit is of the view that sustainability structure should be incorporated for sustainability of water and sustainability plan should be made accordingly by the department in addition to adopting watershed principles for source recharging by convergence with other schemes.

6.2 Lack of departmental efforts to reduce dependency on Ground Water

NRDWP guidelines identified reduction in dependence on ground water and shift to surface water sources and conjunctive use of water from different sources as a critical issue to be addressed during the 12th plan period. The aim was to reduce pressure on ground water extraction and ensure potability of water. Ministry of Drinking Water & Sanitation (MDWS), Government of India also advised (February 2016) all states to take up more and more number of surface water based schemes in the interest of sustainability of service

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1 EIC, PHED.

2 2015-16: 3 and 2016-17: 10.

delivery and in preference to ground water based scheme. However, it was observed that PHED continues to launch more ground water based schemes as compared to canal water based schemes. It was observed that during the period 2016-17 to 2020-21, the ratio of newly commissioned canal based schemes to the number of newly commissioned tube-wells was continuously decreasing. Further, it was observed that the number of the new commissioned canal based schemes kept on decreasing from 2018-19 to 2020-21. The details are given in ***Table 6.1*** below:

Table 6.1: Details of Canal based and Tube well based schemes taken up during last five years

Year	Canal based schemes	T/well commissioned	*Per cent* of canal based water works to tubewells
2016-17	34	497	6.84
2017-18	28	412	6.80
2018-19	35	525	6.67
2019-20	24	528	4.55
2020-21	13	405	3.21
Total	**134**	**2,367**	**5.66**

In areas where water supply is solely ground water based viz. in Karnal, Kurukshetra, Panchkula, Faridabad (in four districts out of total eight selected districts) the department replied (May 2022) that no alternate options had ever been explored in previous five years (Karnal, Kurukshetra and Faridabad district). Panchkula divisional office did not respond despite issuing reminders. According to Block Wise Ground Water Resource assessment 2020 (available on website of CGWB as on July 2022), there were 16 over-exploited blocks in these four districts.

During exit conference (November 2022), PHED stated that at most of the places, ground water was sweet and people also preferred ground water based schemes. Further it was stated that a detailed reply would be furnished to audit. Reply is awaited as of December 2022.

6.3 Non-conducting of awareness programme

According to para 9.8.1 of CPHEEO Manual on O&M of Water Supply System published by Ministry of Housing and Urban Affairs (MoHUA), Community participation is an essential component of the monitoring and surveillance framework.

As per information provided by ULB and HSVP (April-May 2022) no such awareness programme had been organized by the entities.

Though the PHE department is stated to have carried out various support activities viz. training of VWSC members, Mass media programmes and activities, IEC in schools, targeted sampling etc. but no such annual calendar of organising the event and timing was available with the department. The department was issuing instructions to field offices as and when the said events

were to be organized. Thus, departments failed to generate awareness among public regarding good practices and surveillance activities.

6.4 Public Grievances/Complaints

PHE department and HSVP department had issued a toll free number for the citizens to lodge complaints related to water supply. Citizens can, however, lodge complaints on other platforms also viz. CM window, Twitter etc. The details of the complaints received and attended by the departments is shown in ***Appendix 24***.

It was observed that 20451 complaints (13 *per cent*) were attended between 24 and 72 hours, 1,12,257 complaints (71 *per cent*) were attended beyond 72 hours by the PHED. The Department failed to produce relevant/supporting records in respect of these complaints. Audit could not ascertain the reasons/status of 2,403 unattended complaints due to non-maintenance of records.

In HSVP, it was observed that 1,898 complaints (58 *per cent*) were resolved within 24 hours to 72 hours and 141 complaints (four *per cent*) were resolved beyond 72 hours. It was noticed that no reasons were placed on record for attending 141 complaints beyond three days. The data indicating full details are not available on the online portal. In absence of full details, actual time taken to resolve the complaints could not be verified in audit.

In MCs[3] (***Appendix 24***), it was noticed that all complaints were shown resolved within time period of 24 hours to 72 hours but no record was maintained to ascertain the actual time taken by the divisional office to resolve the complaints.

Though, timeline was fixed for resolving complaints based on their category, however, there was no basis/system in place for categorisation of the received complaints with the departments/entities. In absence of categorisation of complaints and relevant record, audit could not verify the authenticity of the data provided by the department/entities.

Beneficiary survey: Only 66 out of 685 beneficiaries (10 *per cent*) submitted their grievances on toll free numbers. 96 out of 541 beneficiaries (17 *per cent*) stated that their complaints were resolved after a gap of three or more than three days. Three beneficiaries replied that their complaints were not attended by departmental representatives.

[3] MC Divisions- Faridabad and Karnal.

6.5 Water Quality Monitoring and Surveillance (WQM&S)

According to para 4.5 read with Para 10.1 of JJM guidelines GP and/ or its sub-committee, i.e. VWSC/Paani Samiti/User Group, etc. will ensure to test 100 *per cent* drinking water sources including private sources and sanitary inspection[4] under its jurisdiction using FTKs. The provision for sanitary inspection and testing of water sources by FTKs were also mentioned in NRDWP guidelines.

During scrutiny of records in the office of the EIC, PHED, Haryana, Panchkula for the period 2016-17 to 2020-21 following observations were noticed:

1. **Sanitary Inspection**: No sanitary inspection had been carried out during 2016-21. No reasons were placed on record for not carrying out Sanitary Inspection.

2. **Non-coverage of all the sources**: It was observed that source testing ranged between 10.84 *per cent* to 35.33 *per cent* (***Appendix 25***). Thus, department failed to adhere to the guidelines of 100 *per cent* source testing. In this way, providing potable water to every household could not be ensured.

6.6 Delay in completion of Swaran Jayanti Mahagram Yojana works

Government of Haryana initiated (November 2015) a new scheme "*Swaran Jayanti Maha Gram Vikas Yojana*" for the planned development of the villages having population of 10,000 or more as per census. From the financial year 2018-19 onwards, provision of budget for this scheme has been made in the budget of PHE Department by the Finance Department. Total 132 villages having population of around 10,000 persons were planned to be provided with water supply and sewerage facility at par with urban area by PHED (WSSB). Under this scheme water supply @ 135 LPCD is to be provided in the selected villages. This was to be done in three phases.

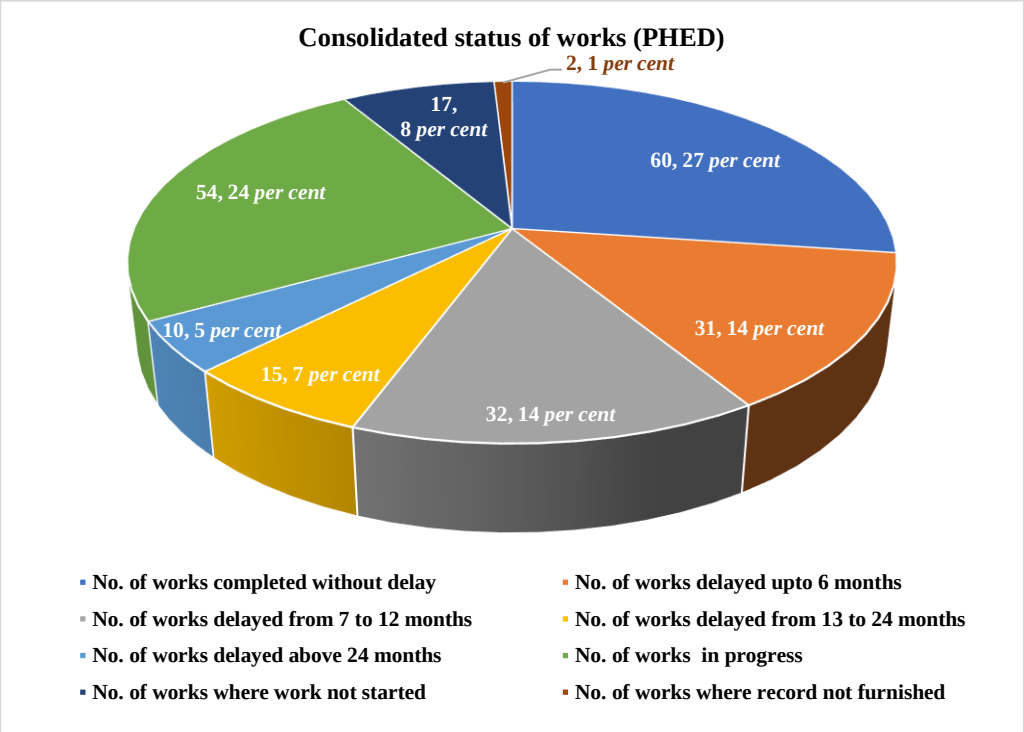
As per information furnished by PHED (August 2022) it was noticed that out of 20 villages of Phase-1 (target completion date of 31st March 2021) work of providing water supply and sewerage facility was completed in only two villages (Sotai-Faridabad, Naharpur-Gurugram). Of the remaining 18 villages of Phase-1, in 16 villages works were in progress, in one village tendering of work was in progress as on August 2022. In one village, it was declared that work was not feasible. This indicated delays in passing on the benefits of water supply to the to the villages.

[4] A sanitary inspection is an on-site inspection of a water supply facility to identify actual and potential sources of microbiological contamination for evaluation of the physical structure and operation of the system and external environmental factors.

6.7 Delay in completion of work

Para 16.37.1 of Haryana PWD code states that time over runs is likely to result in higher projects cost, contractual claims, delay in the use of facility and possible loss of revenue. Further Para 16.38.1 stipulates that cost over-runs can be avoided to a large extent by proper planning, commitment and ingenuity.

6.7.1 Scrutiny of records of selected water supply works (10 *per cent* of total 2236 works in these selected divisions) pertaining to the period 2016 to 2021 from data dump of PHED revealed that there were delays in completion of works/projects. Out of 221 selected works, only 60 works (27 *per cent*) were completed on time. The delays in completion were ranging between one month to 37 months as detailed in ***Appendix 26***.



From the above, it could be seen that works got delayed due to which actual benefit from these schemes could not transferred to the inhabitants of these areas.

6.7.2 During scrutiny of records in divisions of HSVP and ULBs for the period 2016-2021, it was seen that there were delays in completion of 17 works/ projects (***Appendices 27 & 28***).

The delay of works in PHED was mainly due to wrong selection of site, non-availability of pipes etc. whereas in HSVP and MCs, the works got delayed due to non-availability of clear land for laying pipe lines, issue of payments, non-obtaining of No Objection Certificates from concerned departments, delayed supply of material etc. Thus, delay in completion of work is indicative of poor planning and lack of monitoring mechanism for timely completion of projects/work which leads to non-providing of envisaged benefits to the public.

6.8 Absence of Management Information System (MIS) in ULBs and HSVP

Management Information System (MIS) is defined as a formal system of making available to the management accurate, timely, sufficient and relevant information to facilitate the decision making process to enable the organisation to carry out the specific function effectively and efficiently in the tune with organisation's objectives. As far as water supply system is concerned, the performance of the system depends upon reducing and controlling leakage, undertake measurement of flows and pressure and ensuring the quality control of water supply system. It is the responsibility of operational management to generate data on MIS from subordinate offices for processing. As per Central Public Health & Environmental Engineering Organisation (CPHEEO), it is essential to develop information system in this regard.

It was observed that PHED had maintained the data on different modules on their departmental website.

However, during scrutiny of records in selected offices of HSVP and ULBs department, it was observed that the information system related to human resources, training profile of the staff at divisional level, data related to leakage detection and attended, routine operation maintenance, e- information, regular check of data related to water test reports was not in existence. Resultantly, management control as well as outcomes of efficient and effective water supply system could not be assessed.

Conclusion

Target set for construction of sustainability structures, rain water harvesting systems, water recharging systems under NRDWP remained unachieved. There was lack of efforts by the department to reduce dependency on ground water. Monitoring mechanism was poor as delays were noticed in completion of water supply works, non-maintenance of record related to consumer complaints.

Recommendations

In view of the above findings

11. *The Department should ensure construction of sustainability structures as envisaged and explore options for reducing dependence on ground water in the overexploited blocks.*

12. *The Departments/entities should ensure proper planning for timely execution and completion of works/projects for benefit of the inhabitants.*

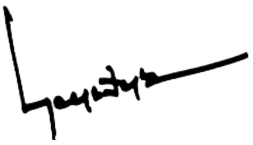
13. *The Department should strengthen its monitoring mechanism and proper documentation should be done for each and every activity viz. awareness programme, complaints, survey reports, procurement data so that proper monitoring may be ensured at each level.*

14. *It is recommended that a common portal may be devised for State level capturing of data.*

Chandigarh
Dated:28 April 2023

(NAVNEET GUPTA)
Principal Accountant General (Audit), Haryana

Countersigned



New Delhi
Dated:04 May 2023

(GIRISH CHANDRA MURMU)
Comptroller and Auditor General of India

Appendices

Appendix-1

(Reference: Paragraphs 1.2 & 1.3; Page 3, 4)

Details of Rural and Urban Water Supply Schemes

Rural Water Supply Schemes:

Rural Water Supply Schemes are financed through State Schemes and Centrally Sponsored Schemes on the basis of their funding pattern.

Centrally Sponsored Scheme

(i) National Rural Drinking Water Programme (NRDWP) now renamed as Jal Jeevan Mission (JJM):

NRDWP was renamed as JJM w.e.f. 15th August 2019. JJM, is intended to provide safe and adequate drinking water through individual household tap connection by 2022 in rural Haryana area. JJM has three main components viz. Coverage, Support Activities & WQMS. The funding pattern for Coverage is 50:50 whereas for Support Activities and WQMS it is 60:40 as Central and State share respectively.

(ii) National Institution for Transforming India (NITI) Aayog Assistance/Scheme: To tackle the Quality Affected Habitations (QAH) and to provide immediate intermediate solution in form of Community Water Purification Plants (CWPP) to quality affected habitations, NITI Aayog provided one time (March 2016) central assistance out of its own fund.

State Plan Schemes

(i) Augmentation Rural Water Supply Programme: This is a 100 *per cent* State Sector scheme. Under this programme, the existing drinking water supply facilities are improved / strengthened in the villages by undertaking an array of activities which amongst other include Drilling additional tubewells, Augmentation of existing canal based schemes, Creating new canal based water works, Constructing boosting stations, Strengthening of existing distribution system.

(ii) National Bank for Agriculture and Rural Development (NABARD) Aided Schemes: In order to accelerate the implementation of augmentation of major rural drinking water supply schemes, the State has been availing funding from NABARD since 2000-2001 against various projects. NABARD has been partnering the State Government in the creation of an extensive infrastructure in the rural areas. The funding pattern is 85:15 with 85 *per cent* coming from NABARD as a loan component whereas 15 *per cent* is contribution of the State.

(iii) Special Component Sub Plan (SCSP) (Rural): Under the Special Component Sub Plan, drinking water facility is provided/ upgraded in the villages/habitations predominantly inhabited by scheduled caste households. The funds allocated under SCSP are to be exclusively utilised for the welfare of

the Scheduled Castes and other disadvantaged section of the society towards objective of ensuring equity and empowerment, particularly of women.

(iv) Swaran Jayanti Mahagram Yojana Rural Water Supply: Under this scheme, 132 villages having population of around 10,000 persons were planned to be provided with water supply and sewerage facility in three phases at par with urban area. Under this scheme water supply @ 135 LPCD is to be provided in the selected villages.

(v) Mahatma Gandhi Gramin Basti Yojana (MGGBY): Mahatma Gandhi Gramin Basti Yojana (MGGBY) was launched in the State of Haryana during the year 2008-09 for the benefit of poorer sections of the society. Under this scheme, the State Government allotted free residential plots to the beneficiaries and the work of laying of water supply pipelines was to be done by the PHED as a deposit work of the Development and Panchayat Department.

Urban Water Supply Schemes

For water supply in urban areas, various Centrally Sponsored schemes and State schemes are implemented, the details are as follows:

Centrally Sponsored Schemes

(i) AMRUT: The Government of India, Ministry of Urban Development launched a scheme namely Atal Mission for Rejuvenation and Urban Transformation (AMRUT) in June, 2015 with the objective to ensure that every household has access to a tap with assured supply of water and a sewerage connection. The scope of work under the water supply component in AMRUT is to ensure that every household has access to a tap with assured supply of water, augmentation/rehabilitation of existing water supply schemes, water treatment Plants and universal metering.

State Sponsored Schemes

(i) Urban Water Supply State Plan: This scheme/programme is being operated in all 87 towns (83 notified and 4 de-notified) which are under the jurisdiction of PHED. Under this programme, the existing drinking water supply facilities are being improved/ strengthened in the urban areas.

(ii) **Urban NCR (Water Supply)**: This scheme/programme is being operated in National Capital Region (NCR) towns falling in eight districts of the state viz. Gurugram, Mewat, Rohtak, Sonipat, Rewari, Jhajjar, Panipat and Palwal.

Appendix-2

(Reference: Paragraph 1.3; Page 3)

Details of towns and areas under PHED, ULB and HSVP

Name of towns which are under jurisdiction of PHED					
Sr. No.	**Name of Town**	**Sr. No.**	**Name of Town**	**Sr. No.**	**Name of Town**
Notified Towns					
1.	Ambala City	2.	Jhajjar	3.	Pinjore
4.	Assandh	5.	Jind	6.	Pundri
7.	Ateli Mandi	8.	Julana	9.	Punhana
10.	Bahadurgarh	11.	Kaithal	12.	Radaur
13.	Barara	14.	Kalanaur	15.	Rania
16.	Barwala	17.	Kalanwali	18.	Ratia
19.	Bawal	20.	Kalayat	21.	Rewari
22.	Bawani Khera	23.	Kalka	24.	Rohtak
25.	Beri	26.	Kanina	27.	Safidon
28.	Bhiwani	29.	Kharkhoda	30.	Samalkha
31.	Charkhi Dadri	32.	Kurukshetra	33.	Sampla
34.	Cheeka	35.	Ladwa	36.	Shahbad
37.	Dharuhera	38.	Loharu	39.	Sirsa
40.	Ellenabad	41.	Mahendragarh	42.	Siwani
43.	F. P. Zhirka	44.	Mandi Dabwali	45.	Sohna
46.	Farukh Nagar	47.	Meham	48.	Taoru
49.	Fatehabad	50.	Naraingarh	51.	Taraori
52.	Ganaur	53.	Nangal Chaudhary	54.	Tohana
55.	Gharaunda	56.	Narnaul	57.	Uchana
58.	Gohana	59.	Narnaund	60.	Yamuna Nagar
61.	Haily Mandi	62.	Narwana	63.	Uklana Mandi
64.	Hansi	65.	Nilokheri	66.	Bass
67.	Hathin	68.	Nissing	69.	Bhuna
70.	Hisar	71.	Nuh	72.	Ismaliabad
73.	Hodel	74.	Palwal	75.	Rajound
76.	Indri	77.	Panipat	78.	Sadhuara
79.	Jagdhari	80.	Pataudi	81.	Sisai
82.	Jakhal	83.	Pehowa		
Denotified Towns					
1.	Chhachrauli	2.	Tosham	3.	Hassanpur
4.	Kosli				
Name of towns under jurisdiction of ULB					
1.	Karnal	2.	Sonepat	3.	Faridabad
4.	Gurugram				
Name of town under jurisdiction of HSVP					
1.	Panchkula				

* In all towns, where sectors have been developed by HSVP, water supply is maintained by HSVP.
** Notified town are towns those notified under law by the concerned state and have local bodies like Municipal Corporations/Councils/Committees irrespective of their demographic characteristics.
***De-notified towns are towns those which were previously falls under the category of notified towns but due to any reason as of now they are not falling under the category of notified town.

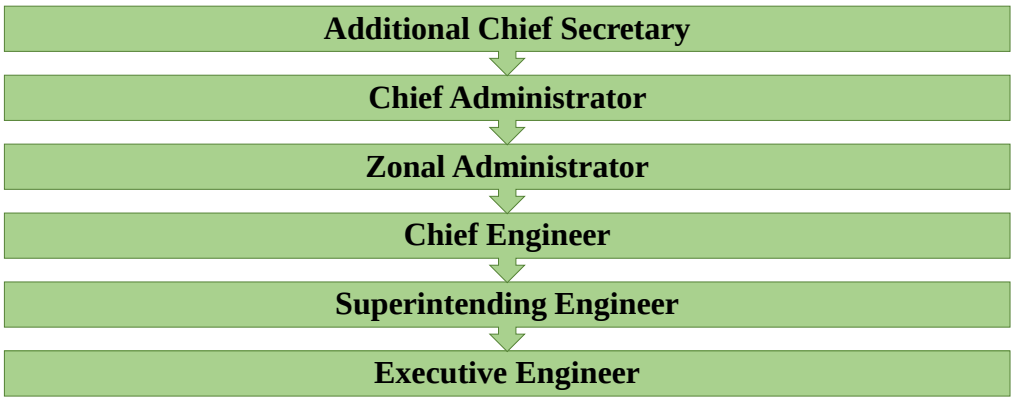
Appendix-3

(Reference: Paragraph 1.4 (III); Page 6)

Organisation structure of implementing agencies

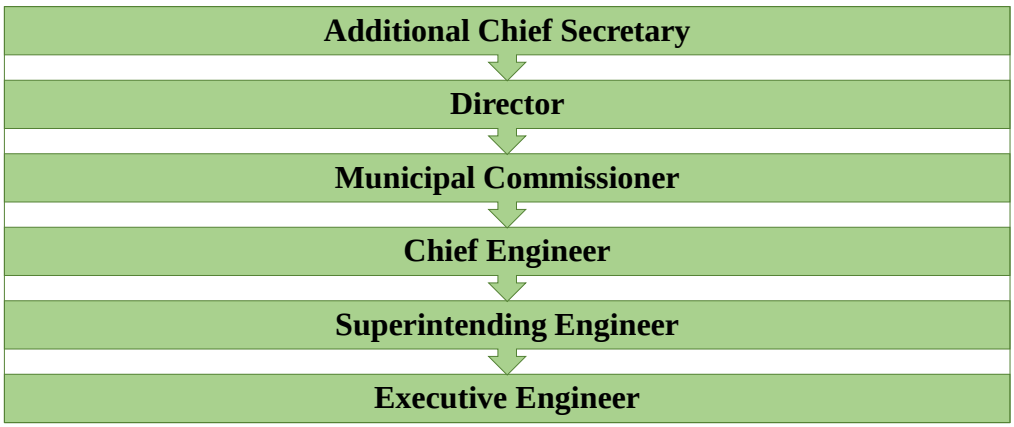
Organisational structure of Haryana Shehri Vikas Pradhikaran

Chief Administrator at the Headquarters is the overall in charge and responsible for discharging the functions of the Authority. He is assisted by five Zonal Administrators, posted at Faridabad, Gurugram, Hisar, Panchkula and Rohtak and one Administrator at Headquarters. The CA is guided by the policies framed by the Authority headed by the Minister-in-charge (designated as the Chairman of the Authority) of the Town & Country Planning Department (TCPD).



Organisational structure of Urban Local Bodies

The ULBs Department, headed by the Additional Chief Secretary, is the nodal department for the governance of all ULBs. The Directorate of Urban Local Bodies (DULB) functions as an interface between the State Government and ULBs. In accordance with the powers conferred under the HM Act, 1973 and HMC Act, 1994, the DULB administers, facilitates, co-ordinates and monitors the ULBs.



Appendix-4

(Reference: Paragraph 1.7; Page 7)

Detailed Audit Methodology

Out of 22 districts, 20 districts were divided in two equal categories/strata (10 district in each group) after arranging the districts in decreasing order of total weightage based on expenditure, area, rural and urban population, average rainfall & over exploited blocks. Thereafter, random sampling was done through Computer Assisted Audit Techniques (CAAT) and total seven districts were selected from both the strata. One additional district, Panchkula was selected as water supply in Panchkula town is being maintained by Haryana Shehri Vikas Pradhikaran (HSVP). As part of this audit, dump data of PHED as available with the department was analysed in detail. Audit was conducted at 36 offices including offices at directorate level during field study. Further, to verify the coverage, survey was conducted in MGGBY *bastis* in villages of selected districts. In addition to this, some locations were selected in these districts for assessment of:

(i) Quantity of water supplied by installation of flow meters and sub-meters and noting down their one month reading and applying mathematical calculations.

(ii) Quality of water by jointly collecting samples with departmental representatives and sending the samples to privately hired lab (third party) as well as to State Water Testing Laboratory of PHED at Karnal.

(iii) Quantity and quality of water by conducting beneficiary survey. Beneficiary survey was conducted from 3 August 2022 to 8 August 2022. A total of 20 locations were selected and 30 beneficiaries from each location were chosen depending upon availability. Overall, 617 beneficiaries (PHED: 243; MCs: 254 & HSVP: 120) were surveyed.

Offices covered during Field Study

Sr. No.	District	Name of office	Number of offices
1.	Hisar	Executive Engineer, Public Health Engineering Divisions No.1, No.2 No.3 and Hansi	7
		Municipal Corporation	
		Executive Engineer, Haryana Shehri Vikas Pradhikaran Divisions No.1 & No.2	
2.	Kurukshetra	Executive Engineer, Public Health Engineering Division	2
		Executive Engineer, Haryana Shehri Vikas Pradhikaran Division, Ambala (Sub-division Kurukshetra)	

Sr. No.	District	Name of office	Number of offices
3.	Panchkula	Engineer-in-Chief, PHED	7
		Director, Urban Local Bodies	
		Municipal Corporation	
		Chief Administrator, HSVP	
		Executive Engineer, PHED	
		Executive Engineer, HSVP Divisions No.1 & No. 2	
4.	Rewari	Executive Engineer, PHED (Rewari, Bawal, Kosli)	5
		Executive Engineer, HSVP Division	
		Municipal Council	
5.	Fatehebad*	Executive Engineer, PHED, Fatehebad and Tohana	2
6.	Karnal	Executive Engineer, PHE Division No.1 & No. 2	4
		Municipal Corporation	
		Executive Engineer, HSVP Division	
7.	Rohtak	Executive Engineer, PHE Division No.1 & No. 2	5
		Municipal Corporation	
		Executive Engineer, HSVP Division No.1 & No. 2	
8.	Faridabad	Executive Engineer, PHE Division,	4
		Municipal Corporation	
		Executive Engineer, HSVP Divisions No.1 & No. 3	
Total			**36**

* HSVP area of Fatehabad district falls under the jurisdiction of HSVP Division no. 2, Hisar.

Appendix-5

(Reference: Paragraph 2.7 (b); Page 17)

Details of villages covered for survey under MGGBY

Sr. No.	Name of District	Name of Block	Name of Village	Sr. No.	Name of District	Name of Block	Name of Village
1	Faridabad	Ballabgarh	Atali	23	Kurukshetra	Ismailabad	Dhangali
2	Faridabad	Ballabgarh	Malerna	24	Kurukshetra	Ismailabad	Mandi
3	Faridabad	Ballabgarh	Samaipur	25	Kurukshetra	Pehowa	Arnaicha
4	Faridabad	Faridabad	Bhainsrawali	26	Kurukshetra	Pehowa	Chanalheri
5	Faridabad	Faridabad	Kheri Kalan	27	Kurukshetra	Pehowa	Saina Saidan
6	Faridabad	Faridabad	Tajupur	28	Panchkula	Pinjore	Khokhra
7	Fatehabad	Fatehabad	Badopal	29	Panchkula	Pinjore	Patter
8	Fatehabad	Fatehabad	Dariyapur	30	Panchkula	Pinjore	Tibbi
9	Fatehabad	Fatehabad	Nagpur	31	Panchkula	Raipur Rani	Naraynpur
10	Fatehabad	Ratia	Alipur Barota	32	Panchkula	Raipur Rani	Natwal
11	Fatehabad	Ratia	Hukmawali	33	Panchkula	Raipur Rani	Raipur Rani
12	Fatehabad	Ratia	Rozanwali	34	Rewari	Dharuhera	Asiyaki Tappa Jarthal
13	Hisar	Barwala	Behbalpur	35	Rewari	Bawal	Jaliawas
14	Hisar	Barwala	Kheri Barki	36	Rewari	Bawal	Bolni
15	Hisar	Barwala	Bhada Khera	37	Rewari	Bawal	Khandola
16	Hisar	Hisar-1	Mirkan	38	Rewari	Rewari	Gendokher
17	Karnal	Nilokheri	Barani Khalsa	39	Rewari	Rewari	Kishangarh
18	Karnal	Nilokheri	Kurak Jagir	40	Rewari	Rewari	Nand Rampurpass
19	Karnal	Nilokheri	Sohlon	41	Rohtak	Lakhan Majra	Sunderpur
20	Karnal	Indri	Patehra	42	Rohtak	Rohtak	Dobh
21	Karnal	Indri	Butan Kheri	43	Rohtak	Rohtak	Kabulpur
22	Kurukshetra	Ismailabad	Bhusthala	44	Rohtak	Rohtak	Taja Majra

Status of water supply during physical verification MGGBY

Total village selected	Villages where water supply service was available	Villages where water supply service was not made available	Percentage of villages not having water supply services
44	27	17	39

Appendix-6

(Reference: Paragraph 2.8; Page 18)

Details of non-functional tube-wells due to pending electric connections

Sr. No	Name of Scheme/ Tubewell	Name of Consty.	Name of division	Year	No. of TWs	Date of Drilling	Status
1.	Nathera	Kosli	Kosli	2020-21	1	17 January 2021	Electric Connection not Released
2.	Shadipur	Kosli	Kosli	2020-21	1	18 January 2021	Electric Connection not Released
3.	Kheri Ramgarh	Kosli	Kosli	2020-21	1	20 December 2020	Electric Connection not Released
4.	Siha	Kosli	Kosli	2020-21	1	24 November 2020	Electric Connection not Released
5.	Uncha	Kosli	Kosli	2020-21	1	14 December 2020	Electric Connection not Released
6.	Majra Gurdas	Rewari	Rewari	2019-20	1	12 September 2020	Electric Connection not Released

Appendix-7

(Reference: Paragraphs 3.4.1, 3.4.2 & 3.4.3; Page 23, 24)

Details of outstanding water charges

(a) Outstanding water charges in PHED

(₹ in crore)

Sr. No.	Name of Division	Rural			Urban		
		Total revenue which was to be realized	Total Revenue realized	Balance	Total revenue which was to be realized	Total Revenue realized	Balance
1	No. 1, Hisar	24.85	1.10	23.75	10.40	2.06	8.34
2	No.2, Hisar	32.69	0.87	31.82	15.53	13.44	2.09
3	Hansi	Not provided			5.29	4.79	0.50
4	Fatehabad	4.32	0.54	3.78	3.34	0.14	3.20
5	Tohana	17.26	1.02	16.24	10.22	6.14	4.08
6	Kurukshetra	14.23	1.24	12.99	45.81	13.72	32.09
7	No.1, Karnal	2.33	0.86	1.47	4.41	3.29	1.12
8	No.2, Karnal	6.93	1.04	5.89	3.59	3.07	0.52
9	Panchkula	7.84	1.45	6.39	10.67	5.94	4.73
10	Rewari	1.23	0.17	1.06	17.55	11.84	5.71
11	Bawal	10.98	0.44	10.54	3.76	1.55	2.21
12	Kosli	2.37	0.02	2.35	1.97	0.19	1.78
13	Faridabad	3.14	0.13	3.01	NA		
14	No.1, Rohtak	Not provided			2.93	1.25	1.68
15	No.2, Rohtak	Not provided			Not provided		
	Total	**128.17**	**8.88**	**119.29**	**135.47**	**67.42**	**68.05**
Data of rural areas in Hansi and non-domestic connection in Tohana was not provided. In Kosli, data is available from 08/2019 onwards.							

(b) Outstanding water charges in HSVP

Sr. No.	Name of Divisional Office	Amount Outstanding (₹ in crore)
1	Executive Engineer, Haryana Shehri Vikas Pradhikaran No 2, Hisar	0.95
2	Executive Engineer, Haryana Shehri Vikas Pradhikaran No 1, Panchkula	2.16
3	Executive Engineer, Haryana Shehri Vikas Pradhikaran No 2, Panchkula	0.29
4	Executive Engineer, Haryana Shehri Vikas Pradhikaran, Faridabad	3.23
5	Executive Engineer, Haryana Shehri Vikas Pradhikaran, Rewari	0.79
6	Executive Engineer, Haryana Shehri Vikas Pradhikaran, Rohtak	7.16
7	Executive Engineer, Haryana Shehri Vikas Pradhikaran, Karnal	4.2
8.	Executive Engineer, Haryana Shehri Vikas Pradhikaran, Ambala (Sub-division Kurukshetra)	0.40
Total		**19.18**

(c) Outstanding water charges in MCs

Sr. No.	Name of Unit	Amount Outstanding as on 31 March 2021 (₹ in crore)
1	Municipal Corporation, Faridabad	30.04
2	Municipal Corporation, Karnal	41.64
Total		**71.68**

Appendix-8

(Reference: Paragraph 3.5; Page 24)

Details of Community Contribution Collection

Sr. No.	District	Total No. of Gram Panchayats under the jurisdiction of the department	10 *per cent* community contribution amount to be collected from Gram Panchayats (₹ in lakh)	10 *per cent* community contribution amount collected from Gram Panchayats (₹ in lakh)	Balance amount of community contribution to be collected from Gram Panchayats (₹ in lakh)
1.	Panipat	175	162.07	8.30	153.77
2.	Mahendragarh	341	21.50	0.70	20.80
3.	Karnal	379	560.18	15.80	544.38
4.	Fatehabad	256	750.10	8.20	741.90
5.	Ambala	397	354.85	2.20	352.65
6.	Jhajjar	247	384.31	1.70	382.61
7.	Yamunanagar	471	386.86	1.60	385.26
8.	Kurukshetra	392	363.62	0.80	362.82
9.	Kaithal	277	478.56	0	478.56
10.	Sonipat	311	455.76	0	455.76
11.	Rohtak	139	479.45	0	479.45
12.	Faridabad	116	163.69	0	163.69
13.	Gurugram	162	137.05	0	137.05
14.	Rewari	358	417.92	0	417.92
15.	Palwal	259	115.37	0	115.37
16.	Charkhi Dadri	166	10.42	0	10.42
17.	Nuh	317	699.57	0	699.57
18.	Bhiwani	304	57.16	0	57.16
19.	Jind	297	430.58	0	430.58
20.	Hisar	299	78.14	0	78.14
21.	Sirsa	338	277.19	0	277.19
22.	Panchkula	128	191.92	0	191.92
	Total	**6,129**	**6,976.27**	**39.30**	**6,936.97**

Appendix-9

(Reference: Paragraph 4.1; Page 29)

Assessment of quantity of water supplied by installing flow meters

District	Name of Division	Name of TW/WW	Population as per census 2011	Population as of 2022	Date of installation of flow meter	Reading of flow meter (in cubic meter)	Date of last reading of flow meter	Total days	*LPCD status	Requirement as per norms	Remarks
Public Health Engineering Department (PHED)											
Fatehabad	PHED Tohana	Karnadi	1,083	1,321	20 July 2022	4,773.00	18 September 2022	60	60	70	Below
Hisar	PHED Hisar-2	Jeora	3,829	4,671	01 October 2022	57.00	04 October 2022	4	3	70	Below
Rewari	PHED Kosli	Juddi	2,855	3,483	01 August 2022	681.00	30 September 2022	61	3	70	Below
Rewari	PHED Bawal	Khaleta	2,920	3,562	10 June 2022	24,586.00	29 September 2022	112	62	70	Below
Karnal	PHED Karnal-2	Kalsora-3	5,123	6,250	05 June 2022	58,033.00	29 September 2022	117	79	55	Excess
Rohtak	PHED Rohtak-1	Katesra	5,947	7,255	21 July 2022	44,729.00	07 October 2022	79	78	55	Excess
Kurukshetra	PHED Kurukshetra	Kalwa	550	671	12 July 2022	8,563.00	04 October2022	85	150	55	Excess
Hisar	PHED Hansi	Koth Khurd	3,130	3,818	16 July 2022	9,912.49	04 October 2022	81	32	70	Below
Hisar	PHED Hisar-1	Kabrel	4,387	5,352	17 July 2022	3,110.00	07 October 2022	83	7	70	Below
Faridabad	PHED Faridabad	Kasturba Sewa Sadan	Not available	110	25 July 2022	65.07	29 September 2022	67	9	135	Below
Rewari	PHED Rewari-1	Khijuri	4,581	5,588	05 September 2022	88.90	09 October 2022	35	0.45	70	Below
Fatehabad	PHED Fatehabad	Dhingsara	5,252	6,407	30 July 2022	38,459.00	11 October 2022	74	81.12	70	Excess
Haryana Shehri Vikas Pradhikaran (HSVP)											
Panchkula	HSVP No 1 Division, Panchkula	T/Well No. S-2, Sec-2, PKL	2,000	2,900	29 May 2022	35,505.00	21 September 2022	116	105.54	135	Below
		T/Well No. Golf Course Sec-3, Pkl	2,000	2,900	20 June 2022	62,657.00	21 September 2022	94	229.85	135	Excess
		T/Well No. Peer Baba I/A Ph-I, PKl	2,000	2,900	04 June 2022	40,836.00	21 September 2022	110	128.01	135	Below
		T/Well No. 5, Sec-11, PKL	1,500	2,200	27 May 2022	26,919.00	21 September 2022	118	103.69	135	Below
		T/Well No. 5, Sec-12, PKL	2,000	2,900	30 May 2022	34,840.00	21 September 2022	115	104.47	135	Below
		T/Well No. 6, Sec-6, PKL	2,000	2,900	29 May 2022	14,279.00	21 September 2022	116	42.45	135	Below
		T/Well No. S-18, Sec-4, PKL	2,000	2,900	29 April 2022	47,197.00	21 September 2022	154	105.68	135	Below
		T/Well No. M-11, Sec-17, PKL	1,500	2,200	29 May 2022	28,698.00	21 September 2022	116	112.45	135	Below
		T/Well No. M-27, Sec-9, PKL	500	7,000	02 June 2022	65,388.00	21 September 2022	112	83.40	135	Below
		T/Well No. KV-5, Sec-20, PKL	2,000	2,900	05 June 2022	28,968.00	21 September 2022	109	91.64	135	Below

District	Name of Division	Name of TW/WW	Population as per census 2011	Population as of 2022	Date of installation of flow meter	Reading of flow meter (in cubic meter)	Date of last reading of flow meter	Total days	*LPCD status	Requirement as per norms	Remarks
	No 2, Panchkula	E-21, Sector 26, Panchkula	600	612	09 June 2022	22,677.00	18 October 2022	132	280.72	135	Excess
		Ashaina, Sector 28, Panchkula	630	643	04 June 2022	16,795.00	18 October 2022	137	190.78	135	Excess
		E-14, Sector 28, Panchkula	1,220	1,244	04 June 2022	38,941.00	18 October 2022	137	228.42	135	Excess
		E-1, Sector 31, Panchkula	600	612	25 June 2022	16,924.00	18 October 2022	116	238.39	135	Excess
Kurukshetra	Ambala	Sector 2, Water Works		2,000	14 September 2022	1,520.00	19 October 2022	36	21.11	135	Below
		Tubewell No 08, Sector 13, Kurukshetra		2,600	14 September 2022	785.00	19 October 2022	36	8.39	135	Below
		Tubewell No 4, Sector 13, Kurukshetra		2,600	21 September 2022	1,077.00	19 October 2022	29	14.28	135	Below
		Tubewell No 2, Sector 03, Kurukshetra		3,300	05 October 2022	798.00	19 October 2022	14	17.27	135	Below
		Tubewell No 3, Sector 04, Kurukshetra		5,400	09 October 2022	99.00	19 October 2022	10	1.83	135	Below
		Tubewell No 7, Sector 05, Kurukshetra		5,000	08 October 2022	821.00	19 October 2022	11	14.93	135	Below

* LPCD assessment: {Reading of flow meter (in cubic meter) X 1000}/ (No. of days X Total Population)

Appendix-10

(Reference: Paragraphs 4.2 & 4.2.2; Page 30, 31)

Audit Methodology for assessment of sanctioned discharge by I&WRD and storage tank capacity

The said dump data of eight selected district was analysed and accordingly information viz. name of waterworks, village name, division name, original discharge, canal closure, canal running, population (as per census 2011) were extracted from the data damp. Prospective population for year 2021 was taken in calculation by considering two *per cent* increase per year in the population (census 2011) provided in data dump. To calculate the required discharge of raw water from Irrigation Department, calculation (as detailed below) was done by taking prospective population for the year 2021, canal running days, canal closure days, 55 LPCD requirement for Non DDP areas and 70 LPCD requirement for DDP areas while working out the actual sanctioned water as follows:

Total cusec of water required during canal running and closure days (Raw water discharge required):

Total requirement of water in litre: Total Population * LPCD (55/70) + 15 *per cent* evaporation losses

Conversion of Water requirement in Litre to Gallons: Total water required in litre/4.54

Conversion of Water requirement in Gallons to cusec: (Gallons/25)* 4 per second

Total water requirement in cusec = (Water requirement in Gallons * (canal running days + canal closure days) * 4)/ (25 * 60 * 60 * 24 * canal running days)

Further analysis of dump data, some additional information viz. name of waterworks, village name and code, Division name, S&S tank capacity, original discharge, canal closure, canal running, population (as per census 2011) were extracted for checking the storage capacity of Storage & Sedimentation tank. For the required capacity of S&S tank during the closure period of canal, audit worked out the capacity of the S&S tanks by taking prospective population for the year 2021, canal running days, canal closure days, S&S tank capacity, evaporation losses @ 15 *per cent*, 55 LPCD requirement for Non DDP areas and 70 LPCD requirement for DDP areas as follows :

Total capacity of S&S tank required during closure period of canal:

{Total Population * LPCD (55/70) * Canal closure days + 15 *per cent* evaporation losses}.

Appendix-11

(Reference: Paragraph 4.2.1; Page 30)

Water works/Cases with less sanctioned discharge against the water requirement of 55 LPCD

District	Division	Water Works Name	Village Name	O Ro	Irrigation Canal Name	Type of inlet canal.csv)	Canal Closure	Canal Running	Entered Population	Population 2021	Daily water Requirement+15 *per cent*	Original Discharge	Discharge Required	less sanction	*per cent* of less sanction
Rohtak	Rohtak-1	WW-ROH-GUDHAN	GUDHAN	22887R	1/L Katesra	Minor	20	7	4,334	5,201	3,28,963	0.48	0.52	0.04	8
		WW-ROH-GARNAUTHI	GURNAUTHI	2600 R	Bhutain	Minor	24	8	4,079	4,895	3,09,609	0.35	0.51	0.16	31
		WW-ROH-KAHNAUR	KAHANAUR	7002L	Dharana	Minor	20	7	8,735	10,482	6,62,987	1.00	1.05	0.05	5
		WW-ROH-ANWAL	ANWAL	15291 L	Katesra	Minor	32	7	4,877	5,852	3,70,139	0.60	0.84	0.24	29
		WW-ROH-KHERRI	KHERARI	5975-L	Bond	Distributory	20	7	3,265	3,918	2,47,814	0.30	0.39	0.09	23
		WW-ROH-CHIRI	CHIRI	43120L	Kahanuar	Distributory	24	8	9,735	11,682	7,38,887	1.07	1.21	0.14	12
		WW-ROH-GHAROUTHI	GURAUTHI	9206L	Titoli	Minor	24	8	5,183	6,220	3,93,415	0.45	0.64	0.19	30
	Rohtak-2	WW-ROH-NIDANA-MAHAM	NIDANA	5375 L	Nidana	Minor	24	7	3,556	4,267	2,69,888	0.33	0.49	0.16	33
		WW-ROH-ISMAILA-11B	ISMAILA 11 BISWA	48500L	Dulhera	Distributory	24	7	7,826	9,391	5,93,981	1.04	1.08	0.04	4
		WW-ROH-GIRAWAR	GIRAWAR	71400-L	Bhiwani	Sub-Branch	24	7	7,927	9,512	6,01,634	0.75	1.09	0.34	31
		WW-ROH-MADINA KORSAN	MADINA KORSAN	47023 L	Mokhra	Minor	24	7	7,235	8,682	5,49,137	0.25	0.99	0.74	75
		WW-ROH-PAKASMA	PAKASMA	14500 R	Bhalaut	Distributory	24	7	6,005	7,206	4,55,780	0.74	0.83	0.09	11
		WW-ROH-KHARAWAR	KHARAWAR	40800	Dulhera	Distributory	24	7	7,415	8,898	5,62,799	0.78	1.02	0.24	24
		WW-ROH-SAMCHANA-II	SAMCHANA	73200-L	Jasrana	Minor	24	7	6,326	7,591	4,80,131	0.56	0.87	0.31	36

Appendix-12

(Reference: Paragraph 4.2.1; Page 30)

Water works/Cases with less sanctioned discharge against the water requirement of 70 LPCD

District	Division	Water Works Name	Village Name	O Ro	Irrigation Canal Name	Type of inlet canal.csv)	Canal Closure	Canal Running	Entered Population	Population 2021	Daily water Requirement+15 *per cent*	Original Discharge	Discharge Required	less sanction	*Per cent* of less sanction
Fatehabad	Fatehabad	WW-FTB-GORAKHPUR-BHUNA	GORAKHPUR	139258L	Fatehabad Branch	Branch	15	15	13,068	15,682	12,62,401	0.36	1.03	0.67	65
		WW-FTB-BADOPAL OLD WW	BADOPAL	183550L	Fatehabad Branch	Branch	15	15	7,000	8,400	6,76,200	0.48	0.55	0.07	13
		WW-FTB-CHOBARA	CHAUBARA	27944/R	Khajuri	Distributory	15	15	2,387	2,864	2,30,552	0.10	0.19	0.09	47
		WW-FTB-BHATTU KALAN1	BHATTU KALAN	265966L	Fatehabad Branch	Branch	25	5	9,557	11,468	9,23,174	0.90	2.26	1.36	60
Hisar	Hansi	WW-HSR-MASOODPUR-HANSI-I	MASUDPUR	7800-L	New Masudpur	Minor	16	8	7,980	9,576	7,70,868	0.54	0.95	0.41	43
		WW-HSR-DHARAM KHERI	DHARAM KHERI	29545	Jamni Khera	Minor	24	8	3,065	3,678	2,96,079	0.36	0.48	0.12	25
		WW-HSR-SORKHI	SORKHI	175552R	Sunder Sub Branch	Sub-Branch	24	8	5,321	6,385	5,13,993	0.60	0.84	0.24	29
		WW-HSR-SINGHWA RAGOO	SINGHWA RAGHO	22800-L	Kharkari	Distributory	16	8	3,095	3,714	2,98,977	0.25	0.37	0.12	32
		WW-HSR-CHANOT	CHANOT	1400-L	Kharkari	Distributory	16	8	5,269	6,323	5,09,002	0.60	0.62	0.02	3
		WW-HSR-BHATLA	BHATLA	12000-L	Balsamand	Sub-Branch	24	8	5,848	7,018	5,64,949	0.08	0.92	0.84	91
		WW-HSR-MUZADPUR	MUZADPUR	89950-L	Sunder	Distributory	24	8	3,439	4,127	3,32,224	0.35	0.54	0.19	35
		WW-HSR-GURANA	GURANA	15000-L	Barwala	Branch	16	8	7,691	9,229	7,42,935	0.50	0.91	0.41	45
		WW-HSR-RAKHI KHAS	RAKHI KHAS	25500-L	Balsamand	Sub-Branch	24	8	5,202	6,242	5,02,481	0.60	0.82	0.22	27
		WW-HSR-KOTH KALAN	KOTH KALAN	26690-R	Nara	Distributory	16	8	9,558	11,470	9,23,335	0.40	1.13	0.73	65
		WW-HSR-DATTA	DATTA	45813-L	Datta	Distributory	16	8	9,539	11,447	9,21,484	0.50	1.13	0.63	56
		WW-HSR-BADALA-HANSI-II	BADALA	13200-L	Restoration Sorkhi	Minor	24	8	4,856	5,827	4,69,074	0.50	0.77	0.27	35
		WW-HSR-KHERI GANGAN	KHERI GAGAN	70340-R	Panihari/ Masudpur	Channel	24	8	3,361	4,033	3,24,657	0.30	0.53	0.23	43
	Hisar-1	WW-HSR-BHANA-AGROHA	BHANA	14850-R	Sarangpur	Minor	24	8	4,094	4,913	3,95,497	0.57	0.65	0.08	12
		WW-HSR-SISWAL	SISWAL	12000-L	Moda Khera	Minor	24	8	10,294	12,353	9,94,417	0.80	1.63	0.83	51

District	Division	Water Works Name	Village Name	O Ro	Irrigation Canal Name	Type of inlet canal.csv)	Canal Closure	Canal Running	Entered Population	Population 2021	Daily water Requirement+15 *per cent*	Original Discharge	Discharge Required	less sanction	*Per cent* of less sanction
		WW-HSR-KHOLI	KOHLI	8852-L	Kishangarh	Sub-Branch	24	8	4,631	5,557	4,47,339	0.20	0.73	0.53	73
		WW-HSR-DAROLI	DAROLI	19800-R	Kishangarh link	Channel	24	8	3,310	3,972	3,19,746	0.11	0.52	0.41	79
		WW-HSR-KALIRAWAN	KALIRAWAN	22000-R	Jakhod	Distributory	24	8	8,627	10,352	8,33,336	0.50	1.36	0.86	63
		WW-HSR-NEOLI KALAN	NEOLI KALAN	102430R	Rana	Distributory	32	8	5,668	6,802	5,47,561	0.65	1.12	0.47	42
		WW-HSR-SADALPUR	SADELPUR	25950-L	Chiberwal	Minor	24	8	14,415	17,298	13,92,489	0.85	2.28	1.43	63
		WW-HSR-KHAIRAMPUR	KHERAMPUR	8500R	kohli	Minor	21	8	4,367	5,240	4,21,820	0.62	0.63	0.01	2
		WW-HSR-SARANGPUR-AGROHA	SARANGPUR	22000-R	Khairampur	Minor	24	8	3,957	4,748	3,82,214	0.35	0.62	0.27	44
		WW-HSR-MATTAR SHYAM	MATER SHAM	126340L	kabir	Minor	24	8	3,617	4,340	3,49,370	0.35	0.57	0.22	39
		WW-HSR-BHODIA BISHNOIAN	BHODIA KHERA BISHNOIAN	39550-L	Adampur	Distributory	21	7	3,278	3,934	3,16,687	0.20	0.52	0.32	62
		WW-HSR-DOBHI	DOBHI	47000-L	Chaudhary	Minor	24	8	6,999	8,399	6,76,120	0.80	1.11	0.31	28
		WW-HSR-SHAHPUR	SHAHPUR	12000-R	kabir	Minor	24	8	5,559	6,671	5,37,016	0.46	0.88	0.42	48
		WW-HSR-SARSANA-HISAR-II	SARSANA	11000-L	Barsa	Sub-Minor	24	8	4,269	5,123	4,12,402	0.60	0.67	0.07	10
		WW-HSR-LANDHARI	LANDHARI SUKHLAMBRAN	143900L	Parba	Sub-Branch	24	8	5,770	6,924	5,57,382	0.50	0.91	0.41	45
		WW-HSR-BURAK	BURAK	26000-L	Burak	Sub-Minor	24	8	3,737	4,484	3,60,962	0.50	0.59	0.09	15
		WW-HSR-BANDAHERI	BANDA HERI	9000-R	Burak	Sub-Minor	24	8	3,589	4,307	3,46,714	0.14	0.57	0.43	75
		WW-HSR-ARYA NAGAR(KURRI)	ARYA NAGAR	8825-R	Sarsana	Minor	24	8	8,181	9,817	7,90,269	1.22	1.29	0.07	5
		WW-HSR-BALSAMANDH (Old)	BALSMAND	0	Ratia Branch	Branch	24	8	11,035	13,242	10,65,981	0	1.74	1.74	100
			BALSMAND	28850-L	Balsamand	Sub-Minor	24	8	11,035	13,242	10,65,981	1.00	1.74	0.74	43
		WW-HSR KAIMARI	KAIMRI	21415-R	Devsar	Feeder	16	8	8,399	10,079	8,11,360	0.50	1	0.5	50
		WW-HSR-CHAUDHRIWAS	CHAUDHRIWAS	9400	Chaudhariwas	Minor	24	8	5,898	7,078	5,69,779	0.91	0.93	0.02	2
		WW-HSR-KALWAS	KALUWAS	45500-R	Devsar	Feeder	21	7	3,301	3,961	3,18,861	0.42	0.52	0.10	19
		WW-HSR-DEVAN	DEVAN	32800-R	Devsar	Feeder	32	8	2,136	2,563	2,06,322	0.18	0.42	0.24	57

District	Division	Water Works Name	Village Name	O Ro	Irrigation Canal Name	Type of inlet canal.csv)	Canal Closure	Canal Running	Entered Population	Population 2021	Daily water Requirement+15 *per cent*	Original Discharge	Discharge Required	less sanction	*Per cent* of less sanction
		WW-HSR-KANOH	KANOH	96425-L	Pabra	Distributory	21	7	6,512	7,814	6,29,027	0.20	1.03	0.83	81
		WW-HSR-SIWANI BOLAN	SIWANI BOLAN	14750-L	Dehman	Distributory	21	7	6,760	8,112	6,53,016	0.30	1.07	0.77	72
		WW-HSR-KHERI BARKHI	KHERI BARKI	32300-R	Rana	Distributory	24	8	3,839	4,607	3,70,864	0.28	0.61	0.33	54
		WW-HSR-NANGTHALA	NANGTHALA	130400L	Pabra	Distributory	24	8	10,617	12,740	10,25,570	1.32	1.68	0.36	21
		WW-HSR-GAWAR	GAWAR	4000-R	Gawar	Minor	32	8	2,868	3,442	2,77,081	0.24	0.57	0.33	58
		WW-HSR-CHIROD	CHIRAUD	57000-L	Devsar	Feeder	32	8	3,044	3,653	2,94,067	0.50	0.60	0.10	17
		WW-HSR-ASSRAWAN	ASRANWAN	12000-L	Jakhod	Distributory	21	7	2,964	3,557	2,86,339	0	0.47	0.47	100
		WW-HSR-KIRTAN	KIRTAN	27000-L	kabir	Minor	32	8	4,450	5,340	4,29,870	0.63	0.88	0.25	28
		WW-HSR-JAKHOD KHERA	JAKHOD KHERA	17600-R	Siswal No.1	Sub-Minor	21	7	3,647	4,376	3,52,268	0.44	0.58	0.14	24
	Hisar-2	WW-HSR-BUGANA	BUGANA	5450-L	Dhansu	Minor	24	8	2,883	3,460	2,78,530	0.20	0.46	0.26	57
		WW-HSR-BEHBALPUR-BARWALA	BAHBALPUR	28000-L	Rana	Distributory	24	8	5,160	6,192	4,98,456	0.60	0.82	0.22	27
		WW-HSR-TALWANDI RANA	TALWANDI RANA	59600-R	Rana	Distributory	24	8	5,740	6,888	5,54,484	0.14	0.91	0.77	85
		WW-HSR-SATROD KALAN	SATROD KALAN	64368-L	Balsamand	Sub-Branch	24	8	11,932	14,318	11,52,599	0.33	1.88	1.55	82
		WW-HSR-RAIPUR-HISAR-I	RAIPUR	56200-L	Balsamand	Sub-Branch	24	8	5,000	6,000	4,83,000	0.25	0.79	0.54	68
		WW-HSR-MIRJAPUR-HISAR-I	MIRZAPUR	1000-R	Mirzapur	Minor	32	8	5,000	6,000	4,83,000	0.60	0.99	0.39	39
		WW-HSR-BANBHORI	BANBHORI	70000-L	Chaudhary	Minor	24	8	4,407	5,288	4,25,684	0.39	0.70	0.31	44
Rewari	Rewari-1	WW-RWR-SHABAZPUR KHALSA	SAHBAJ PUR KHALSA	1.760/L	Jandwala	Distributory	27	7	1,729	2,075	1,67,038	0	0.33	0.33	100

Appendix-13

(Reference: Paragraph 4.2.2; Page 31)

Cases with less capacity of Storage and Sedimentation Tanks where water requirement is 55 LPCD

District	Division Name	Water works Name	Village Name	Original Discharge	Discharge required	Canal Running	Canal Closure	Entered Population	Population 2021	Daily water Requirement+ 15 *per cent*	S&S tank Capacity	Water requirement during closing day + 15 *per cent*	less capacity	*Per cent*
Rohtak	Rohtak PHED No. 1	WW-ROH-BALAND-2	BALAND	1.69	0.88	8	24	7,129	8,555	5,41,104	81,43,230	1,29,86,490	48,43,260	37
		WW-ROH-DOBH	DOBH	1.00	0.45	8	24	3,628	4,354	2,75,391	23,44,566	66,09,372	42,64,806	65

Appendix-14

(Reference: Paragraph 4.2.2; Page 31)

Cases with less capacity of Storage and Sedimentation Tanks where water requirement is 70 LPCD

District	Division Name	Water works Name	Village Name	Original Discharge	Discharge required	Canal Running	Canal Closure	Entered Population	Population 2021	Daily water Requirement+ 15 *per cent*	S&S tank Capacity	Water requirement during closing day + 15 *per cent*	less capacity	*Per cent*
Fatehabad	Fatehabad PHED	WW-FTB-BADOPAL OLD WW	BADOPAL	0.48	0.55	15	15	7,000	8,400	6,76,200	30,25,000	1,01,43,000	71,18,000	70
		WW-FTB-BANAWALI SOTTAR Canal Based	BANAWALI SOTTAR	0.51	0.16	15	15	2,000	2,400	1,93,200	3,14,604	28,98,000	25,83,396	89
		WW-FTB-BIGHAR	BIGHAR	0.45	0.47	15	15	6,000	7,200	5,79,600	67,49,050	86,94,000	19,44,950	22
		WW-FTB-DHANI MUSAWALI	MUSSAHALI	1.26	0.65	15	15	8,178	9,814	7,90,027	80,75,298	1,18,50,405	37,75,107	32
		WW-FTB-GORAKH PUR-BHUNA	GORAKHPUR	0.36	1.03	15	15	13,068	15,682	12,62,401	1,75,12,710	1,89,36,015	14,23,305	8
		WW-FTB-JANDWALA SOTTER(NEW)	JANDWALA SOTTAR	0.80	0.22	15	15	2,800	3,360	2,70,480	22,70,700	40,57,200	17,86,500	44
		WW-FTB-M P ROHI	MOHAMMAD PUR ROHI	0.57	0.47	15	15	6,000	7,200	5,79,600	85,47,962	86,94,000	1,46,038	2
		WW-FTB-MEHUWALA	MEHUWALA	2.25	0.31	30	8	6,253	7,504	6,04,072	43,14,383	48,32,576	5,18,193	11
Hisar	Hansi PHED	WW-HSR-BADALA-HANSI-II	BADALA	0.50	0.77	8	24	4,856	5,827	4,69,074	33,73,053	1,12,57,764	78,84,711	70
		WW-HSR-BHAKLANA 1	BHAKLANA	1.00	0.69	8	24	4,388	5,266	4,23,913	34,99,250	1,01,73,912	66,74,662	66
		WW-HSR-BHATLA	BHATLA	0.08	0.92	8	24	5,848	7,018	5,64,949	1,18,29,503	1,35,58,776	17,29,273	13
		WW-HSR-Dhani Pirwali	DHANI PEERANWALI	0.86	1.58	8	24	10,000	12,000	9,66,000	93,61,333	2,31,84,000	1,38,22,667	60
		WW-HSR-GHIRAI	GHIRAI	1.76	0.83	8	16	7,023	8,428	6,78,454	22,16,050	1,08,55,264	86,39,214	80
		WW-HSR-KHERI GANGAN	KHERI GAGAN	0.30	0.53	8	24	3,361	4,033	3,24,657	64,77,000	77,91,756	13,14,756	17
		WW-HSR-KUTABPUR-HANSI-I	KUTABPUR	1.15	0.68	8	24	4,300	5,160	4,15,380	95,45,000	99,69,120	4,24,120	4
		WW-HSR-MADAN HERI	MADAN HERI	1.00	0.79	8	24	4,974	5,969	4,80,505	1,06,02,000	1,15,32,108	9,30,108	8
		WW-HSR-MAJAD	MAZOD	0.47	0.40	8	24	2,537	3,044	2,45,042	49,56,700	58,81,008	9,24,308	16
		WW-HSR-SINGHWA KHASS	SINGHWA KHAS	1.56	0.78	8	24	4,962	5,954	4,79,297	96,61,066	1,15,03,128	18,42,062	16
		WW-HSR-SISAR	SISAR	1.00	0.64	8	24	4,047	4,856	3,90,908	75,16,800	93,81,792	18,64,992	20
		WW-HSR-SULCHANI	SULCHANI	1.16	0.55	8	24	3,478	4,174	3,36,007	62,72,070	80,64,168	17,92,098	22

District	Division Name	Water works Name	Village Name	Original Discharge	Discharge required	Canal Running	Canal Closure	Entered Population	Population 2021	Daily water Requirement+ 15 *per cent*	S&S tank Capacity	Water requirement during closing day + 15 *per cent*	less capacity	*Per cent*
	Hisar PHED No. 1	WW-FTB-CHULI KHURD(HISAR)	CHULI KHURD	0.00	0.36	7	21	2,299	2,759	2,22,100	2,70,000	46,64,090	43,94,090	94
		WW-HSR-2nd w/w Sadalpur	SADELPUR	0.75	2.85	8	32	14,415	17,298	13,92,489	2,06,05,698	4,45,59,648	2,39,53,950	54
		WW-HSR-BALSAMANDH (Old)	BALSMAND	0.00	3.48	8	24	11,035	13,242	10,65,981	2,18,37,000	2,55,83,544	37,46,544	15
				1.00	3.48	8	24	11,035	13,242	10,65,981	2,18,37,000	2,55,83,544	37,46,544	15
		WW-HSR-BANDAHERI	BANDA HERI	0.14	0.57	8	24	3,589	4,307	3,46,714	25,06,000	83,21,124	58,15,124	70
		WW-HSR-BHANA-AGROHA	BHANA	0.57	0.65	8	24	4,094	4,913	3,95,497	83,66,340	94,91,916	11,25,576	12
		WW-HSR-BURAK	BURAK	0.50	0.59	8	24	3,737	4,484	3,60,962	85,39,000	86,63,088	1,24,088	1
		WW-HSR-CHIROD	CHIRAUD	0.50	0.60	8	32	3,044	3,653	2,94,067	11,07,000	94,10,128	83,03,128	88
		WW-HSR-DAROLI	DAROLI	0.11	0.52	8	24	3,310	3,972	3,19,746	72,25,480	76,73,904	4,48,424	6
		WW-HSR-Hisar-Civil Aviation Club Hsr	AMBLI	0.35	0.25	8	16	2,152	2,582	2,07,851	33,07,837	33,25,616	17,779	1
		WW-HSR-JAGAN	JAGAN	1.20	0.58	8	32	2,926	3,511	2,82,636	61,97,560	90,44,336	28,46,776	31
		WW-HSR-LANDHARI	LANDHARI SUKHLAMBRAN	0.50	0.91	8	24	5,770	6,924	5,57,382	1,33,66,883	1,33,77,168	10,285	0
		WW-HSR-SANDOL	SANDOL	1.00	0.22	8	24	1,387	1,664	1,33,952	27,53,802	32,14,848	4,61,046	14
		WW-HSR-SARANGPUR-AGROHA	SARANGPUR	0.35	0.62	8	24	3,957	4,748	3,82,214	86,06,886	91,73,136	5,66,250	6
	Hisar PHED No. 2	WW-HSR-BADA BRAHMNAN	BADON BRAHMANAN	0.43	0.43	8	32	2,155	2,586	2,08,173	61,14,018	66,61,536	5,47,518	8
		WW-HSR-BANBHORI	BANBHORI	0.39	0.70	8	24	4,407	5,288	4,25,684	61,14,018	1,02,16,416	41,02,398	40
		WW-HSR-BHANI BADSHAPUR	BHAINI BADSHAHPUR	0.58	0.53	8	24	3,387	4,064	3,27,152	64,84,482	78,51,648	13,67,166	17
		WW-HSR-BHERI AKBARPUR	BHAIRI AKBARPUR	0.71	0.77	8	24	4,892	5,870	4,72,535	91,39,180	1,13,40,840	22,01,660	19
		WW-HSR-BIANA KHERA	BIANA KHERA	0.48	0.63	8	24	3,965	4,758	3,83,019	25,89,988	91,92,456	66,02,468	72
		WW-HSR-BITHMARA	BITHMARA	2.39	1.79	8	24	11,311	13,573	10,92,627	2,31,18,249	2,62,23,036	31,04,787	12
		WW-HSR-BOBUA	BOBUA	0.75	0.81	8	24	5,158	6,190	4,98,295	87,16,800	1,19,59,080	32,42,280	27
		WW-HSR-CHARNAUND	CHARNAUND	2.00	0.17	8	24	1,087	1,304	1,04,972	7,50,000	25,19,328	17,69,328	70
		WW-HSR-DHANSU	DHANSU	0.52	1.30	8	24	8,248	9,898	7,96,789	1,41,10,660	1,91,22,936	50,12,276	26
		WW-HSR-DOLATPUR	DAULATPUR	0.88	0.93	8	24	5,890	7,068	5,68,974	1,14,01,048	1,36,55,376	22,54,328	17
		WW-HSR-GAIBIPUR	GAIBIPUR	0.92	0.90	8	24	5,693	6,832	5,49,976	1,18,38,792	1,31,99,424	13,60,632	10
		WW-HSR-KHEDER	KHEDAR	0.27	2.98	8	24	9,447	11,336	9,12,548	1,84,25,954	4,38,02,304	2,53,76,350	58

District	Division Name	Water works Name	Village Name	Original Discharge	Discharge required	Canal Running	Canal Closure	Entered Population	Population 2021	Daily water Requirement+ 15 *per cent*	S&S tank Capacity	Water requirement during closing day + 15 *per cent*	less capacity	*Per cent*
		WW-HSR-KHOKHA	KHOKHA	1.80	0.39	8	24	2,490	2,988	2,40,534	51,07,500	57,72,816	6,65,316	12
		WW-HSR-LITANI	LITANI	0.40	0.96	8	24	6,070	7,284	5,86,362	1,32,46,471	1,40,72,688	8,26,217	6
		WW-HSR-PANHARI	PANIHARI	0.93	0.70	8	24	4,459	5,351	4,30,756	92,70,112	1,03,38,132	10,68,020	10
		WW-HSR-PARBHUWALA	PARBHUWALA	0.90	1.01	8	24	6,386	7,663	6,16,872	1,45,49,065	1,48,04,916	2,55,851	2
		WW-HSR-RAJLI	RAJLI	0.70	1.28	8	24	8,089	9,707	7,81,414	1,39,09,424	1,87,53,924	48,44,500	26
		WW-HSR-SAHU	SAHU	0.11	0.54	8	24	3,448	4,138	3,33,109	75,22,213	79,94,616	4,72,403	6
		WW-HSR-SATROD KALAN	SATROD KALAN	0.33	1.88	8	24	11,932	14,318	11,52,599	2,30,75,963	2,76,62,376	45,86,413	17
		WW-HSR-SULKHANI	SULKHANI	0.50	0.43	8	24	2,751	3,301	2,65,731	5,88,725	63,77,532	57,88,807	91
		WW-HSR-SUREHERA	SARHERA	0.54	0.43	8	24	2,695	3,234	2,60,337	60,23,104	62,48,088	2,24,984	4
		WW-HSR-SUREWALA	SUREWALA	0.37	0.60	8	24	3,799	4,559	3,67,000	82,86,408	88,07,988	5,21,580	6
Rewari	Kosli PHED	WW-RWR-DAHINA New	DAHINA	1.27	1.27	7	24	7,246	8,695	6,99,948	49,15,200	1,67,98,740	1,18,83,540	71
		WW-RWR-MUNDI	MUNDI	2.47	0.50	8	24	3,163	3,796	3,05,578	63,72,325	73,33,872	9,61,547	13
Fatehabad	Tohana PHED	WW-FTB-KANHERI	KANHRI	1.89	0.98	8	24	6,207	7,448	5,99,564	46,06,000	1,43,89,536	97,83,536	68
		WW-FTB-LADHUWAS	LUDHUWAS	1.26	0.20	16	16	2,505	3,006	2,41,983	16,720	38,71,728	38,55,008	100
		WW-FTB-NAGPUR	NAGPUR	1.47	1.07	8	24	6,748	8,098	6,51,889	1,15,65,758	1,56,45,336	40,79,578	26
		WW-FTB-NANGAL-RATIA	NANGAL	0.49	0.34	15	15	4,279	5,135	4,13,368	28,19,681	62,00,513	33,80,832	55

Appendix-15

(Reference: Paragraph 4.5.1; Page 36)

Details of water connections in HSVP

Name of District	Total Consumer (a=b+e+f+i)	Domestic Beneficiary				Other than Domestic Beneficiary			
		No. of Connections (b=c+d)	Metered Connection (c)	Unmetered connection (d)	Illegal Connection (e)	No. of Connection (f=g+h)	Metered Connection (g)	Unmetered connection (h)	Illegal Connection (i)
Hisar	15,454	14,681	13,142	1,539	0	773	594	179	0
Panchkula	32,493	30,186	15,517	14,671	0	2,307	1,728	577	0
Faridabad	5,583	4,950	586	4,364	0	633	218	415	0
Rewari	6,541	6,529	6,529	0	0	12	12	0	0
Rohtak	7,944	7,755	7,755	0	26	162	162	0	1
Karnal	16,815	15,793	6,149	9,644	553	407	184	223	62
Fatehabad	700	674	625	49	0	26	21	5	0
Total	**85,530**	**80,568**	**50,303**	**30,267**	**579**	**4,320**	**2,919**	**1,399**	**63**

Appendix-16

(Reference: Paragraph 5.1.1; Page 43)

Adverse bacteriological examination reports (Total Coliform Bacteria) by PHED and SRI laboratory

Sr. No.	Name of office/department	Name of location	Rural/Urban (R/U)	Results of PHED	Results of SRI
1	HSVP, Panchkula	Tubewell no. S-6	U	15	NIL
2	HSVP, Panchkula	Tubewell no., KV-5	U	210	NIL
3	PHED, Kurukshetra	Thana	R	1,100	NIL
4	PHED Kurukshetra	Kalwa	R	14	NIL
5	PHED-2, Rohtak	Meham	R	75	NIL
6	PHED-1, Rohtak	Katesara	R	460	NIL
7	PHED-1, Hisar	Kabrel	R	240	NIL
8	PHED-1, Karnal	Mound	R	23	NIL
9	HSVP, Karnal	Sector-4 TN, Tubewell no. 1	U	1,100	NIL
10	M.C. Karnal	Gogipur phatak	U	75	NIL
11	PHED-1, Rewari	Khaleta	R	120	NIL
12	PHED, Faridabad	Bada Gaon, Kasturba Sewa Sadan	R	210	37
13	PHED-1, Rewari	Khijuri	R	1,100	NIL
14	M.C. Faridabad	Village Anangpur, Near Manoj Badhana Office, Ward no. 18	U	NIL	23
15	M.C. Faridabad	3 B-Park	U	1,100	30
16	M.C. Faridabad	Tubewell 18/16, Labour chowk	U	43	41
17	M.C. Faridabad	Geeta Bhawan, Ashoka 1	U	75	28
18	M.C. Faridabad	Bhagat Singh Colony, Ballabhgarh	U	43	NIL
19	M.C. Faridabad	Chauhan Chakki, Jawahar Colony, Khand	U	120	NIL
20	M.C. Faridabad	15 B, 2 NIT, Mujeshar, Ward 2, Rajiv Gandhi Colony	U	150	NIL
Acceptable limit: Not detectable, Permissible Limit: Not detectable					

Appendix-17

(Reference: Paragraph 5.1.1; Page 43)

Adverse physical & chemical water sampling report by PHED laboratory

Sr. No.	Name of department	Name of location	Rural/ Urban (R/U)	Name parameter	Acceptable limit	Permissible limit (As per IS 10500:2012)	Results of PHED laboratory
1.	M.C. Faridabad	Tubewell 18/16, labour chowk	U	Total Hardness	200 mg/l	600 mg/l	620.00
2.	M.C. Faridabad	Geeta Bhawan, Ashoka-1	U	Total Dissolved Solids	500 mg/l	2000 mg/l	2,976.00
				Total Hardness	200 mg/l	600 mg/l	910.00
				Calcium	75 mg/l	200 mg/l	216.00
3.	M.C. Faridabad	Bhagat Singh Colony, Ballabhgarh	U	Total Dissolved Solids	500 mg/l	2000 mg/l	2,654.00
				Total Hardness	200 mg/l	600 mg/l	750.00
4.	M.C. Faridabad	Chauhan Chakki, Jawahar Colony, Khand	U	Total Dissolved Solids	500 mg/l	2000 mg/l	8,230.00
				Total Hardness	200 mg/l	600 mg/l	2,700.00
				Calcium	75 mg/l	200 mg/l	520.00
				Magnesium	30 mg/l	100 mg/l	336.00
				Chloride	250 mg/l	1000 mg/l	3,337.00
				Nitrate	45 mg/l	No Relaxation	55.00
5.	M.C. Faridabad	15 B, 2-NIT, Industrial Area Road, Mujeshar, Ward 2, Rajiv Gandhi Colony	U	Total Dissolved Solids	500 mg/l	2000 mg/l	3,908.00
				Total Hardness	200 mg/l	600 mg/l	1,370.00
				Calcium	75 mg/l	200 mg/l	260.00
				Magnesium	30 mg/l	100 mg/l	172.80
				Chloride	250 mg/l	1000 mg/l	1,491.00
6.	M.C. Faridabad	3 B Park		Alachlor	20 ug/l		102.00
7.	M.C. Faridabad	Geeta Bhawan, Ashoka-1		Dieldrin	0.03 ug/l		0.05

Adverse physical & chemical water sampling report by SRI laboratory

Sr. No.	Name of department	Name of location	Rural/ Urban (R/U)	Name parameter	Acceptable limit	Permissible limit (As per IS 10500:2012)	Results of SRI
1.	M.C. Faridabad	3B-Park	U	Nitrate	45 mg/l	No relaxation	70
2.	M.C. Faridabad	Geeta Bhawan, Ashoka-1	U	Total Dissolved Solids	500 mg/l	2000 mg/l	2,632
				Calcium	75 mg/l	200 mg/l	209
				Nitrate	45 mg/l	No relaxation	47
				Sulphate	200 mg/l	400 mg/l	434
3.	M.C. Faridabad	Bhagat Singh Colony, Ballabhgarh	U	Total Dissolved Solids	500 mg/l	2000 mg/l	2,500
				Magnesium	30 mg/l	100 mg/l	129
				Nitrate	45 mg/l	No relaxation	72
				Sulphate	200 mg/l	400 mg/l	472
				Total Alkainity	200 mg/l	600 mg/l	624
				Total Hardness	200 mg/l	600 mg/l	812
4.	M.C. Faridabad	Chauhan Chakki, Jawahar Colony, Khand	U	Total Dissolved Solids	500 mg/l	2000 mg/l	7,352
				Calcium	75 mg/l	200 mg/l	345
				Chloride	250 mg/l	1000 mg/l	3,605
				Fluoride	1.0 mg/l	1.5 mg/l	1.9
				Magnesium	30 mg/l	100 mg/l	392
				Nitrate	45 mg/l	No relaxation	155
				Sulphate	200 mg/l	400 mg/l	620
				Total Hardness	200 mg/l	600 mg/l	2,498
5.	M.C. Faridabad	15 B, 2-NIT, Industrial Area Road, Mujeshar, Ward 2, Rajiv Gandhi Colony	U	Total Dissolved Solids	500 mg/l	2000 mg/l	3,845
				Chloride	250 mg/l	1000 mg/l	1,496
				Magnesium	30 mg/l	100 mg/l	213
				Nitrate	45 mg/l	No Relaxation	120
				Total Alkainity	200 mg/l	600 mg/l	676
				Total Hardness	200 mg/l	600 mg/l	1,141

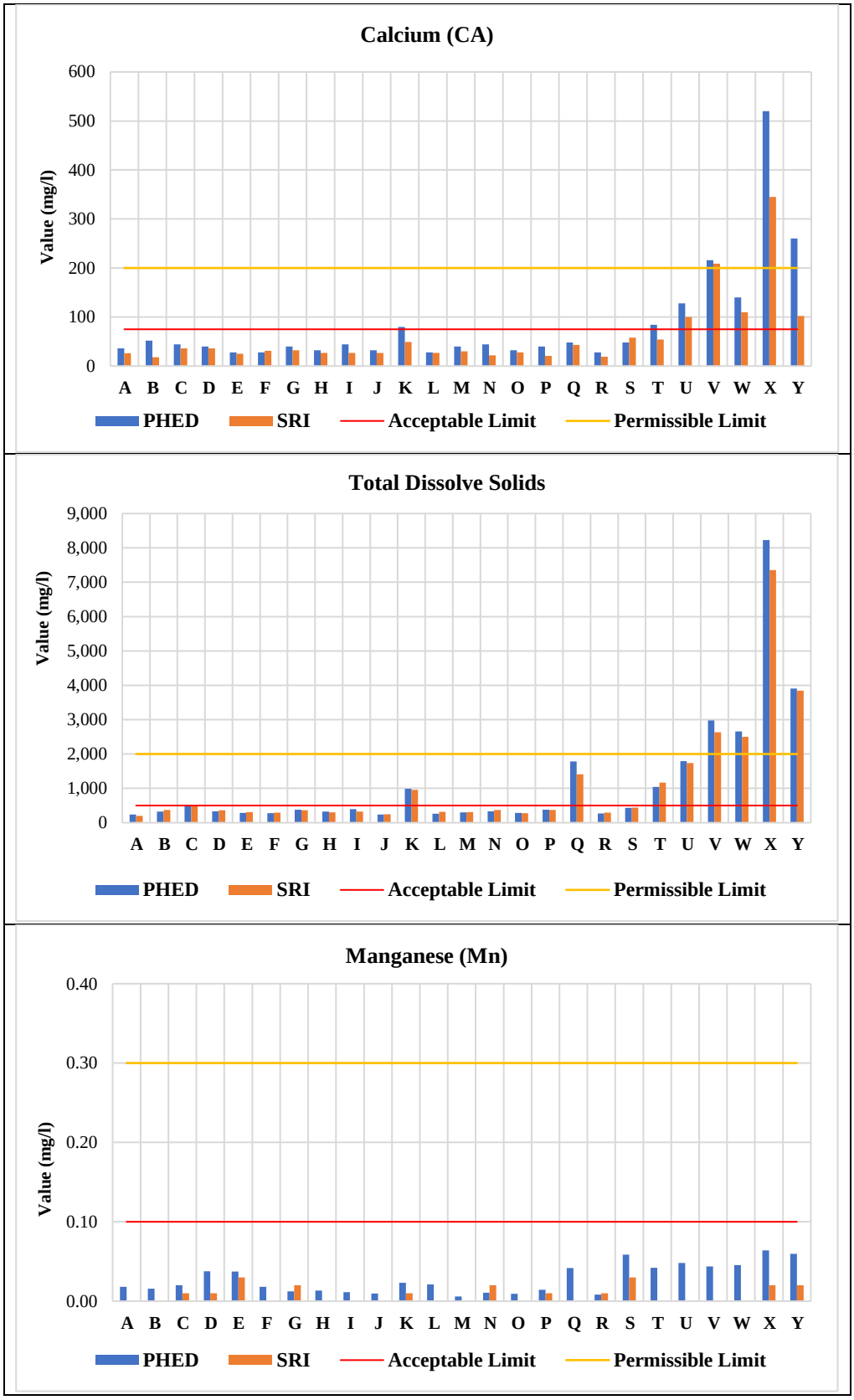
Appendix-18

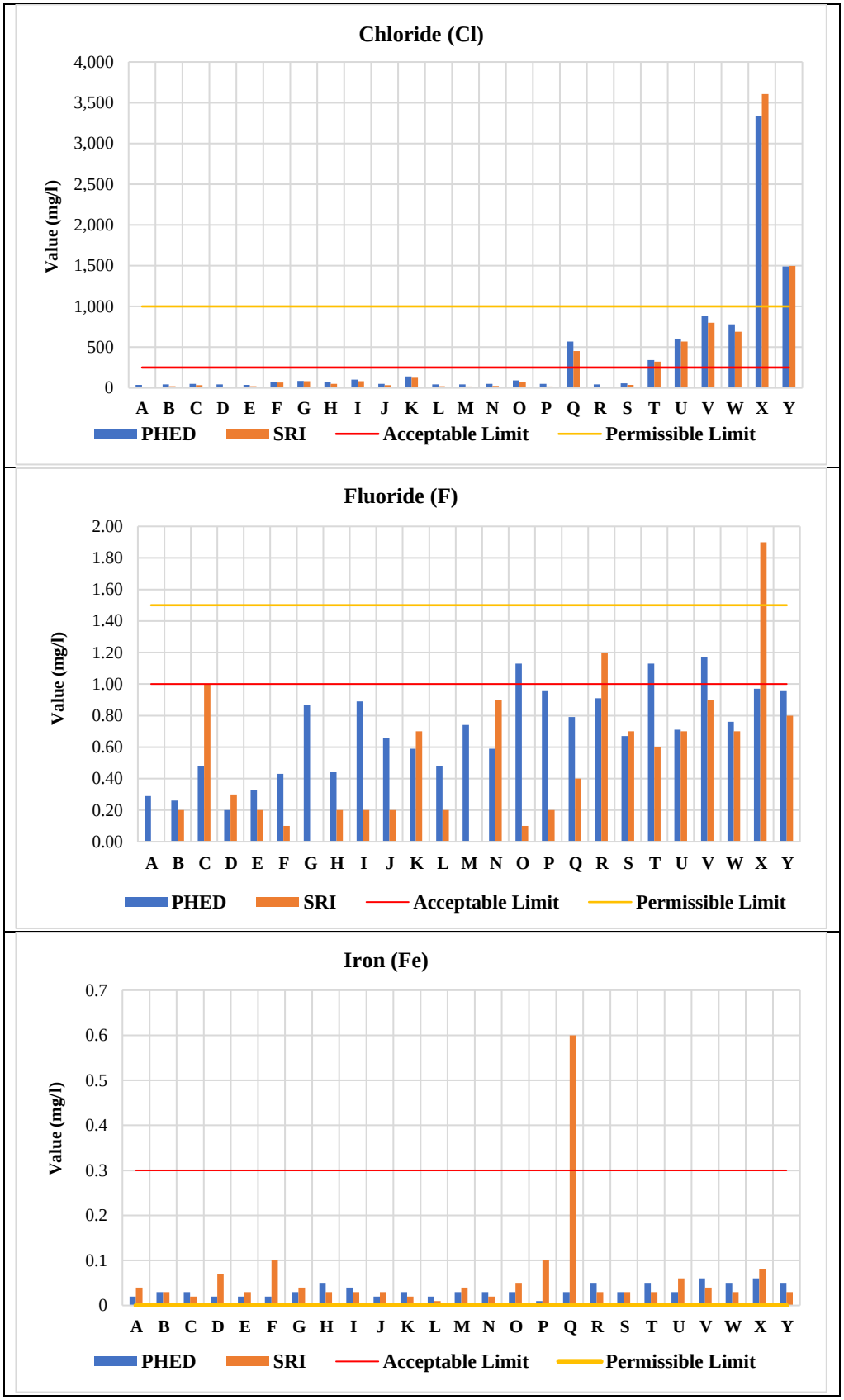
(Reference: Paragraph 5.1.1; Page 44)

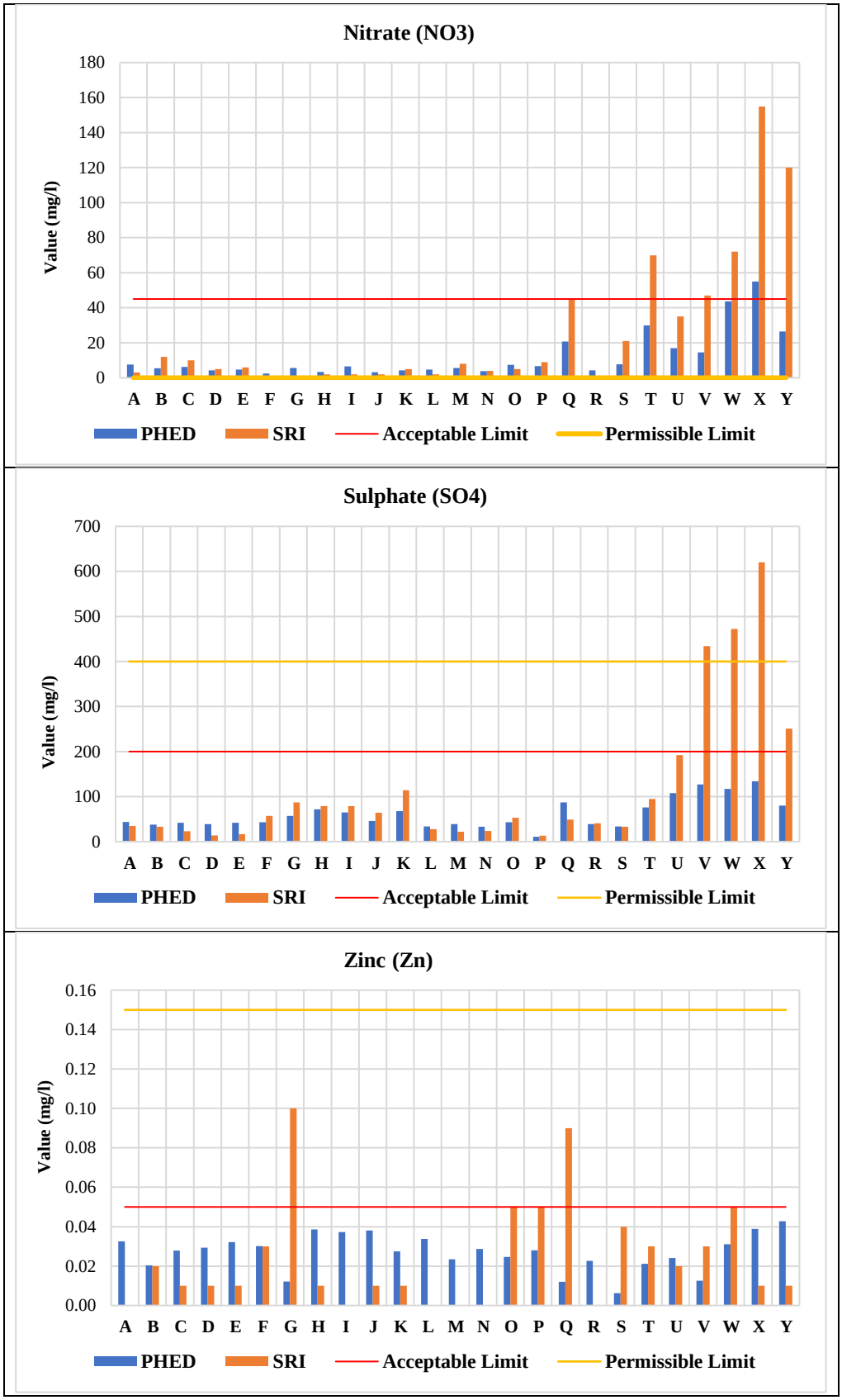
Comparison of common parameter tested in both the laboratories

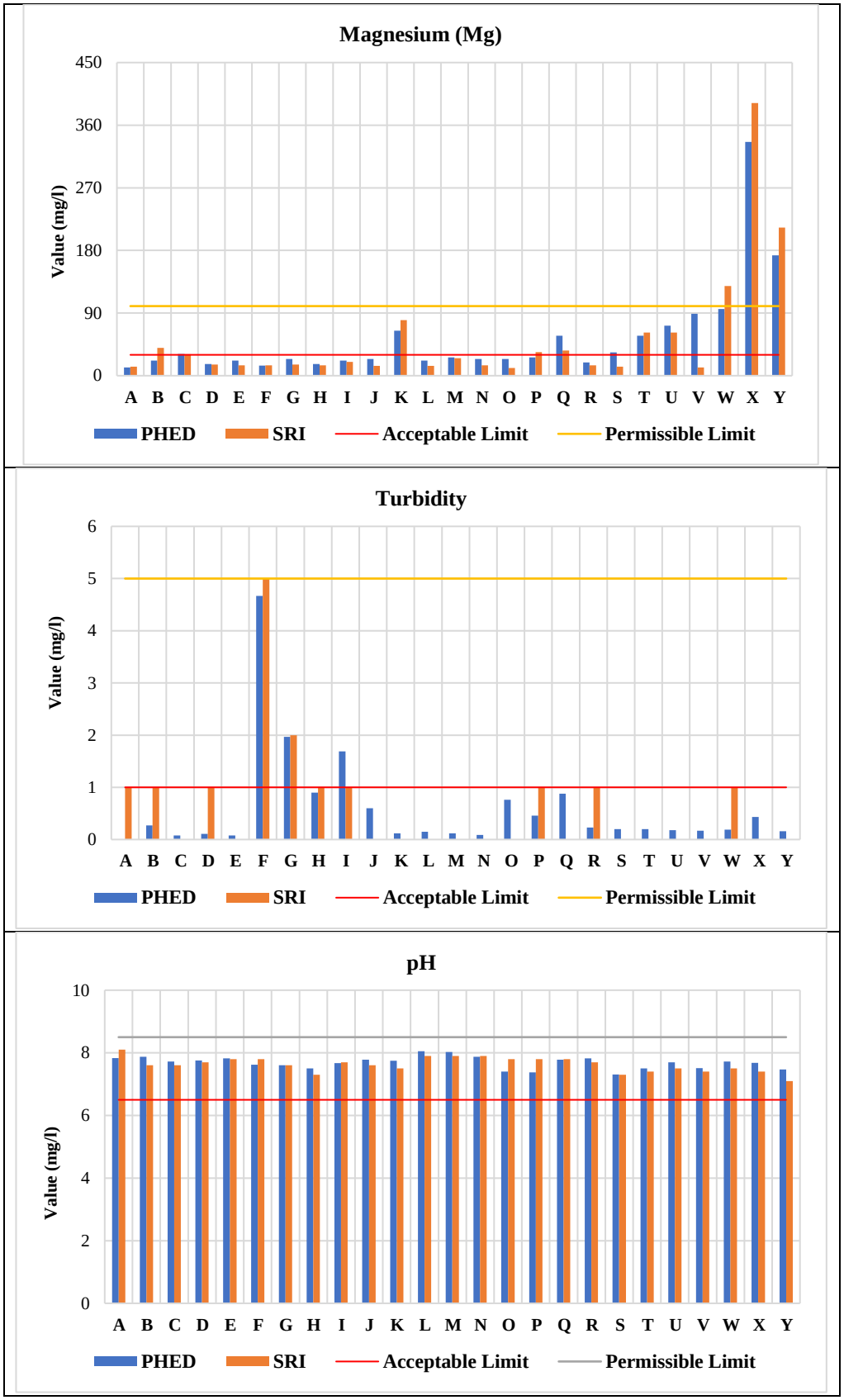
Each location depicted in Paragraph 5.1.1 has been denoted by alphabets in following charts:

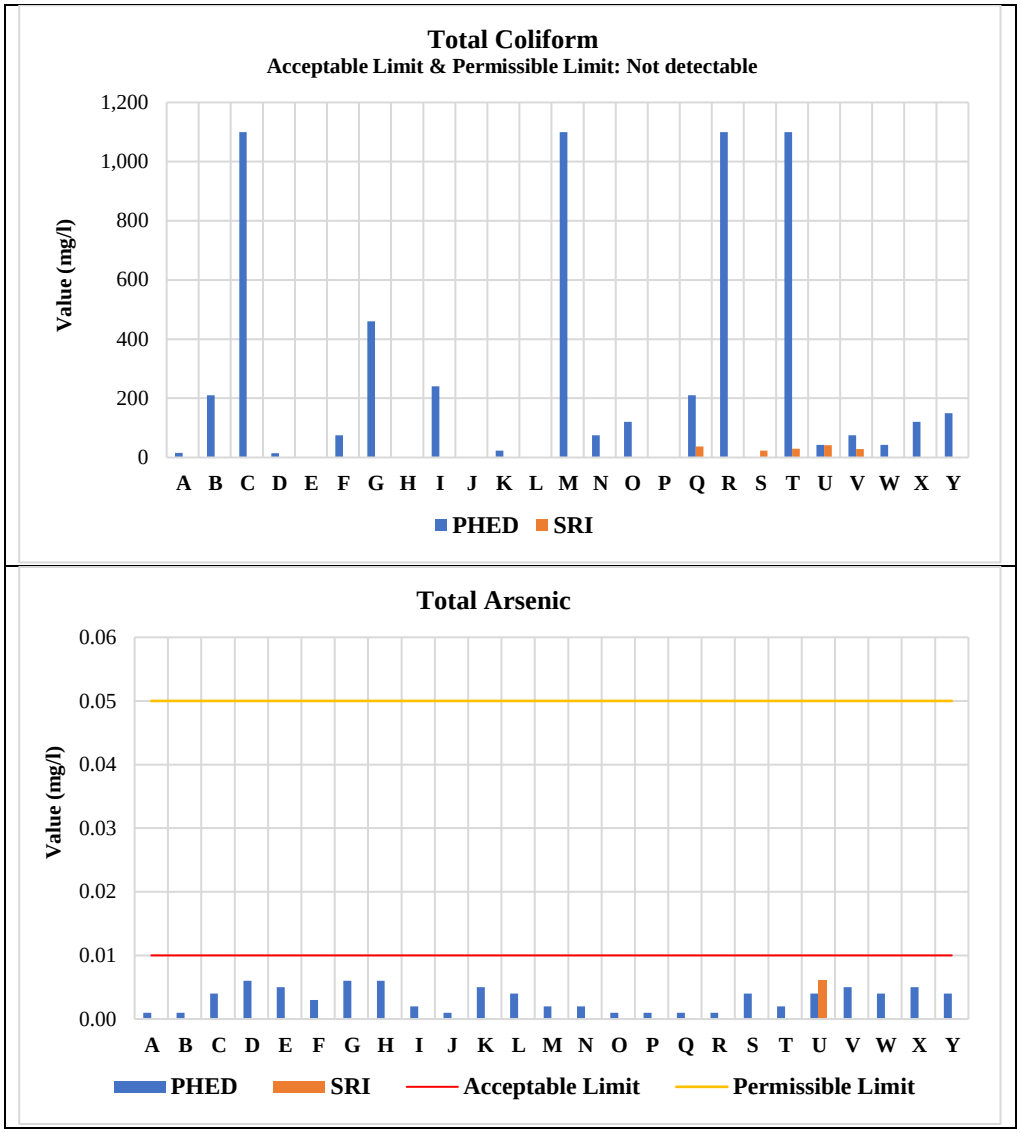
Sr. No.	Name of location	Alphabet
1.	T/w no. S-6, HSVP, Panchkula	A
2.	T/w no. KV-5, HSVP, Panchkula	B
3.	Thana, PHED, Kurukshetra	C
4.	Kalwa, PHED, Kurukshetra	D
5.	Sector-2, T/w no. 1, HSVP, Kurukshetra	E
6.	Meham, PHED, Rohtak	F
7.	Katesra, PHED, Rohtak	G
8.	Sahu, PHED, Hisar	H
9.	Kabrel, PHED, Hisar	I
10.	Kot Khurd, PHED, Hansi	J
11.	Mound, PHED, Karnal	K
12.	Kalsora, PHED, Karnal	L
13.	Sector-4 TN, T/w no. 1, HSVP, Karnal	M
14.	Godipur Phatak, SDO, Public Health, M.C. Karnal	N
15.	Khaleta, PHED, Rewari	O
16.	Karandi, PHED, Fatehabad	P
17.	Bara Gaon (Kasturba Sewa Sadan), PHED, Faridabad	Q
18.	Khijuri, PHED, Rewari	R
19.	Vill. Anagpur Near Manoj Bhdana Office, Ward no. 18, MC Faridabad	S
20.	3 B-Park, MC Faridabad	T
21.	T/w no. 18/16, Labour Chowk, MC Faridabad	U
22.	Geeta Bhawan, Ashoka-1, MC Faridabad	V
23.	Bhagat Singh Colony, BLB, MC Faridabad	W
24.	Chauhan Chakki, Jawahar Colony, Khand, MC Faridabad	X
25.	15 B, 2 NIT, Industrial Area Road Mujeshar, Ward-2, Rajiv Gandhi Colony, MC Faridabad	Y


Calcium (CA)
Value (mg/l)
600
500
400
300
200
100
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Total Dissolve Solids
Value (mg/l)
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Manganese (Mn)
Value (mg/l)
0.40
0.30
0.20
0.10
0.00
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit


Chloride (Cl)
Value (mg/l)
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Fluoride (F)
Value (mg/l)
2.00
1.80
1.60
1.40
1.20
1.00
0.80
0.60
0.40
0.20
0.00
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Iron (Fe)
Value (mg/l)
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit


Nitrate (NO3)
Value (mg/l)
180
160
140
120
100
80
60
40
20
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Sulphate (SO4)
Value (mg/l)
700
600
500
400
300
200
100
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Zinc (Zn)
Value (mg/l)
0.16
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit


Magnesium (Mg)
Value (mg/l)
450
360
270
180
90
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
Turbidity
Value (mg/l)
6
5
4
3
2
1
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit
pH
Value (mg/l)
10
8
6
4
2
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED
SRI
Acceptable Limit
Permissible Limit


Total Coliform
Acceptable Limit & Permissible Limit: Not detectable
Value (mg/l)
1,200
1,000
800
600
400
200
0
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED SRI
Total Arsenic
Value (mg/l)
0.06
0.05
0.04
0.03
0.02
0.01
0.00
A B C D E F G H I J K L M N O P Q R S T U V W X Y
PHED SRI Acceptable Limit Permissible Limit

Appendix-19

(Reference: Paragraph 5.2; Page 44)

Details of water samples tested in selected districts

Name of laboratory	Physical & Chemical water sample testing for the year 2016-17 to 2020-21				Bacteriological water sample testing for the year 2016-17 to 2020-21			
	Total sample tested	Fit sample	Unfit sample	*Per cent* of unfit sample	Total sample tested	Fit sample	Unfit sample	*Per cent* of unfit sample
State lab Karnal	10,101	10,062	39	0.39	17,100	14,983	2,117	12.38
Sub-divisional lab Assandh	--	--	--	--	11,795	11,080	715	6.06
Sub-divisional lab Indri	--	--	--	--	4,968	4,619	349	7.02
District lab Panchkula	2,345	2,340	5	0.21	21,667	20,987	680	3.14
Sub-divisional lab, Kalka	--	--	--	--	22,728	22,278	450	1.98
District lab Fatehabad	461	430	31	6.72	16,323	15,504	819	5.02
Sub-divisional lab, Tohana	1,430	1,401	29	2.03	18,131	17,820	311	1.72
District lab, Rewari	2,293	1,943	350	15.26	13,011	12,720	291	2.24
Sub-divisional lab, Kosli	527	522	5	0.95	13,012	12,990	22	0.17
District lab, Faridabad	5,049	4,388	661	13.09	11,176	9,877	1,299	11.62
District lab, Rohtak	1,060	789	271	25.57	18,182	16,083	2,099	11.54
District lab, Hisar	559	424	135	24.15	20,081	17,169	2,912	14.50
Sub-divisional lab, Hansi	--	--	--	--	13,111	11,620	1,491	11.37
District lab, Kurukshetra	4,173	4,168	5	0.12	16,628	14,947	1,681	10.11
Sub-divisional lab, Pehowa	2,385	2,385	0	0	15,729	14,392	1,337	9.29

Appendix-20

(Reference: Paragraph 5.8; Page 52)

Staff position at District Level Water Testing Laboratories

Name of post		Name of District							
		Hisar	**Kurukshetra**	**Rewari**	**Fatehabad**	**Rohtak**	**Faridabad**	**Panchkula**	**Total position**
Chemist/Water Analyst	Actual	1	1	0	1	1	1	1	6
	Shortage	0	0	1	0	0	0	0	1
	Percentage of shortage	-	-	100	-	-	-	-	
Microbiologist	Actual	0	0	0	0	0	0	0	0
	Shortage	1	1	1	1	1	1	1	7
	Percentage of shortage	100	100	100	100	100	100	100	
Laboratory Assistant	Actual	1	0	0	0	1	0	0	2
	Shortage	1	2	2	2	1	2	2	12
	Percentage of shortage	50	100	100	100	50	100	100	
Lab Attendant	Actual	0	0	0	0	1	0	1	2
	Shortage	1	1	1	1	0	1	0	5
	Percentage of shortage	100	100	100	100	-	100	-	
Data Entry Operator	Actual	0	0	1	0	1	0	0	2
	Shortage	1	1	0	1	0	1	1	5
	Percentage of shortage	100	100	-	100	-	100	100	
Field Assistant (task/need based field staff)	Actual	0	0	0	0	0	0	0	0
	Shortage	2	2	2	2	2	2	2	14
	Percentage of shortage	100	100	100	100	100	100	100	

Staff position at Sub Divisional Level Water Testing Laboratories

Name of post		Sub-divisional labs situated at							
		Assandh	**Indri**	**Hansi**	**Kosli**	**Kalka**	**Pehowa**	**Tohana**	**Total position**
Junior Chemist	Actual	0	0	0	0	0	0	0	0
	Shortage	1	1	1	1	1	1	1	7
	Percentage of shortage	100	100	100	100	100	100	100	
Junior Microbiologist	Actual	0	0	0	0	0	0	0	0
	Shortage	1	1	1	1	1	1	1	7
	Percentage of shortage	100	100	100	100	100	100	100	
Laboratory Assistant	Actual	0	0	0	0	0	0	1	1
	Shortage	1	1	1	1	1	1	0	6
	Percentage of shortage	100	100	100	100	100	100	-	
Lab Attendant	Actual	0	0	0	0	0	0	0	0
	Shortage	1	1	1	1	1	1	1	7
	Percentage of shortage	100	100	100	100	100	100	100	
Data Entry Operator	Actual	0	0	0	0	0	0	0	0
	Shortage	1	1	1	1	1	1	1	7
	Percentage of shortage	100	100	100	100	100	100	100	
Field Assistant (task/need based field staff)	Actual	0	0	0	0	0	0	0	0
	Shortage	1	1	1	1	1	1	1	7
	Percentage of shortage	100	100	100	100	100	100	100	

Note: Additional charge given to various official has not been considered as regular posting, hence shown as shortage.

Appendix-21

(Reference: Paragraph 5.11; Page 57)

Details of quality affected habitations

Name of District	Name of Block	Name of Habitation	Parameter Name	Contaminated in year				
Hisar	Adampur	Adampur	Fluoride	2018-19			2019-20	2020-21
	Adampur	Kabrel	TDS	-			2019-20	2020-21
	Adampur	Kohli	Fluoride	-			2019-20	2020-21
	Adampur	MandiAdampur	Fluoride	2018-19			2019-20	-
	Adampur	Telanwali	Fluoride	-			2019-20	2020-21
	Hansi-1	Muzadpur	Fluoride	2018-19			2019-20	-
	Narnaund	Kagsar	Fluoride	2018-19			2019-20	-
	Hansi-II	Bhaklana	Fluoride	-			2019-20	2020-21
Rewari	Bawal	Banipur	Fluoride	2016-17	2017-18	-	-	-
		Bhagwanpur	Fluoride	2016-17	2017-18	-	-	-
		Lalpur	Fluoride	2016-17	-	-	-	2020-21
		Mohmadpur	Fluoride	2016-17	2017-18	-	-	-
		Sahapur	Fluoride	2016-17	2017-18	-	-	-
		Shekhpur	Fluoride	2016-17	2017-18	-	-	-
		Suba Sheri	Fluoride	2016-17	2017-18	-	-	-
		GujarMajri	Fluoride	-	2017-18	-	-	2020-21
		Mangleshwar	Fluoride	-	2017-18	-	-	2020-21
	Khol at Rewari	Dehlawas	Fluoride	2016-17	2017-18	-	-	-
		Nandha	Fluoride	2016-17	-	-	-	2020-21
	Rewari	Bariawas	Fluoride	2016-17	-	-	-	2020-21
		Konsiwas	Fluoride	2016-17	-	-	-	2020-21
		Nayagaon	Fluoride	2016-17	2017-18	-	-	-
		Padianwas	Fluoride	2016-17	-	-	-	2020-21
		Saharanwas	Fluoride	2016-17	-	-	-	2020-21
	Jatusana	Sihas	Fluoride	-	2017-18	-	2019-20	-

Appendix-22

(Reference: Paragraph 5.12; Page 57)

Fluoride affected habitation with their installation and result of water testing

Sr. No.	Name of installation	Date of sample	Result	Electricity meter account no.	Electricity bill attached for the month of
1	T/W at Ajeet Nagar, Aherwan	16 February 2017	2.4	AHPW-0004-A	March 2020, March 2017, March 2019
	T/W at Ajeet Nagar, Aherwan	16 February 2018	2.4	AHPW-0004 New acc no. 769466100	March 2022
2	T/W at Majra and D/Majra	26 February 2018	2.3	MJPW-0003-A	March 2020, March 2016, March 2017, March 2019, March 2022
	T/W at Majra	29 April 2019	2.01	MJPW-0002-A	March 2017, March 2019, March 2022
3	T/W at Noorki Ahli	18 June 2018	2.49	NFPW-0002-P	March 2020, Feb 2021, March 2022
	T/W at Noorki Ahli	21 May 2021	1.6	NFPW-0001-A	March 2020, Feb 2021, March 2016, March 2022
4	T/W at Boosting Station, Daulatpur	27 November 2019	2.4	DAPH-0001-A	March 2020, March 2016, March 2017, March 2019 March 2022
				DAPH-0002-A	March 2020, March 2016, March 2017, March 2019, March 2022
5	T/W Dhani Binja Lamba	13 April 2020	1.92	JVPW-0004-L	March 2020, Feb 2021, March 2017, March 2022
	T/W Dhani BinjaLamba	15 June 2020	1.94	JVPW-0002	March 2022
6	T/W at Hanspur	21 June2018	1.88	BVPW-0002	February 2020, February 2021, May 2022
	T/W at Hanspur	04 June 2020	2.12	BVPW-0003	Information not provided.
	T/W at Hanspur Main Tube Well	21 May2021	2.1	BVPW-0004	Information not provided.
7	T/W Chanderwal Main Tube Well	16 June 2021	2.52	JAPH-0004A	May 2022
		21 June 2021	2.52	JAPH-0004A	
		22 June 2021	2.52	JAPH-0004A	
8	T/W Hans Colony	09 April 2021	2.5	MAPH-0003A	March 2022
		04 October 2021	1.95	MAPH-0003A	
		12 October 2021	2.9	MAPH-0003A	
9	T/W Karian	18 June 2018	1.8	HKPW0002-A	March 2019, March 2020, March 2021, March 2022

Source: Laboratory reports

* Fluoride (acceptable limit: 1.0 mg/l and cause for rejection: 1.5 mg/l)

Appendix-23

(Reference: Paragraph 5.12; Page 58)

Delayed schemes relating to shifting of source

Name of project	Status as on April-May 2022	Brief summary
Estimate for providing canal based water works at village Palsar for Group of 3 nos. villages	In progress	Scrutiny of records in EE, PHED, Fatehabad, it was seen that the said work was related to providing canal based water supply to the inhabitants as the tube well based supply was not found potable as per sample testing in May 2018 and again in December 2018. The work was allotted to agency on August 2019 with scheduled completion date of April 2020. The said work was still in progress as on May 2022 and these villages were given tube well based supply till date despite the fact that the ground water had already been declared non-potable by divisional laboratories.
Providing Independent canal based water works Bhunderwas	In progress	Scrutiny of records[1], it was seen that the estimate for the work "*Providing Independent canal based water works Bhunderwas*" was administratively approved (February 2019) for ₹ 329.61 lakh. The village was provided tube well based supply and the estimate was framed to provide canal based water supply to the inhabitants of the village. The work was allotted (August 2019) for an amount of ₹154.42 lakh with date of commencement of 8 August 2019 to be completed in 12 months (7 August 2020). It was observed that the work was not complete even after lapse of more than 21 months from the scheduled date of completion and after incurring an expenditure of ₹ 90.02 lakh (21st RA bill). Thus, the inhabitants are deprived of the benefits of getting canal based water supply and instead of tube well based water supply.
Providing canal based water supply scheme Ibrahimpur group of 17 nos. villages in district Rewari	In progress	Para 12.3.2 states that divisional officer immediately after taking over the land shall get it mutated in favour of the department and get the entry made in jamabandi also. During scrutiny of records[2], it was seen that an estimate amounting to ₹ 36.02 crore was prepared for "*Providing canal based water supply scheme Ibrahimpur group of 17 nos. villages in district Rewari*" which was administratively approved in April 2018. The work was allotted (October 2018) for ₹ 11.71 crore with a scheduled completion date of October 2019 (12 months from date of start). Audit observed that the 65 per cent work was completed by February 2021 and ₹ 5.30 crore had been paid to the agency (November 2021). The reasons for delay was that the land on which main water works were to be constructed were relocated from proposed site of Ibrahimpur to Kheri Murar which also could not be taken on board as the land given by Panchayat in the year 2005 for construction of water works was not got mutated timely by PHED in favour of department. Resultantly the Panchayat objected and demanded to free the Panchayat land from PHED. Thus due to lackadaisical approach of the department canal based water supply could not be provided to habitants of these 17 villages despite incurring an expenditure of ₹ 5.30 crore.
Behbalpur village	In Progress	Principal Secretary to GoH, Development and Panchayats Department, Chandigarh instructed (January 2013) the Deputy Commissioners that *Gair Mumkin Johars* or water bodies were not to be diverted to any other use and should be, protected, cleaned and recharged. Scrutiny of records[3], it was seen that the Behbalpur village was a water quality affected area and the underground water of tube well was found not potable (brackish) as per water sample report as of February 2016. The supply to the village was tube well based and to convert tube well based supply into canal based supply, the Gram Panchayat Behbalpur agreed to provide land free of cost to PHED. As per land record, the said land was *Gair mumkin Johar* which as per instructions was not to be transferred for any other use. The estimate was sent (July 2017) to Member Secretary, WSSB for arranging its administrative approval for ₹ 318.50 lakh. The tender for the said work was allotted (October 2018) with stipulated completion date of October 2019. Audit observed that agency could not start the work as the land on which work was to be done was not suitable and no other land was available with the Gram Panchayat. Till date, no land is available with the department where the said construction could be carried out. Had the department planned effectively and ensured availability of land for timely completion of work, safe and potable water would have been available to the inhabitants. Further it was seen that department kept on providing non-potable water supply to the inhabitants (June 2020) as the villagers/Sarpanch, GP, Behbalpur complained to the authorities about supply of non-potable water.

1 EE, PHED, Tohana.

2 EE, PHED, Rewari.

3 EE, PHED, Fatehabad.

Appendix-24

(Reference: Paragraph 6.4; Page 63)

Details of Public Grievances/complaints attended by PHE Department

Year	Total no. of complaints received	Total number of complaints attended	Balance	Complaints attended within 24 hrs	Complaints attended between 24 hrs to 72 hrs	Complaints attended more than 72 hrs
2016-17*	6,903	5,872	1,031	1,863	1,909	2,100
2017-18	11,565	11,011	554	2,386	1,420	7,205
2018-19	18,054	17,931	123	2,509	12,225	3,197
2019-20	37,831	37,477	354	3,224	2,142	32,111
2020-21	83,383	83,042	341	12,643	2,755	67,644
Total	**1,57,736**	**1,55,333**	**2,403**	**22,625**	**20,451**	**1,12,257**
***No record was maintained in Fatehabad division during the year 2016-17**						

Haryana Shehri Vikas Pradhikaran

Year	Total number of complaints received	Total number complaint attended/ resolved	Balance	Complaints attended within 24 hours	Complaint attended between 24 hours to 72 hours	Complaint attended more than 72 hours
2016-17	689	689	0	253	398	38
2017-18	743	743	0	210	510	23
2018-19	714	714	0	266	415	33
2019-20	576	576	0	252	304	20
2020-21	539	539	0	241	271	27
Total	**3,261**	**3,261**	**0**	**1,222**	**1,898**	**141**

Urban Local Bodies Department

Year	Total number of complaints received	Total number complaint attended/ resolved	Balance	Complaints attended within 24 hours	Complaint attended between 24 hours to 72 hours	Complaint attended more than 72 hours
2016-17	0	0	0	0	0	0
2017-18	1,505	1,505	0	505	1,000	0
2018-19	6,625	6,625	0	845	5,780	0
2019-20	7,698	7,698	0	1,198	6,500	0
2020-21	12,654	12,654	0	3,240	9,414	0
Total	**28,482**	**28,482**	**0**	**5,788**	**22,694**	**0**

Appendix-25

(Reference: Paragraph 6.5; Page 64)

Details of source testing in rural areas

Year	Total number of water sources in rural areas	Source tested	Percentage of source tested
2016-17	1,00,886	16,533	16.38
2017-18	1,00,886	10,931	10.84
2018-19	1,00,886	14,617	14.49
2019-20	1,00,886	15,456	15.32
2020-21	1,00,886	35,647	35.33

Source: E 20 format of *e-jalshakti*

Appendix-26

(Reference: Paragraph 6.7.1; Page 65)

Division wise status of works (PHED)

Name of Division	Total works selected	Work completed on time	Total delayed works	Minimum delay (in months)	Maximum delay (in months)	Remarks
No.1, Hisar	8	2	6	10	31	--
No.2, Hisar	18	5	7	2	42	4 works in progress and 2 works not started.
Hansi	14	3	7	2	37	2 works not started, no record in respect of 1 work and nominal delay in one work.
Fatehabad	6	1	5	0	24	--
Tohana	6	0	6	10	17	--
No.1, Rohtak	9	2	6	6	26	One work in progress schedule completion in July 2022.
No.2, Rohtak	10	7	3	--	--	All work in progress
Rewari	9	4	4	3	19	One work could not be started due to wrong site selection.
Bawal	20	13	7	2	29	--
Kosli	18	0	17	6	14	One work schedule completion is in September 2022.
Faridabad	11	6	4	2	9	No record provided in respect of 1 work.
Kurukshetra	35	7	20	1	18	8 works not started due to site dispute, non-availability of pipes.
No.1, Karnal	20	2	15	2	15	Three works not started due to non-availability of pipes.
No.2, Karnal	18	2	16	3	14	--
Panchkula	19	6	8	4	12	4 works in progress and one agreement is wrongly uploaded.
Total	**221**	**60**	**131**			

Appendix-27

(Reference: Paragraph 6.7.2; Page 65)

Status of works of selected divisions of Urban Local Bodies Department, Haryana

Sr. No.	Name of unit	Name of Project	Work started in	Schedule completion in	Delay (in months)	Status of work
1	MC Hisar	Providing water supply system for Civic Amenities and infrastructure Deficient area including villages in Hisar town along with O&M under AMRUT programme	November 2018	February 2020	Work in progress	Incomplete
2	MC Panchkula	for the augmentation of water supply in villages of Municipal Corporation (MC), Panchkula including Distribution system and installation of Tube Wells and Operation & Maintenance	February 2019	April 2020	Work in progress	Incomplete
3	MC Faridabad	The work of providing water supply for civic amenities and infrastructure deficient area in Faridabad Town	December 2018	February 2020	Work in progress	Incomplete
4	MC Rewari	the work of providing water supply for civic amenities and infrastructure deficient area in Rewari Town	November 2018	June 2020	Work in progress	Incomplete
5	MC Rohtak	the work of providing water supply for civic amenities and infrastructure deficient area in Rohtak Town	November 2018	June 2020	Work in progress	Incomplete
6	MC Karnal	the work "Providing & Augmentation of water Supply System in 15 villages of MC Karnal including Distribution system and installation of Tube well and O & M	November 2018	November 2019	17	Complete
7	MC Faridabad	Providing & Laying water supply line in old Faridabad Town to replace the existing collapsed water supply line and new water supply line in those areas where still not provided in Ward No. 29 & 30, Faridabad	December 2018	December 2020	1	Complete
8	MC Faridabad	Provision of 5 Nos. Tube wells bore 280 mm dia by method of (direct rotary) for various locations in Krishana Colony, Ward No.32 Faridabad,	June 2019	December 2019	11	Completed
9	MC Faridabad	Provision of 3 nos. tube wells bore 280 mm dia by method of (direct rotary) and installing of mini tube well bore 4 nos. in ward 34 , Faridabad	January 2018	June 2018	23	Completed
10	MC Faridabad	Provision of 5 nos. tube wells bore by method of Engine driven bockey type machine at various places Prem Nagar of ward no. 34, Faridabad	July 2019	December 2019	1	Completed

Status of water works of selected divisions of Haryana Shehri Vikas Pradhikaran

Sr. No.	Name of unit	Name of Project	Work started in	Schedule completion in	Delay (in months)	Status of work
1	HSVP Hisar	Up-gradation of infrastructure in Industrial sector 27 & 28	January 2019	July 2019	17	Complete
2	HSVP No 1 Division, Panchkula	Providing water supply, Sewerage and SWD Scheme in new planned area of Sector -21 (Part-III) Panchkula	October 2020	July 2021	Work in progress	Incomplete
3	HSVP Rohtak	Construction of RCC U/G CWT, B/S in Sector-3, Rohtak	August 2016	December 2016	7	Complete
4	HSVP Rohtak	Construction. of 2nd water works in Sector-34, Rohtak	July 2013	January 2015	19	Complete
5	HSVP Rohtak	Prov. Master W/S rising main Sec-34, Rohtak	February 2015	August 2015	19	Complete
6	HSVP Rohtak	Prov. Master W/S rising main Sec-34, Rohtak	February 2015	August 2015	19	Complete
7	HSVP Rewari	Construction of 1 no S&S Tank at water works Kalaka (Rewari)	September 2016	December 2017	Work in progress	Incomplete

Appendix-28

(Reference: Paragraph 6.7.2; Page 65)

Division-wise status of delayed works (selected HSVP & MCs)

Name of Districts	No of works	Delay in months	Status
MC-Hisar,	1	Work in progress	Incomplete
MC-Panchkula	1	Work in progress	Incomplete
MC-Faridabad	5	Min. 1 month to a max. of 24 months	Incomplete-1, Complete-4
MC-Rewari	1	Work in progress	Incomplete
MC-Rohtak	1	Work in progress	Incomplete
MC-Karnal	1	17	Complete
HSVP-Divisions			
HSVP-Hisar, Panchkula, Rohtak and Rewari	7	Min. 7 months to a max. of 19 months	Incomplete-2, Complete-5

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