Chapter 3

Subject Specific Compliance Audit

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3. Sewage and Sewerage Management System in Urban Areas of Haryana

3.1. Introduction

The objective of a sewerage system[1] is to ensure that the sewage[2] discharged by the community is properly collected, transported and treated to safe levels and disposed of or reused, without causing health or environmental problems. The disposal of domestic and industrial wastewater constitutes a core component of the sewerage management system. Inadequate management of this wastewater can lead to contamination of water bodies, contributing to environmental pollution and spread of diseases. The issue of wastewater treatment in urban areas assumes greater relevance, because estimated volume of urban wastewater is almost double that in rural areas. Moreover, with increasing domestic and industrial demand for water for India to become a major hub for industries and development, it is necessary to reuse and recycle water as much as possible.

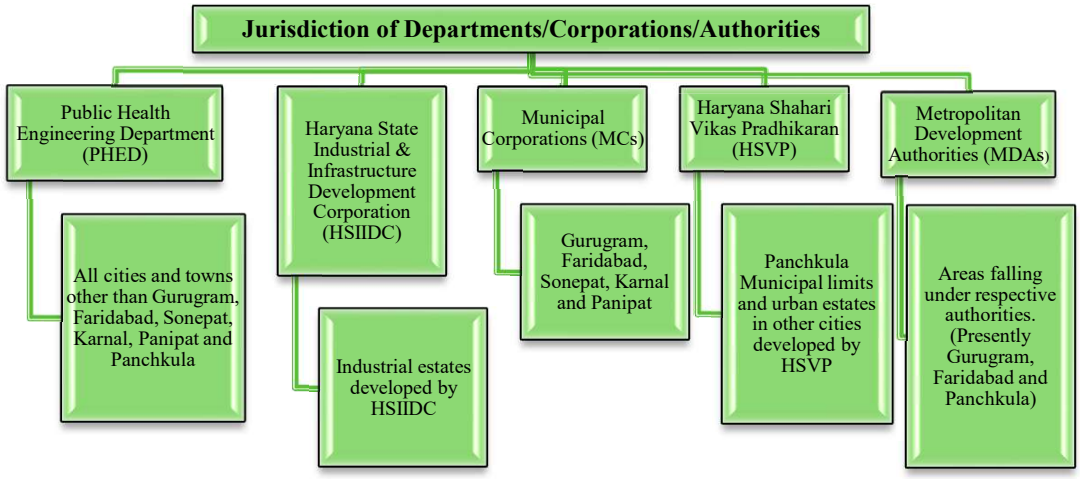
Public Health Engineering Department (PHED), Municipal Corporations (MC), Haryana Shehri Vikas Pradhikaran (HSVP), Haryana State Industrial and Infrastructure Development Corporation Limited (HSIIDC) and Metropolitan Development Authorities (MDA) are responsible for sewerage facilities and treatment of sewage of areas under their respective jurisdiction. Haryana State Pollution Control Board (HSPCB) has been entrusted with the task of implementing laws related to environment in the State.

The chart below indicates jurisdiction of various agencies for wastewater management in the State:

[1] Sewerage system consists of service connections, sewer lines, lift stations, pumping stations and sewage treatment plants.

[2] Sewage refers to the contents of waste closets, latrines, bathrooms, kitchen, stables, cattle-shed and other like places and includes trade effluent.

Chart 3.1: Agency wise jurisdiction for wastewater management in Haryana



3.2 Audit Objectives

The objectives of the SSCA were to assess whether:

- Sewerage management system was as per requirements.
- Execution of work for sewerage was economic and efficient.
- Monitoring mechanism was adequate.

3.3 Audit Criteria

The following audit criteria were used to assess the audit objectives:

- Water (Prevention & Control of Pollution) Act, 1974 and Environment (Protection) Act, 1986.
- Manual of sewerage and sewage treatment system, 2013 and Standard Operating Procedure (SOP), 2018 for cleaning of sewers and septic tanks issued by Central Public Health and Environment Engineering Organization (CPHEEO), Ministry of Urban Development, Government of India.
- Relevant judgments/orders of the Supreme Court of India & National Green Tribunal (NGT).
- Performance standards fixed by the Central Pollution Control Board (CPCB) and HSPCB.
- Reuse of Treated Wastewater Policy, 2019 issued by Government of Haryana.
- Haryana PWD code.

3.4 Audit Scope, Sample and Methodology

The SSCA covered sewerage management activities in the selected districts during the period 2019-20 to 2023-24. Out of a total of 22 districts in the State, a representative sample of eight districts[3], was selected by adopting stratified[4] random sampling without replacement, using Interactive Data Extraction and Analysis (IDEA) software[5]. The selected sample covered 65.71 *per cent* in terms of urban population and 73.43 *per cent* in terms of domestic sewage generation[6]. An entry conference was held on 27 May 2024 wherein audit objectives, criteria, scope and methodology were discussed. Audit examined the records relating to sewage and sewerage management at head offices and field offices of PHED, Irrigation and Water Resource Department (IWRD), HSVP, HSIIDC, HSPCB, GMDA and Urban Local Bodies (ULBs). The draft report was issued (April 2025) to the concerned Departments/Entities and an exit meeting was held on 23 June 2025 with them, to discuss the audit findings. Replies of the Departments/Entities and results of discussions have been suitably incorporated in the draft report.

Audit Findings

The audit findings are discussed under three sections, viz., Management of wastewater, Monitoring Mechanism and Reuse of treated wastewater.

3.5 Management of wastewater

Haryana has 88 municipal towns with an urban population of 1.25 crore (2023). As of June 2023, 2,073.78 MLD[7] domestic sewage was generated in urban areas, while sewage treatment capacity of 2,118.95 MLD, through 184 Sewage Treatment Plants (STPs) existed for treatment thereof, as per detail given in ***Appendix 3.1***.

Wastewater generated from industries is treated in effluent treatment plants/ Common Effluent Treatment Plants (CETPs). There were 23 CETPs in the State. In eight selected districts, 382.17 MLD industrial Sewage was generated out of which 339.21 MLD was treated.

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3 (i) Yamunanagar, (ii) Sonepat, (iii) Faridabad, (iv) Panipat, (v) Gurugram, (vi) Panchkula, (vii) Ambala and (viii) Hisar.

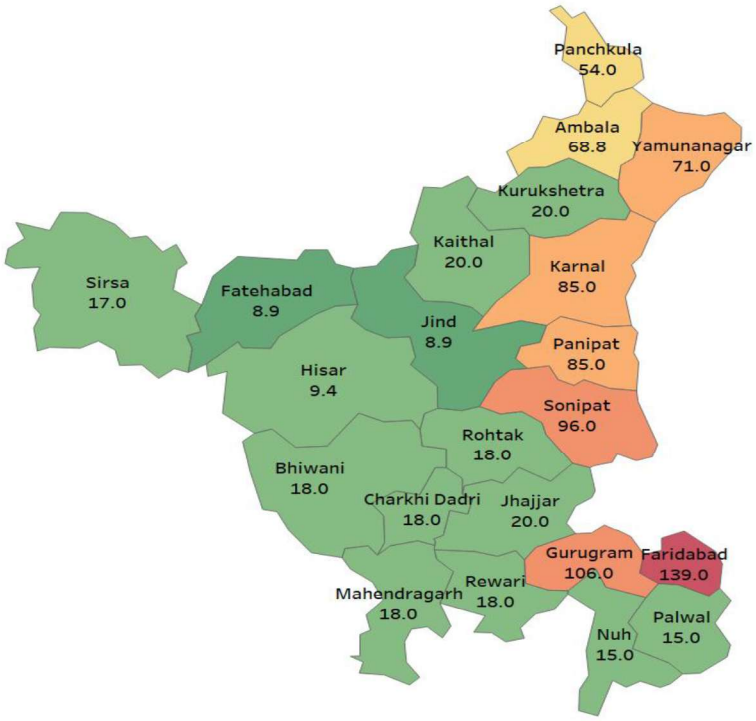
4 The population data, (i.e., total 22 districts) was divided into three strata based on relative weightage assigned in respect of three parameters, namely, number of water-based industries, density of population, and quantum of wastewater generated.

5 IDEA Software is a comprehensive data analysis and auditing tool that is designed to help data analysts efficiently analyze large volumes of data for various purposes, including systematic sample selection.

6 Total urban population in the State 124.92 lakh and in selected 8 districts 82.09 lakh (65.71 *per cent*); domestic sewerage generation total 2,073.78 MLD and in selected eight districts 1,522.83 MLD (73.43 *per cent*).

7 Million Liters per Day.

Quality of wastewater based on Biological Oxygen Demand[8] (BOD) level discharged through drains into rivers from various districts of the state is shown in map below:



Source: Haryana State Pollution Control Board data

Colour Code: Scaled on dark green to dark red. Dark green colour denotes least polluted wastewater discharged in rivers and dark red denotes most polluted wastewater discharged in rivers. Yellow and orange colours denote moderate and more polluted wastewater discharged in rivers respectively.

An analysis of the data as depicted in the Environment Plans 2023 of the selected eight districts revealed that out of 1,522.83 MLD domestic sewage generated, only 1,033.36 MLD sewage was being treated, the details are shown in ***Table 3.1***.

[8] BOD is a key water quality parameter used to assess organic pollution and the effectiveness of wastewater treatment processes.

Table 3.1: Status of domestic sewage generation and treatment in selected districts

Sr. No	Name of District	Total sewage generated (MLD)	Installed[9] sewage treatment capacity (MLD)	Percentage of installed capacity to total sewage	Sewage treatment capacity utilized (MLD)	Untreated sewage (MLD)	Percentage of untreated sewage to total sewage
(A)	(B)	(C)	(D)	(E)	(F)	(G)=C-F	(H)
1	Faridabad	282.00	97.50	34.57	92.00	190.00	67.38
2	Ambala	70.41	51.25	72.79	37.08	33.33	47.34
3	Yamuna nagar	144.48	98.00	67.83	78.48	66.00	45.68
4	Panchkula	165.00	97.25	58.94	91.25	73.75	44.70
5	Panipat	101.84	168.80	165.75	75.00	26.84	26.35
6	Sonepat	78.42	85.30	108.77	60.50	17.92	22.85
7	Hisar	117.50	117.50	100	97.25	20.25	17.23
8	Gurugram	563.18	524.00	93.04	501.80	61.38	10.89
Total		**1,522.83**	**1,239.60**	**81.40**	**1,033.36**	**489.47**	**32.14**

Source: District Environment Plans (2023) prepared by district authorities and information provided by units.

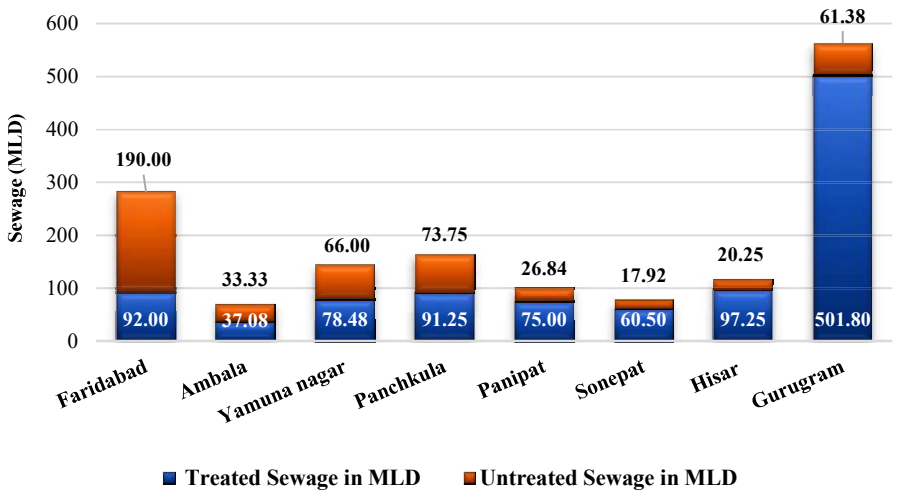
From the above table it would be seen that in three districts (Panipat, Sonepat and Hisar), the installed capacity of STPs exceeded or was equal to sewage generation, while in other five districts (Ambala, Yamunanagar, Gurugram, Faridabad and Panchkula), sewage generation was more than the installed capacity of STPs. Further analysis in audit revealed that 26 STPs with 256.30 MLD capacity ***(Appendix 3.2)***, in selected districts, were not[10] complying with HSPCB discharge standards. As such, out of 1,522.83 MLD of total sewage generated, 489.47 MLD remains completely untreated, while as additional 256.30 MLD did not meet the norms/standards during treatment, leaving only 777.06 MLD (51.03 *per cent)* of domestic sewage being treated effectively. This indicates that the balance 745.77 MLD (48.97 *per cent*) untreated/partially treated domestic sewage was being discharged into water bodies.

Audit also found that the installed capacity of STPs was not utilized optimally as the entire discharge did not reach STPs due to lack of connectivity (As discussed in Paragraph nos. 3.1.1.1, 3.1.1.2 and 3.1.4.1), defective sewer lines (As discussed in Paragraph nos. 3.1.3.1), non-collection of sewage (As discussed in Paragraph nos. 3.1.1.1, 3.1.2, 3.1.2.1, 3.1.2.2, 3.1.3 and 3.1.4), etc., as discussed in succeeding paragraphs. **Chart 3.2** depicts the sewage treated vis-à-vis untreated in the selected districts:

[9] Installed capacity of a STP refers to the theoretical maximum amount of wastewater it can handle.

[10] 26 STPs and 2 CETPs were not complying the discharge standard of HSPCB for BOD <10 mg/l and Fecal Coliform <100 MPN/100 ml.

Chart 3.2: District-wise quantum of sewage treated vis-a-vis untreated



District wise observations relating to wastewater management noticed during the SSCA are discussed below:

3.5.1 Faridabad District

Faridabad is a leading industrial town situated in the National Capital Region. Six major drains pass through the town towards River Yamuna. Against 282 MLD domestic sewage generation, the installed treatment capacity of the town was only 97.5 MLD (34.57 *per cent*) and 92 MLD sewage was treated. Thus, there was a sewage treatment gap of 190 MLD (282 MLD – 92 MLD). STP wise position of the results of wastewater treatment in District Faridabad in April-May 2024 is given in ***Appendix 3.3 (A)***. Four STPs out of total five STPs were meeting the wastewater discharge norm. The discharge of Faridabad District through its main drain (Budhiya Nala) into River Yamuna recorded (2024) the average BOD level of 139 mg/L (against the norm of 10mg/L) and average Faecal Coliform level of 7,891 MPN/100ML (against the norms of 100 MPN/ML).

Audit also noticed multiple lapses on the part of MC Faridabad, HSIIDC and HSVP that relate to sewerage infrastructure which are described below:

3.5.1.1 Award of Work without Obtaining Environment Clearance leading to delay in operation of sewerage system

For augmentation of sewerage system in Faridabad town, the work of construction of two main pumping stations (MPS) and main connecting sewer, along with their operation & maintenance for five years, was awarded (September 2018) to M/s Girdhari Lal Aggarwal Contractor Private Limited (contractor), New Delhi at a cost of ₹ 84.82 crore. The work was to be completed in 18 Months, i.e., by March 2020.

Audit observed that the contractor could not complete work on time due to delay in obtaining diversion of forest land by MCF. It was noticed that MCF submitted request (September 2019) for diversion of forest land after 12 months from the start of work, which was granted by the Ministry of Environment, Forest and Climate Change on 02 July 2024. In the meantime, construction of the two MPS (Mirzapur and Partapgarh) was completed by the contractor (March 2021) and payment of ₹ 79.49 crore was released to him. However, the MPS could not be put to use in the absence of connecting sewer line which was to be constructed on forest land for which clearance was received in 2024. Besides, 80 MLD STP at Mirzapur and 100 MLD STP at Partapgarh, constructed by another firm (M/s HNB Engineering) in March 2024 at a cost of ₹ 196.55 crore also remained idle for want of connectivity as the main connecting sewer line and MPS were prerequisites for carrying the sewage to STPs. Hence, the MCF did not take timely action to obtain forest clearance within the reasonable time besides the envisaged objective of sewer management remained unachieved.

Directorate of ULB replied (October 2025) that rigorous effort were made by MCF for getting the forest clearance, however, it was delayed due to procedural issues. Further, it was stated that clearance has been received and work will be completed shortly.

The fact, however, remains that MCF had initiated the process of obtaining clearance for diversion of forest land after 12 months of award of work which is in contravention to the Para no. 24.3.3 of Haryana PWD Code, which stipulated that necessary clearances should be obtained well in time, preferably before award of work. Moreover, delay of more than five years in completion of the project, resulted in continuing discharge of untreated sewage into the drains which are connected to the river Yamuna.

3.5.1.2 Laying of Internal Sewer Line with an expenditure of ₹ 16.35 crore without Ensuring Availability of Land for Construction of STP

Synchronized execution of sewerage system requires coordinating the construction of both sewer network and STP, so that the wastewater collected by the sewer lines can be treated at the STP. However, it was observed that MCF awarded (July 2017) the work of construction of sewerage system at Shiva Durga Vihar, Lakkarpur and Dayalpur in Faridabad to M/s Vichitra Prestressed Concrete Udyog Private Limited (contractor) stipulated to be completed within 12 months, at a cost of ₹ 19.96 Crore, without finalisation of the site for the associated STP.

As a result, the construction of sewerage system, which was scheduled to be completed by July 2018, could not be completed and MCF had to grant extension, from time to time, as STP site was not finalised. The last extension

was granted up to 31 August 2022 and by that date MCF had made payment of ₹ 16.35 crore to the contractor. However, the work was not completed and the site for STP was not finalized even as of October 2025.

Thus, due to improper planning, the amount of ₹ 16.35 crore already expended on construction of sewer lines remained unfruitful besides the objective of augmentation of sewerage system was not achieved.

Directorate of ULB in its reply stated (October 2025) that MCF is in process of obtaining two acres of land from Haryana Tourism Department for construction of 10 MLD STP.

3.5.1.3 Inordinate Delay in Construction of CETPs in Faridabad

To develop treatment capacity of industrial wastewater, Government of Haryana assigned (July 2018) construction of two CETPs[11] of 18.5 MLD and 6 MLD capacities, to HSIIDC, for which it prepared the Detailed Project Report (DPR). Subsequently, one more CETP of 25 MLD capacity was also proposed (August 2019) at Mirzapur, besides increasing the capacities of earlier proposed two CETPs to 50 MLD and 15 MLD, respectively. DPR for these three proposed CETPs was prepared by HSIIDC for ₹ 539 crore. However, since the issues regarding handing over of land {which belonged to Municipal Corporation Faridabad (MCF)}, operation and maintenance of CETPs and recovery of sewerage charges, raised by HSIIDC could not be addressed by MCF, Finance Department, Govt. of Haryana decided (August 2020) that the construction of CETPs would be taken-up by MCF. Despite this, no action was taken by MCF till October 2022, when Chief Secretary, Haryana directed that HSIIDC shall take up the construction of these CETPs on priority basis.

Accordingly, HSIIDC issued (April 2023) work order to M/s Ky Consultants Pvt. Ltd., Gurugram to provide consultancy for construction of the proposed three CETPs, including laying of main sewer lines after segregation from existing sewer and carriage of industrial effluent up to the proposed CETPs. DPR for this work was prepared for a total cost of ₹ 824.60 crore. As regards funding, it was decided (May 2024) that funds for the above project would be arranged by HSIIDC from the National Mission for Clean Ganga. HSIIDC took up the matter of funding with the National Mission for Clean Ganga (NMCG).

Thus, due to the indecisiveness of the State Government in finalising the agency/ line department for undertaking construction work, the CETPs initially planned in 2018, could not be set up even after lapse of more than six years. As a result, the industrial wastewater was allowed to be discharged in domestic sewer lines. Further, this delay in construction of CETPs also violated the NGT order of

[11] Badshapur and Partapgarh.

August 2019, which required all local bodies or departments concerned of the State Government to ensure 100 *per cent* treatment of the generated sewage.

HSIIDC stated (July 2025) that due to paucity of funds, NMCG refused (September 2024) to approve projects for industrial wastewater. Further, on request of Faridabad Metropolitan Development Authority (FMDA) to explore alternate sources of funding it had taken up with State Government for arrangement of funds for construction of abovesaid three CETPs.

Thus, no tangible action has been taken for construction of CETPs even after seven and six years from initiation of proposal in July 2018 and NGT order of August 2019, respectively.

3.5.2 Gurugram District

STP wise position of the results of wastewater treatment in District Gurugram in March to July 2024 is given in ***Appendix 3.3 (B)***. It was noticed in audit that only 12 out of total 16 STPs were meeting wastewater discharge norms. The wastewater discharge of Gurugram, through its three main drains (i.e., Leg I, Leg II and Leg III) into River Yamuna recorded average BOD and Faecal Coliform levels which were much higher than the prescribed norms of 10mg/L and 100 MPN/ML[12], respectively, as detailed in ***Table 3.2***.

Table 3.2: Quality of discharge (average) of drains from Gurugram District into River Yamuna in 2024.

Sr. No.	Name of Drain	BOD (mg/L)	Faecal Coliform (MPN/100ml)
1	Leg I	88	1,816
2	Leg II	97	3,310
3	Leg III	106	2,730

Source: Data of quality of water in drains and rivers published by HSPCB.

Sewerage management in Gurugram and Manesar towns is managed by Gurugram Metropolitan Development Authority (GMDA) and Municipal Corporation Gurugram[13] (MCG). As of March 2024, 550 MLD domestic sewage was generated in the areas under GMDA jurisdiction, of which 90 MLD was treated and reused by colonisers in their premises. Therefore, GMDA was required to treat 460 MLD sewage (550 MLD - 90 MLD), against which it had installed treatment capacity of only 415 MLD (in 12 STPs).

Audit noticed that against 460 MLD generated sewage, average daily sewage received at these STPs was only 397 MLD. As such, 63 MLD sewage (460 MLD-397 MLD) was not reaching STPs and was apparently being released without treatment into drains. Thus, despite NGT's directions (August 2019) to

[12] HSPCB's standards for discharge of treated wastewater of July 2020 amended in September 2023.

[13] While internal sewer lines and house sewer connections are managed by MCG, master sewer lines and STPs are managed by GMDA.

ensure 100 *per cent* treatment of generated sewage till March 2020, GMDA could not ensure compliance of the directions *ibid* as 14 *per cent* of sewage was not reaching the STPs.

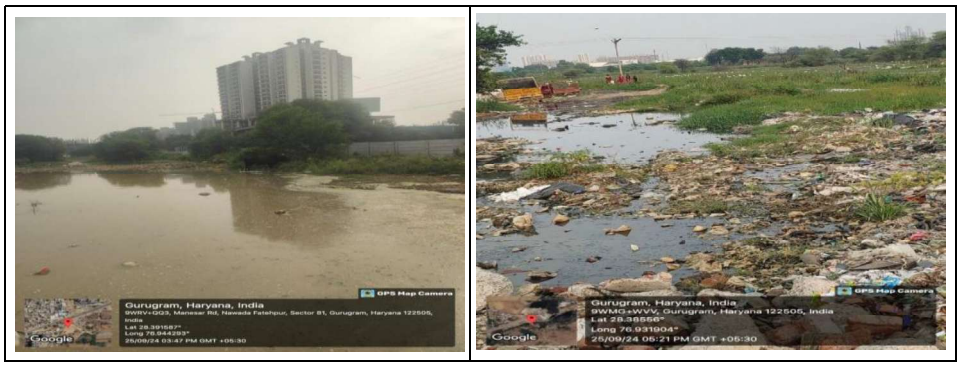
GMDA stated (July 2025) that it had prepared an Action Plan after detailed survey of drains with association of line departments, such as MCG, HSVP, HSIDC, PHED and HSPCB. It was further stated that requisite measures had been taken to increase the treatment capacity to 977 MLD up to December 2028 which would be sufficient to treat the increased sewage in upcoming years, i.e., 800 MLD as well as diverted sewage from the drains.

Audit observed multiple lapses on the part of MC Gurugram and GMDA related to sewerage infrastructure which are discussed as follows:

3.5.2.1 Discharge of 25 MLD Untreated Wastewater in Open Fields due to Delay in Construction of STP at Manesar

For treatment of sewage discharge of Naharpur-Kasan and Manesar towns, GMDA approved (March 2020) construction of one STP of 25 MLD capacity. After Administrative Approval (April 2020) for ₹ 35 crore and DNIT approval (July 2020) for ₹ 30.87 crore, tenders were invited thrice (i.e., in July 2020, August 2020 and May 2021), but could not be finalized statedly due to poor response and high rates offered by the bidders. After revision (2021) of Haryana Schedule of Rates, the DNIT estimate was revised to ₹ 38 crore and tenders were re-invited in September 2021. After evaluation of four bids received, the work was awarded (January 2022) to M/s SSG-EP (JV) at a cost of ₹ 35.72 crore, with schedule completion by October 2023. However, the work of construction of STP was completed in October 2025 with a delay of over two years.

Due to delay in construction of STP at Manesar, the untreated wastewater of Naharpur-Kasan and Manesar town was discharged into open land as shown in the photographs below:



Thus, despite NGT directions, GMDA took almost two years in finalisation/ award of tenders/ work for construction of STP including COVID period which led to discharge of untreated wastewater in the open land thereby posing environmental concerns.

GMDA stated (July 2025, October 2025) that if the sewer line had been laid by the line agencies (PHED/ MC, Manesar), the wastewater of these villages could have been treated at already functional 55 MLD CETP at IMT Manesar. It was stated that the sewer line were commissioned in October 2025. The reply may be seen in light of the fact that the STP was commissioned after two years from the scheduled date of completion.

3.5.2.2 Delay in Tapping and Treating Wastewater of Jahajgarh Area of Gurugram

The NGT, in the case of Manoj Mishra V/s Union of India, directed (September 2019) the State of Haryana and its agencies to monitor and control the sources of pollution and to restore polluted river stretches to the prescribed standards. NGT also pointed out that 85.2 MLD untreated sewage which was being discharged into three storm water drains[14] was needed to be diverted by 31 December 2020.

With this objective, GMDA approved (March 2020) construction of one STP of 20 MLD capacity at a Jahajgarh, with 50:50 cost sharing between MCG and GMDA. After obtaining Administrative Approval the work was awarded (August 2020) to M/s OASIS-ICPL JV at a cost ₹ 31.99 crore, with scheduled completion in February 2022. It was, however, observed that progress of the work had been slow since the beginning due to delay in the demarcation of land, which was attributable to MCG. The trial run of STP was initiated in November 2023 with a delay of more than one year.

It was observed that only 5 MLD sewage discharge was reaching the STP due to incomplete sewer infrastructure. This resulted in expenditure of ₹ 18.67 crore remaining largely idle besides STP not running at its full capacity.

GMDA conveyed (July 2025) reply of the MCG which stated that that the sewer infrastructure would be completed within six months. No comment on delay in demarcation of land by MCG was offered despite specific request in the exit meeting (June 2025).

The fact, however, remained that envisaged objective of treatment of 20 MLD sewage discharge remained unachieved due to lack of co-ordination between the line agencies.

3.5.2.3 Construction of Micro STPs

MCG planned to construct 41 micro[15] STPs in city parks to use the STP treated water in horticulture to reduce dependence on fresh potable water and ease out

[14] 12.1 MLD in Leg-I, 23.75 MLD in Leg-II and 49.35 MLD Leg-III.

[15] Micro STPs are designed to treat wastewater from smaller sources compared to large-scale sewage treatment plants.

pressure on sewage system. Accordingly, MCG awarded (September 2019) the works of construction of micro STPs, including their operation & maintenance for 10 years, to M/s SR Pariyavaran Engineers Private Limited (20 micro STPs) and M/s Earth Water Limited (21 micro STPs) at cost of ₹ 37.60 crore and ₹ 39.36 crore, respectively.

The work of construction of 20 MSTPs by M/s SR Pariyavaran was completed in September 2021. It was observed that M/s Earth Water could not complete the work on time i.e. by March 2021. MCG imposed (November 2021) a delay penalty on M/s Earth Water, however, action to terminate the contract and award the balance work to another agencies, on risk and cost basis, was not initiated. It was only after being pointed out (November 2024) by audit, that MCG initiated (November 2024) action for termination of contract with M/s Earth Water. It was observed that payment of ₹ 20.84 crore had been made to M/s Earth Water till January 2021, after which it did not claim any payment.

MCG during site visit (December 2024) observed that construction of only nine out of 21 STPs was completed. Further, the motor of one of the STPs was found stolen, and three STPs were found to be partially working. Thus, the operation & maintenance of nine completed micro STPs was not undertaken by M/s Earth Water as per terms of contract. Moreover construction of the remaining 12 micro STPs was not completed even after five years of work award.

As such, the intended purpose of treating wastewater by the 12 micro STPs and reusing it in the city parks for horticulture remained unachieved besides the expenditure of ₹11.91 crore[16] incurred on the construction of these micro STPs remained largely idle. This displayed ineffective project management by MCG.

Directorate of ULB stated (June 2025, October 2025) that the firm doing this work had become insolvent and subsequently the new firm, which took over has started the remaining work which will be completed shortly. As regards functionality, it was informed that nine STPs were functioning as on date.

3.5.3 Sonepat District

Sonepat district is situated in the catchment area of the River Yamuna. The sewerage management in Sonepat town was managed by Municipal Corporation, Sonepat (MCS), while in Gohana, Gannaur, Kundli and Kharkhoda towns it was managed by PHED. For treatment of a total of 78.42 MLD domestic sewage, there were seven STPs of 85.3 MLD capacity. However, the actual treatment was 60.50 MLD only. Kundli an industrial town on Delhi border generates 5 MLD[17] sewerage does not have any sewer network or treatment plant. There are two

[16] Total payment to contractor ₹ 20.84 crore/21*12.

[17] 44,205 population of Kundli town x 135 liters water consumption per person per day x 80 *per cent* rate of sewage generation.

drains in the district, viz., Drain no. 6 and Drain no. 8 which flow into River Yamuna. STP wise position of the results of wastewater treatment in District Sonepat in March-April 2024 is given in ***Appendix 3.3 (C)***. Audit found that though six out of total seven STPs were meeting wastewater discharge norm, the discharge of Sonepat District, through two main drains (i.e. Drain no. 6 and Drain no. 8) into River Yamuna recorded the average BOD and Faecal Coliform levels, which were much higher than the prescribed norms of 10mg/L and 100MPN/ML respectively, as detailed in ***Table 3.3***.

Table 3.3: Quality of discharge (average) of drains from Sonepat District into River Yamuna in 2024

Sr. No.	Name of Drain	BOD (mg/L)	Faecal Coliform (MPN/100ml)
1	Drain no. 6	96	3,233
2	Drain no. 8	18	35,373

Source: Data of quality of water in drains and rivers published by HSPCB.

Audit also noticed multiple lapses on the part of MC Sonepat and HSIIDC in planning and execution related to sewerage infrastructure which are discussed in the succeeding paragraphs:

3.5.3.1 Under-Utilization of 25 MLD STP at Kakroi, Sonepat

For transportation of sewage to the STP at Kakroi which was having a capacity of 25 MLD PHED constructed (September 2018) a master sewer line of 2,248 meter length, at a cost of ₹ 4.80 crore. However, due to faulty design and improper jointing of sewer line, only 7 to 8 MLD sewage (against installed capacity of 25 MLD) could reach up to STP for treatment due to blocking of sewer line, and the remaining untreated sewage was flowing in Drain No. 6.

To overcome the issue, MCS[18] carried out (December 2023) strengthening/ rehabilitation of sewer lines through M/s Capital Engineering Corporation, Gurugram at a cost of ₹ 4.58 crore. Even after that, the entire sewage was not reaching STP, therefore, MCS approached Indian Institute of Technology (IIT), Delhi to suggest suitable measures for restoration of the sewer line. IIT, Delhi in its report (May 2024) suggested complete in-situ replacement of existing sewer line or Cured in Placed Pipe[19] (CIPP) work by estimating the thickness of liner. IIT, Delhi further stated that after CIPP work, restoration of full designed flow capacity might be questionable if the original alignment of the sewer pipeline was not ensured. Thereafter, detailed project report (DPR) from another consultancy firm for laying a parallel sewer line was got prepared by MCS in August 2024, however, final action for restoration of the sewer line was awaited (October 2025).

[18] In 2018 the activity of water supply and sewerage were transferred by the State Government to the Municipal Corporation, Sonepat. Accordingly, 25 MLD STP at Kakroi, Sonepat along with sewerage network was also transferred to the Municipal Corporation, Sonepat.

[19] A trenchless rehabilitation method used to repair existing pipelines.

Thus, due to deficiencies in laying of sewer line and delay in its restoration the Kakroi STP could not be operated at full capacity for six years, thereby resulting in discharge of untreated sewage in Drain No. 6. This indicates inadequacy of the Department in handling of the vital project executions.

Municipal Corporation, Sonepat stated (July 2025) that after diversion of 11-12 MLD additional sewage from STP Rathdhana , the total sewage received at STP Kakroi was around 15-16 MLD on normal day and around 20-22 MLD on rainy day. However, documentary evidence (copies of logbooks of 25 MLD Kakroi STP) in support of the reply was not provided to audit despite specific request.

3.5.3.2 Delay in Rehabilitation Work of Drain no. 6 in Sonepat Town

Drain No. 6 originates from Samalkha town in Panipat District and enters Sonepat City at Jawahri village and flows through the town. This drain, which was supposed to carry only storm water during rainy seasons, carried mainly, partially treated/untreated domestic and industrial wastewater. For tapping sewerage disposal points and to prevent the disposal of solid waste into Drain no. 6, MCS decided to take up the work of remodeling of Drain No. 6 into reinforced cement concrete box type drain for storm water drainage along with its covering from the top from RD 1900 to 9300.

Accordingly, the MCS awarded (July 2017) the work of first stretch, from RD 1,900 to 6,706, to M/s. MSKEL at a cost of ₹ 87 crore and scheduled completion by November 2018. However, the firm failed to complete the work, and contract was terminated after completion of work valued ₹ 5.63 crore. Thereafter, the remaining work was allotted (August 2020) to M/s Gawar Construction Limited at cost of ₹ 96.03 crore with scheduled completion in November 2021. Audit observed that the progress of work was very slow and scheduled completion date was extended four times up to September 2024, mainly due to delay in handing over of the site by MCS.

Similarly, the work for second stretch (from RD 6,706 to RD 9,300) was awarded (August 2019) to M/s JBM-ACC Joint Venture at a cost of ₹ 47.28 crore and scheduled completion in February 2021. Up to January 2025, an expenditure of ₹ 31 crore had been incurred, but the work was still in progress (October 2025). The open drain poses significant environmental and public health hazards, particularly where it often serve as *de facto* sewerage systems as depicted in the images below:

Thus, due to improper project management, remodeling of Drain No.6 could not be completed even after six years and discharge of untreated wastewater into Yamuna River continued unabated during this period.

Directorate of ULB stated (June 2025, October 2025) that delay in execution of work was due to various reasons as encroachments, stoppage of work in rainy seasons, COVID 19, GRAP enforcement, delay in forest clearances etc. It was also stated that 80 *per cent* of work has been completed and remaining work is targeted to be completed by 31 March 2026.

The reply, however, has to be viewed against fact that the works were awarded in 2017 and 2019 with completion schedule of 18 months and both works remained incomplete even as of October 2025. Besides the environmental and public health concerns due to the uncovered drain remained unaddressed.

3.5.3.3 Discharge of Partially Treated 16 MLD Sewage into Drain No. 6

HSIIDC had developed an industrial zone in Barhi, Sonepat over an area of 1,255 acre where over 700 small scale industries existed. For the treatment of industrial wastewater (effluent), HSIIDC had established (2017) a CETP with treatment capacity of 16 MLD. The construction of CETP was got executed through M/s Gharpure Engineering & Construction Private Limited (Agency) on turnkey basis, at total cost of ₹ 34 crore. As per the terms of the contract, the operation and maintenance of CETP was also to be carried out by the same firm for 10 years from the date of operation.

As the plant was not running efficiently, HSIIDC got conducted (November 2019) an efficacy study of the CETP through IIT, Delhi, which indicated (February 2020) test results for the oil and grease parameters to be higher than the design value (influent 34 mg/l against the design value of 20 mg/l). This was making the plant run inefficiently. To overcome the problem, IIT, Delhi recommended for immediate installation of oil & grease traps. Upon this, the HSIIDC issued (September 2020) notice to the Agency to construct the oil and grease trap for efficient running of the CEPT. However, the Agency refused

(September 2020) to construct the same stating that it was not included in the scope of work. Finally the Agency was awarded (September/December 2023) the work of construction of oil and grease trap at total a cost ₹ 1.51 crore which was completed in December 2024.

It was observed that HSIIDC took almost three years in deciding the onus and assigning the work for efficient running of the CEPT. Resultantly, partially treated effluent continued to be discharged into drain no. 6, during this period, in contravention of the provisions of Water (Prevention and Control of Pollution) Act, 1974 and NGT order of August 2019.

HSIIDC stated (July 2025) that the agency after receiving (March 2023) report from technology provider M/s SFC Environmental technology Pvt. Ltd. agreed that the plant performance was affected due to non-installation of oil and grease traps. The work of installation of the traps was carried out by the agency which was completed in December 2024.

The fact remained that ambiguity of contract terms and their tardy enforcement resulted in discharge of partially treated effluent for four years.

3.5.4 Panipat District

Panipat district is situated in the catchment area of River Yamuna and there are two urban areas, namely Panipat municipal area and Samalkha town. Sewage and sewerage management in Panipat city is being managed by the Municipal Corporation, Panipat (MCP) and in Samalkha town by PHED, Haryana. Total quantity of domestic sewage generated in urban areas of Panipat was 101.84 MLD, for the treatment of which, there were 10 STPs with capacity of 168.80 MLD (nine STPs of 163.80 MLD capacity in Panipat city and one STP of 5 MLD capacity in Samalkha). However, actual treatment of domestic sewage by all these STPs was only 75 MLD. Therefore, remaining 26.84 MLD (101.84 MLD-75 MLD) sewage was not tapped for treatment in STPs. The STP wise position of the results of wastewater treatment in District Panipat in March 2024 is given in ***Appendix 3.3 (D)***. Audit found that though nine out of total 10 STPs were meeting wastewater discharge norms, the discharge of Panipat District through Drain no. 2 into River Yamuna recorded (2024) the average BOD level of 85 mg/L (against the norm of 10mg/L) and average Faecal Coliform level of 4,000 MPN/100ML (against the norms of 100 MPN/ML)[20].

Audit noticed multiple lapses on the part of MC, Panipat and HSVP in planning and execution related to sewerage infrastructure which are discussed in the succeeding paragraphs:

[20] Source: HSPCB data of water quality of drains and river.

3.5.4.1 Enhancement in scope of work in non-transparent manner and ineffective utilisation of sewerage Infrastructure

i) The State Level Technical Committee of AMRUT (SLTC) headed by Administrative Secretary, Urban Local Bodies Department, Haryana awarded (November 2018) the work of providing sewerage system for deficient/other areas at Panipat town, along with operation and maintenance for five years, to M/s Bhumi Infrastructure, Karnal at total cost of ₹ 64.96 crore, i.e., 23.41 *per cent* above estimated cost under AMRUT scheme. Providing sewerage connectivity[21] to 20,500 households was also included in the scope of work. The work was to be completed in 18 months, i.e., by May 2020.

It was noticed in audit that the scope of work was enhanced multiple times by SLTC by increasing the number of colonies from 29 to 77 (₹ 98.50 crore in September 2019, ₹ 123.42 crore in January 2021, and finally to ₹ 215.18 crore in September 2022). As a result, the financial implication of the work got enhanced by 331 *per cent* from ₹ 64.96 crore to ₹ 215.18 crore. Time extension was also granted from time to time, with final time extension granted up to 31 March 2023. By the extended time, M/s Bhumi Infrastructure completed construction of sewerage network and provided connectivity to 50,962 households at a total cost of ₹ 202.44 crore.

Resultantly, the contractor who was initially awarded the contract for much smaller capacity, ended up executing a much larger contract without fresh competitive tendering. These additional works in 48 colonies which were in nature of new works to the tune of ₹ 150 crore were awarded to the contractor in violation of Para 13.7.2 of PWD Code which provides that the work should be executed by calling fair and competitive tenders in a transparent manner.

In this regard, MCP justified (September 2020) allotment of additional work to M/s Bhumi Infrastructure, on the grounds that fresh tenders would take three to four months' time and allotting additional work to existing agency would expedite the execution of work. The reply is not tenable as the work of 77 colonies was completed by March 2023, after more than four years of initial award of contract which was sufficient time for executing work in 48 colonies with fresh competitive tenders.

ii) For treatment of wastewater discharge of 76 colonies, MC Panipat got constructed two STPs of 25 MLD and 15 MLD capacities through another contractor (M/s Ankita Construction). HSPCB issued consent to operate for the 15 MLD capacity STP in July 2023 and for 25 MLD capacity STP in December 2023. However, even as of May 2024, only 0.6 MLD and 1.5 MLD

[21] Connectivity means providing a tapping point at the outdoor of household through which household can connect with sewerage system.

discharges were reaching the 15 MLD STP and 25 MLD STP, respectively. Thus, against approximate discharge of 22.02 MLD[22] from 50,962 households (for which connectivity was provided through M/s Bhumi Infrastructure), flow of only 2.1 MLD (0.6 MLD + 1.5MLD) discharge to the associated STPs was indictive of the fact that MCP could not provide sewer connections to all end users for effective utilisation of the sewerage infrastructure created with cost of ₹ 202.44 crore. This also shows faulty planning on the part of the department.

PHED agreed with the audit observation and stated (June 2025) that under the scheme (AMRUT 1) connectivity was provided by the department, however, house sewer connection was to be taken by the end user. It involved cost of road cutting and restoration and other charges which individuals try to avoid.

MCP replied (October 2025) that 50 to 60 *per cent* households were connected to sewer lines. For balance connections public is being motivated and after exemption of road cut charges 100 *per cent* connection will be tapped.

The fact, however, is that effective utilisation of sewage infrastructure was not ensured. Even though the scheme did not provide for end-user sewer connections, this requirement should have been anticipated during the infrastructure planning stage.

3.5.4.2 Illegal Extraction of Ground Water by Industries in Sector-29, Panipat

HSVP had developed two industrial (Phase-I and Phase-II) in Sector-29, Panipat and was responsible for supply of water, collection of effluent and its treatment, and final disposal of treated water, in these areas. As of April 2024, 175 water[23] based industries were operating in these industrial areas. For treatment of industrial effluent discharged by these industries, HSVP had constructed two CETPs of 21 MLD each in Sector-29, Panipat. Further, 15 industries located outside sector 29 (with discharge of industrial wastewater of 4.61 MLD) were also connected to these two CETPs

Audit noticed that HSVP supplied 15.8 MLD canal water and 0.850 MLD tube well water to these industries in Sector 29. As such, maximum discharge by the industries should be 16.65 MLD (15.8 MLD + 0.85 MLD). A total of 21.26 MLD (16.65 MLD + 4.61 MLD) wastewater should have reached the CETPs. Haryana Water Resources Authority (HWRA[24]), had granted permission for extraction of ground water to 13 industries (total permission for 3.168 MLD of ground water).

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22 50,962 households x 4 persons per household x 135 liters water consumption per person per day x 80 *per cent* rate of sewage generation.

23 As per data available with HSPCB.

24 The State Government had established (2020) HWRA for monitoring of the ground water level in the State. For extraction of ground water in Haryana, permission of HWRA is required.

However, against this, the actual average inflow of effluent discharge reaching to the CETPs was 39 MLD. Thus, 14.57 MLD (39 MLD – 21.26 MLD – 3.168 MLD) effluent was being discharged by industries in excess of water supplied to them by HSVP. This indicated that these industries were extracting ground water for industrial purposes despite Panipat district being an over exploited zone. In view of discharge of industrial effluent by industries in excess of water supplied to them, the authorities responsible for enforcement of environmental laws, i.e. HSPCB, HWRA and HSVP, need to detect and prevent this violation. Department's failure in this regard indicated poor monitoring and enforcement of environmental laws.

HSVP stated (July 2025) that directions were being issued for ensuring that there was no illegal sewer connection in area under HSVP. Further, it was stated that the matter of illegal extraction of ground water was the concern of HSPCB/HWRA.

3.5.5 Yamunanagar District

Yamunanagar district is situated in the catchment area of River Yamuna. The district has three urban areas, namely Yamunanagar-Jagadhri, Sadhaura and Radaur. The sewerage management in relation to domestic sewage generated in urban areas of the district was done by PHED. The STP wise position of the results of wastewater treatment in District Yamunanagar in March 2024 is given in ***Appendix 3.3 (E)***. As per records made available to audit, it was observed that though all eight STPs were meeting the wastewater discharge norm, the discharge of Yamunanagar District through its main drain into River Yamuna recorded the average BOD level of 71 mg/L (against the norm of 10 mg/L) and average Faecal Coliform level of 2,880 MPN/100 ml (against the norms of and 100 MPN/ml). Further, it was observed that for treatment of 66 MLD untreated domestic sewage and wastewater generated from industrial operations by units at Yamuna Nagar and Jagadhri construction of 19.50 MLD Industrial Sewage Treatment Plant and 77 MLD STP had been awarded (March-May 2025) with scheduled completion in September 2026 and June 2027, respectively.

Audit noticed lapses on the part of PHED related to sewerage infrastructure which are discussed in the succeeding paragraphs:

3.5.5.1 Unjustified Reduction of Penalty for Delay in Execution of Work

PHED awarded (March 2018) the work of construction of 10 MLD capacity STP at Badhi Majra Road, Yamunanagar to M/s Kapil Hydro-JV (Agency) at a cost of ₹ 9.99 crore, and with scheduled completion by September 2019. As per clause no. 2 of general conditions of contract, time was essence of the contract and compensation for delay at the rate of one *per cent* of the contract value per day of delay, up to a maximum of 10 *per cent* of the contract value, was recoverable from the contractor.

It was, however, noticed that the Agency failed to complete the work within scheduled time, for which the PHED issued several notices to it and imposed penalty of ₹ 99.86 lakh as per terms of contract. However, after the issuance of notice for termination of contract (in March 2022) and for final measurement to award the balance work at their risk and cost (in October 2022), the Agency completed the work. After completion of work, the Agency requested that penalty imposed earlier might be waived off. Superintending Engineer, PHED Circle, Ambala Cantt., based on the plea of the Agency that work was delayed due to pandemic COVID 19, reduced (July 2023) the penalty from ₹ 99.86 lakh to ₹ 0.41 lakh.

Audit observed that the reason considered for reduction of the penalty was not justified because the original scheduled completion period (i.e., September 2019) had expired even before onset of the pandemic. Further, the NGT directed (September 2019) that with regard to works under construction after 01 July 2020, the Government of Haryana was liable to pay environmental compensation of ₹ 10 lakh per month per incomplete STP. This shows department's failure to enforce contract condition to safeguard its financial interest.

The PHED in its reply stated (November 2024, August and September 2025) that penalty was waived off by the competent authority as per clause 2 of the contract. Further, there was an urgency to complete the work to avoid any further delay. To minimize further delay and ensuring project completion by the incumbent contractor; a decision was made to substantially reduce the previously established penalty. Following this revision, the contractor demonstrated improved dedication and successfully fulfilled all remaining obligations.

The reply was not acceptable because the reasons considered for the waiver of penalty were not justified. The department's argument regarding urgency to complete the work was also not acceptable because by waiving penalty for this reason, it provided an undeserved opportunity to the contractor against penalty leviable under the contract for three year's delays between September 2019 and October 2022. PHED's argument that higher authorities have jurisdiction to make such decision is flawed as all decisions have to be fact based and should fall within the ambit of reasonableness and not on the sole discretion of the officers.

3.5.5.2 Non-Compliance with Contract Conditions and SOP for Cleaning of Sewers and Septic tanks

Para 13.6.5 of Haryana PWD Codes provided for insurance cover in the terms and conditions of contract of works which involve risks and unsafe situations. Condition no. 13 of General Conditions of Contract also provided that the contractor, at his cost, shall provide, in the joint name of the employer and the contractor, insurance cover from the start date to the date of completion. The

insurance policies and certificates shall be delivered by the contractor to the Engineer for approval before the start date. All such insurance shall provide for compensation to rectify the loss or damage incurred.

Further, the Standard Operating Procedures (SOP) for cleaning of sewers and septic tanks, as issued (November 2018) by Central Public Health and Environmental Engineering Organization (CPHEEO) specified procedures to be followed during mechanical and manual cleaning of sewers and emptying of septic tanks including maintenance of inventory of all the protective and safety gears specified in the SOP.

During scrutiny of records in the office of the PHED[25], it was noticed that insurance policies and certificates were not submitted by contractors. Further, the Divisional Office did not have important safety devices, like head lamp, air compressor, air blower and air breathing apparatus, which were required to be maintained as per SOP.

PHED stated in the exit meeting (June 2025) that audit observation has been noted for compliance.

3.5.6 Ambala District

District Ambala is situated in the catchment area of the River Ghaggar. The municipal functions in the district are discharged by four ULBs[26] while as the services related to water supply and sewage management are managed by PHED. The STP wise position of the results of wastewater treatment in District Ambala May-July 2024 is given in ***Appendix 3.3 (F)***. Audit found that only 10 out of total 14 STPs were meeting wastewater discharge norm. The wastewater discharge of Ambala District, through two main drains (i.e., Ambala Drain and Ghail Drain) into River Ghaggar recorded (2024) the average BOD and Faecal Coliform levels much higher than the prescribed norms[27] of 10 mg/L and 100 MPN100 ML, respectively, as detailed in ***Table 3.4***.

Table 3.4: Average quality of discharge of drains pertaining to Ambala District in 2024

Sr. No.	Name of Drain	BOD (mg/L)	Faecal Coliform (MPN/100ml)
1	Ambala Drain	68.8	3,450
2	Ghail Drain	70	3,725

[25] Executive Engineer, Division No. 1, Yamuna Nagar.

[26] Municipal Corporation Ambala (serving city area) and Municipal Council Ambala Sadar (serving Ambala Cantt area) and Municipal Committees Barara and Naraingarh.

[27] HSPCB data of water quality of drains and river.

Audit observed shortcomings in execution of work of sewerage infrastructure by MC, Ambala Sadar and PHED which is discussed as follows:

3.5.6.1 Inadequate Treatment Capacity in Ambala Sadar Leading to Discharge of Untreated Sewage into River Ghaggar

In Ambala Sadar, an average of 25 MLD[28] sewage was generated; however, no treatment facility was available. Municipal Council, Ambala Sadar awarded (2017-20) the work of construction of four STP's[29] with total installed capacity of 44 MLD, along with sewerage network, under Atal Mission for Rejuvenation and Urban Transformation **(**AMRUT**)**. It was, however, observed the work of construction of sewerage network and two STPs i.e. 12 MLD at 12 Cross Road and 12 MLD at village Khudakhurd in Ambala Sadar was awarded (November 2017) to M/s KKSIL, New Delhi at a cost of ₹ 144 crore with scheduled completion by November 2019. However, after completion of work worth ₹ 44.27 crore, the Council terminated (September 2021) the contract stating that contractor was incompetent, and work progress was dismal. Against this, M/s KKSIL represented that sites were handed over to them late in May 2019 and August 2019. But, the State Level Technical Committee (SLTC) approved (March 2022) the termination of contract. After two years of termination, the council awarded (March 2024) the remaining work on risk and cost basis, to another agency/contractor at a cost of ₹ 106.59 crore, with scheduled completion in December 2025. Thus, construction of the sewerage network and two STPs could not be completed even after five years of original scheduled completion. It was observed that MC terminated the original contract after 28 months of scheduled completion and again took two years in reallotment of remaining work which is indicative of poor execution and contract management by the Council.

MC Ambala Sadar replied (October 2025) that there was delay in termination and award of remaining work due to various reasons like delay in handing over of site for STPs, approval by SLTC and three times tendering for remaining work. Further, it was stated that the work order was issued in March 2024.

The fact, however, remains that the intended objective of providing sewerage facilities was delayed for almost five years due to ineffective contract management.

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[28] 2,36,850 (Population) x 135 liters per capita water supply per day (as per manual on sewerage and sewage treatment issued by Central Public Health and Environmental Engineering Organization) x 80 *per cent* (as per performance evaluation report of sewage treatment plant by Central Pollution Control Board 80 *per cent* of supplied water for domestic use comes back as wastewater) quantity of wastewater.

[29] 12 MLD at 12 Cross Road, 12 MLD at village Khudakhurd, 10 MLD at village Babyal and 10 MLD at village Machhonda.

Hence, audit analysis revealed that the reasons for delay in execution of work for augmentation of sewerage infrastructure in the selected districts are attributable to inadequate planning, poor site management and external factors like seeking statutory clearance leading to inadequate co-ordination between executing agencies.

3.6 Monitoring Mechanism

Under Section 17 of Water (Prevention and Control of Pollution) Act, 1974, HSPCB is responsible for monitoring the sewage and sewerage management system in Haryana. For this it is required to conduct inspection of sewage or trade effluents as well as the works and plants for treatment thereof, as per specified periodicity and with reference to laid down standards. During audit of selected districts, the following issues related to lapses in monitoring were noticed:

3.6.1 Non-Recovery of Environmental Compensation amounting to ₹ 214.26 crore

HSPCB adopted the modalities/methodology for assessing, imposing, collection and utilization of environmental compensation with effect from 29 April 2019 which were subsequently revised in December 2021.

Audit observed that, during 2019-20 to 2023-24, HSPCB imposed environmental compensation of ₹ 264.76 crore on 650 commercial/industrial units in selected districts, for violation of pollution norms. Against this, recovery of only ₹ 50.50 crore from 334 units was made. Thus, recovery of ₹ 214.26 crore was pending as on 31st March 2024 (***Appendix 3.4)***. The status was particularly poor in Gurugram North, Ballabgarh and Sonepat, where 92.52 *per cent*, 81.50 *per cent* and 78.83 *per cent* of compensation was pending for recovery. Further, it was observed that compensation of ₹ 50.50 crore recovered by HSPCB in eight selected districts, was not utilized in terms of Clause 2(h) of the EC policy which provided for utilisation of the funds for restoration of environmental damage in the concerned areas. As of March 2024, the entire amount was lying unutilised, thereby defeating the purpose of imposing compensation and utilising it for restoration of environmental damages.

Hence, HSPCB's ability to fund environmental protection initiatives was affected to that extent.

HSPCB agreed (June 2025) with the extent of shortfall in recovery and stated that it is working on it.

3.6.2 Non-Imposition of Environmental Compensation for Discharge of Untreated and Partially Treated Sewage - ₹ 949.27 crore

A. NGT directed (August 2019) all local bodies or departments concerned of the State Government to ensure 100 *per cent* treatment of the generated sewage; and in case of default, to pay compensation which is to be recovered by the States/UTs, with effect from 01 April 2020.

HSPCB had adopted (April 2019, December 2021) the modalities and methodology of CPCB for assessing, imposing, collection and utilization of Environmental Compensation (EC). The methodology provided that while imposing environmental compensation, cost-saved benefits[30] and cost to environment[31] would be considered.

It was observed that in the selected districts, local authorities did not ensure 100 *per cent* treatment of total generated sewage, as the extent of untreated domestic sewage in these districts ranged between 10.89 *per cent* to 67.38 *per cent* (Table no. 3.1 Paragraph No 3.5). However, HSPCB did not take cognizance of these violations and failed to impose and recover the applicable environmental compensation, which worked out to ₹ 902.97 crore up to 31 October 2024 (***Appendix 3.5)***.

B. HSPCB's environmental compensation methodology provided that environmental compensation shall be imposed on units discharging the environmental pollutants in excess of the standards prescribed under Environment Protection Rules 1986 and as prescribed in the CTO granted to such units under Water Act, 1974/Air Act, 1981.

Audit scrutiny of the monitoring data of HSPCB revealed that 26 STPs and two CETPs in selected eight districts were not meeting prescribed discharge standards for durations ranging between 396 days and 1,312 days. Despite this, HSPCB did not impose environmental compensation amounting to ₹ 46.30 crore (***Appendix 3.2)*** for discharge of partially treated sewage.

The matter was brought to the notice of HSPCB (August, September, November 2025), their reply was awaited as of November 2025.

3.6.3 Inadequate Inspections

In order to streamline the process of inspections of the units/industries, HSPCB issued (February 2016) a policy for inspection of industries/projects to ensure

[30] Capital cost saved by the concerned department by not providing sewerage facilities, along with the associated operation and maintenance cost.

[31] Damage caused due to untreated or partially treated waste/sewage resulting from insufficient capacity of sewage/waste management and treatment facilities.

compliance of the provisions of environment related laws[32]. The policy *inter-alia* included the periodicity of inspections/samples of the projects/industries under various categories[33]. Based on NGT directions (November 2019) to shortens the periodicity of inspections, HSPCB revised/amended (October 2019/February 2020) its inspection policy.

Audit compared the periodicity of inspections carried out by HSPCB with reference to that specified in its Inspection Policy of February 2020 and noticed that the extent of shortfall ranged between 63.27 and 77.75 *per cent* in selected districts, as per details in ***Table 3.5***.

Table 3.5: Number of inspections carried out by HSPCB during 2020-24 in selected districts

Sl. No.	Name of District	Number of inspections to be carried out as per Inspection Policy[34]	Actual number of inspections	Shortfall (in *per cent*)
1	Yamunanagar	5,341	1,962	63.27
2	Sonepat	7,820	1,945	75.13
3	Panipat	4,193	1,206	71.24
4	Gurugram	9,815	2,184	77.75
5	Faridabad	7,629	2,353	69.16
6	Hisar	2,251	727	67.70
7	Ambala	1,687	556	67.04
8	Panchkula	2,738	708	74.14
Total		**41,474**	**11,641**	**71.93**

Thus, there was an overall shortfall of 71.93 *per cent* in inspections carried out by HSPCB during 2020-21 to 2023-24. The shortfall was particularly high in Gurugram and Sonepat districts, where it stood at 77.75 *per cent* and 75.13 *per cent* respectively.

Inadequate number of inspections had an impact on public health and the environment as the instances of unchecked pollution and non-compliances with environmental norms remained undetected for extended periods.

HSPCB stated in the exit meeting (June 2025) that it had shortage of staff but no documentary evidence in support was provided.

3.7 Re-use of Treated Wastewater

The State Government formulated (October 2019) a policy on reuse of treated wastewater to maximize the collection and treatment of sewage and reusing the treated wastewater. For implementation of the above policy, a separate cell,

[32] Water (Prevention and Control of Pollution) Act, 1974, Air (Prevention and Control of Pollution) Act, 1981, Environment (Protection) Act, 1986.

[33] HSPCB categorises industries into Red, Orange, Green, and White categories based on their pollution potential.

[34] Inspection policy of HSPCB (February 2020) norms -Highly polluting category units to be inspected every three months, Red category units every six months, Orange category units every year and Green category units once in two years.

Treated Wastewater (TWW) cell, was established to carry out the day-to-day activities and to coordinate the smooth and timely implementation of the projects.

3.7.1 Non-Achievement of Timelines for reuse of treated waste water

The policy on reuse of treated wastewater laid down the following timeframe for achievement of target for reuse of treated wastewater:

Table 3.6: Timeframe for reuse of treated wastewater

S.N.	Objective	Existing status of development	Timeline for reuse of treated wastewater	Status of reuse of TWW as on Mach 2024
1	To reuse at least 25 *per cent* of treated wastewater	Sewerage system and STP exists	2 years (2021)	18.77 *per cent*
		Sewerage system but STP is not available	3 years (2022)	
		No Sewerage system and no STP	4 years (2023)	
2	To reuse 50 *per cent* of treated wastewater	--	2025	--
3	To reuse 80 *per cent* of treated wastewater	--	2030	--

However, a review of records of TWW cell revealed that against the target to reuse 25 *per cent* treated wastewater by March 2024, only 18.77 *per cent* (281.65 MLD out of 1,500.38 MLD) treated wastewater was being reused in the entire State up to March 2024. This was indicative of slow progress of projects for reuse of treated wastewater.

PHED stated (August 2025) that it was conducting regular review meetings and taking up matter with all the departments for achieving the target of reuse of treated wastewater. However, the fact remains that even the first milestone of reusing at least 25 *per cent* of treated wastewater by October 2023 remained unachieved.

3.7.2 Arbitrary increase of standard pertaining to Biological Oxygen Demand

The National Framework on Safe Reuse of Treated Water, issued (November 2022) by Ministry for Jal Shakti, GoI provided that treated wastewater could be reused in agriculture, aquaculture, forestry and horticulture, however for using it for agriculture and aquaculture purposes, compliance to regulatory water quality standards was required to ensure food safety. In this regard the Indian standard (IS) 17675 (part 2): 2021 prescribed the following standards as regards maximum Biological Oxygen Demand (BOD) for use of treated wastewater for irrigation purposes:

Table 3.7: Statement showing standards for treated wastewater to be used for irrigation

Sr. No.	Type of Treated Wastewater (TWW)	Maximum BOD (Mg/L)	Potential use without barriers
1	Very high quality TWW	10	Unrestricted agriculture irrigation of food crops consumed raw
2	High quality TWW	20	Restricted agriculture irrigation of processed food crops
3	Good quality TWW	35	Agriculture irrigation of non- food crops

High BOD in water used for irrigation could lead to several detrimental effects, including the introduction of pollutants into soil and crops, and potential health risks from contaminated produce.

It was observed that HSPCB's standards for discharge of treated wastewater also prescribed (July 2020) BOD limits of 10 Mg/L, in alignment with Indian Standards. However, in order to save groundwater and other resources of water, by reuse of treated sewage water for irrigation and other non-potable usages, HSPCB relaxed (September 2023) the BOD limit for irrigation purposes (irrespective of food and non-food crops) to 30 Mg/L, in disregard to the guiding principle of National Framework on safe reuse of treated water and IS norms.

It was observed in audit that though relaxing BOD limit for irrigation purposes may help the State Government in achieving the targets set for reuse of treated wastewater (as mentioned in paragraph 3.3.1), however, such relaxation was not in line with guiding principle of National Framework on safe reuse of treated water and IS norms.

Reply of the Department was awaited (November 2025).

Conclusion and Recommendations

3.8 Conclusion

The audit of sewage and sewerage management system in urban areas of Haryana revealed significant gaps between sewage generated and treatment capacity. The selected eight districts generated 1,522.83 MLD domestic sewage, of which only 51.03 *per cent* was treated as per discharge standards before reuse/discharge in water bodies. There was a gap in domestic sewage generated and treatment capacity in Ambala, Yamunanagar, Panchkula and Faridabad. Further, the installed treatment capacity could not be fully utilized in Panipat and Sonepat districts due to connectivity issues. Construction of treatment plants for industrial wastewater in Faridabad was delayed due to lack of commitment from concerned authorities. Despite surplus sewage treatment infrastructure in Panipat and Sonepat, underutilization of existing facilities and non-compliance with discharge standards continue to contribute to environmental degradation. Inadequate planning, lack of coordination between different Government agencies and delays in completing projects further affected the environment protection efforts. The State could not achieve the timeline set for purposeful reuse of treated wastewater. Moreover, environmental compensation of ₹ 214.26 crore remains unrecovered and ₹ 949.27 crore was not imposed by HSPCB for discharge of untreated or partially treated sewage. Thus, facilities created/envisaged for the Citizens were not completely functional in order to realise their desired objectives.

3.9 Recommendation

To achieve effective sewage and sewerage management, the State may formulate the Standard Operating Procedure in co-ordination with the line departments for implementation and timely completion of sewerage infrastructure projects and get clearances in time for land/forest, etc.