

## Chapter 1

### Introduction

The Delhi Jal Board (DJB) was established under the Delhi Jal Board Act, 1998 to discharge the functions of water supply, sewerage and sewage disposal and drainage within the National Capital Territory of Delhi and for matters connected therewith. DJB is primarily responsible for production and distribution of drinking water as well as for collection, treatment, and disposal of domestic sewage.

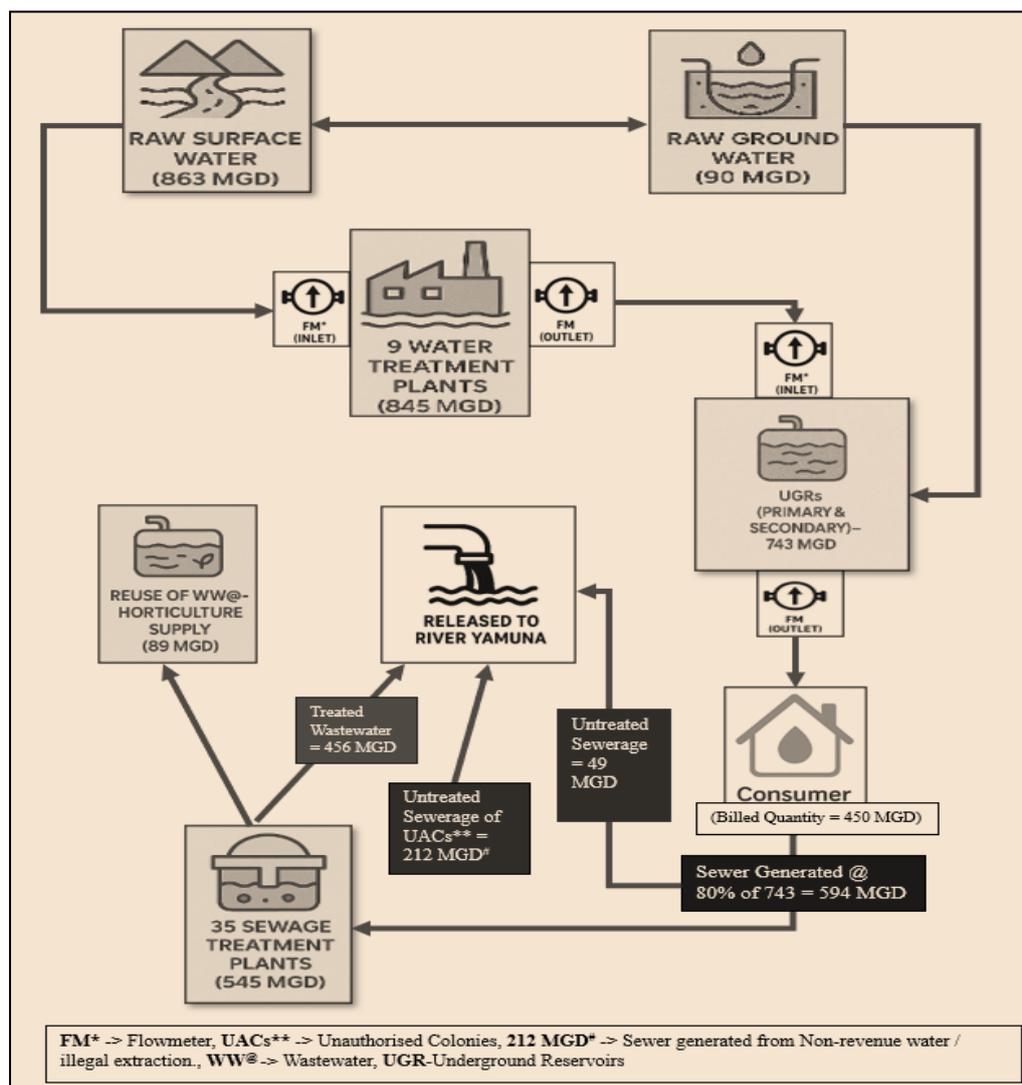
#### 1.1 Functions of Delhi Jal Board (DJB)

Under Section 9 of the Delhi Jal Board Act 1998, the following functions inter alia have been laid down for DJB:

- (i) Treat, supply and distribute water for household consumption or other purposes to those parts of Delhi where there are houses, whether through pipes or by other means;
- (ii) Collect, treat and dispose-off sewage from any part of Delhi and carry out works connected with sewerage, sewage treatment and sewage disposal including the planning, design, construction, operation and maintenance of works relating thereto; and
- (iii) Plan for, regulate and manage the exploitation of ground water in Delhi in consultation with Central Ground Water Authority and also give advice in this regard to the New Delhi Municipal Council, the Delhi Cantonment Board or any other local authority, except with the prior approval of the Central Government.

Various stages involved in treatment of water, its supply to consumers, collection, conveyance and treatment of sewage and disposal of effluent is depicted in **Diagram 1.1**. The data given in the Diagram pertains to the year 2021-22.

Diagram 1.1: Processes in treatment of water, its usage and sewage

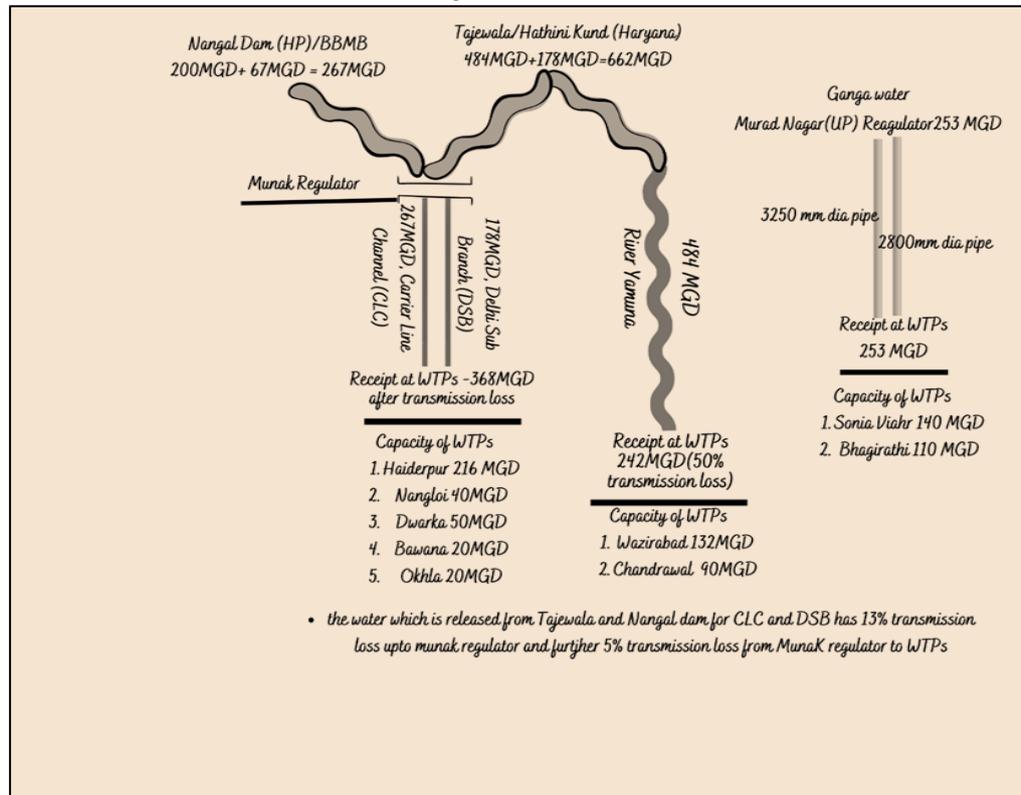


### 1.1.1 Water Supply in Delhi

As per Central Public Health and Environment Engineering Organization (CPHEEO) norms (May, 1999), Delhi requires 1260 MGD (Million Gallons per Day)<sup>1</sup> of water, against which DJB supplies only 935 MGD of treated/potable water, to 93 per cent households in Delhi. DJB sources its raw water from Yamuna River, Bhakhra - Beas storages (610 MGD), Upper Ganga canal (253 MGD) and ground water from Ranney wells and tube wells (90 MGD). The major sources of raw water for Delhi are shown in **Chart 1.1**.

<sup>1</sup> As per Perspective Infrastructure Plan, 2041 of DJB for 21 million population @60 GPCD.

Chart 1.1: Major sources of raw water



During 2021-22, nine Water Treatment Plants (WTPs) of DJB produced 845 MGD of treated water against the installed capacity of 818 MGD. The remaining 90 MGD ground water was supplied untreated. Details of WTPs are depicted in **Chart 1.1**.

Delhi has a network of about 15,383 Km of water supply mains and supplies water to 26.59 lakh active consumers through this network. To meet the water demand from areas yet to be connected with a piped supply or where piped water supply is deficient, 1243 tankers per day on average were used in 2021-22.

### 1.1.2 Sewerage Management System

Delhi Jal Board has a network of branching, peripheral and trunk sewers of about 9200 kms with an estimated sewage generation (2021-22) of 594 MGD<sup>2</sup> (based on piped water supplied). Against this, DJB had an installed capacity to treat 697 MGD at its 35 functional Sewage Treatment Plants (STPs), however only 545 MGD of the installed capacity (78 per cent) was being utilised with the remaining *estimated* sewage generated (eight per cent) flowing into the river Yamuna untreated.

## 1.2 Organisational set up

The Chief Minister, Government of NCTD (GNCTD) is the Chairperson of Delhi Jal Board who is assisted by a Vice Chairperson. Under the Vice

<sup>2</sup> As per the Economic Survey of Delhi 2021-22, total estimated sewage generation was 594.25 MGD @ 80 per cent of water supplied through pipelines (742.81 MGD).

Chairperson, there is the Chief Executive Officer (CEO), Non-official Members and Ex. Official Members. The CEO is assisted by four members viz Member (Administration), Member (Finance), Member (Water Supply), Member (Drainage), and a Chief Vigilance Officer and the Secretary, DJB. Organisational Chart of DJB is given in **Annexure 1.1**.

The DJB is divided into 41 Zonal Offices for revenue management and the water supply and drainage related works are executed by various divisions.

To carry out its functions, DJB had a sanctioned staff strength of 24,093 against which 16,354 officers/officials were in position as on 31 March 2022.

### 1.3 Financials of DJB

The total receipts and revenue of the DJB for the year 2021-22 was ₹ 4772.20 crore. The comparative position of expenditure and revenue of DJB for the financial years 2017-18 and 2021-22 is given in **Table 1.1**.

**Table 1.1: Comparative Position of Expenditure and Revenue**

(₹ in crore)

Sl. No.	Component	2017-18		2021-22	
		Expenditure	%age of total expenditure	Expenditure	%age of total expenditure
<b>Expenditure</b>					
<b>Capital</b>					
1	Water Sector	883.88	21.50	1243.80	21.50
2	Sewerage & Sanitation	645.46	15.70	1441.21	24.91
<b>Revenue</b>					
3	Payments to staff	1669.38	40.60	1888.41	32.63
4	Power	604.18	14.70	694.66	12.00
5	Other expenses	308.51	7.50	518.48	8.96
<b>Total Expenditure</b>		<b>4111.41</b>	<b>100</b>	<b>5786.56</b>	<b>100</b>
<b>Total Receipts</b>					
1	Revenue of DJB	2236.19	55.87	2805.33	58.79
2	GIA and Loan from GNCTD & GoI	1766.37	44.13	1966.77	41.21
<b>Total revenue</b>		<b>4002.56</b>	<b>100</b>	<b>4772.10</b>	<b>100</b>

The gap between annual receipts and expenditure of DJB during the review period has increased by around 10-fold during the period under review. The gap is being filled by earnest money, security deposit withheld and unspent balance of capital funds. Staff salary constitutes the biggest component of DJB's expenditure.

### 1.4 Audit objectives

The main objectives of this Performance Audit were to assess:

1. Whether consistent and reliable water supply to all residents of Delhi was ensured by DJB?

2. Whether the sewerage facilities were available to all localities in Delhi and whether sewage was treated and disposed off efficiently to reduce disposal of untreated sewage into water bodies?
3. Whether the DJB managed its resources in an efficient and effective manner?

### **1.5 Audit criteria**

The functioning of DJB was evaluated against criteria sourced from the following:

- Various Orders/judgements of the Hon'ble Supreme Court of India and National Green Tribunal.
- The Water (Prevention and Control of Pollution) Act, 1974, The Environment (Protection) Act, 1986, CPHEEO Manuals;
- Delhi Water Board Act, 1998 and Delhi Water Board Septage Management Regulations, 2018;
- Delhi Water & Sewer (Tariff and Metering) Regulations, 2012;
- Standards and various reports of the Delhi Pollution Control Committee (DPCC), the Central Pollution Control Board (CPCB) and the Yamuna Pollution Monitoring Committee (YPMC);
- River Rejuvenation Committee's (RRC) Action Plan, Sewerage Master Plan (SMP) for Delhi-2031, Drainage Master Plan for NCT of Delhi (DMP), Action Plan for use of treated wastewater from STPs;
- GFRs-2017, Receipt and Payment Rules, General Accounting Rules, CPWD Manual, General Conditions of Contracts and CVC guidelines.
- Research and study reports of National Institute of Hydrology, Roorkee (NIH) and other reports.

### **1.6 Audit scope and methodology**

The present Performance Audit on the functioning of DJB was conducted from April 2022 to February 2023, covering a period of five years from 2017-18 to 2021-22. Apart from scrutiny of records and analysis of information available at DJB headquarters, field visits/Joint Inspections were also conducted to check functioning of WTPs/STPs, to assess the trapping status of various drains and to verify the physical progress of various sewerage and water projects.

For sample selection of water supply infrastructure, WTPs were divided into three categories based on treatment capacity, having capacity of 150 MGD and above, between 70 and 150 MGD and with less than 70 MGD and one WTP from each category was selected for detailed scrutiny (Haiderpur, Sonia Vihar and Dwarka WTPs). Selected sample covered 50 *per cent* of the treatment capacity of DJB. Further, records of selected E&M divisions, who were responsible for maintenance of Underground Water Reservoirs (UGRs), pipelines, and pumping stations downstream of the selected three WTPs were

scrutinized during audit.

Similarly, for sewerage infrastructure, all the three drainage zones having more than 100 MGD sewage generation (Shahdara, Okhla and Rohini-Rithala), three out of five drainage zones having sewage generation from 50 to 100 MGD (Coronation Pillar, Najafgarh and Kanjhawala- Bawana) and one out of four drainage zones (Outer South Delhi) having sewage generation less than 50 MGD were selected through Judgmental Sampling for detailed scrutiny. The works pertaining to laying and maintenance of the sewerage network in the selected drainage zones and DJB laboratories were also scrutinized.

The Revenue Wing of DJB manages the billing and collection of water/sewer charges through Zonal Revenue Offices (ZROs) under seven Circles. For the Performance Audit, ZROs with the minimum and maximum recovery rate in financial year 2021-22 from each Circle were selected<sup>3</sup>.

An Entry Conference was held in August 2022 with the Chief Executive Officer, DJB to discuss audit methodology, scope, objectives, and criteria. The draft performance audit report was issued to the Government (27 July 2023) to confirm the facts and figures mentioned in the report. Further, an Exit Conference was held with the stakeholders on 7 December 2023 to discuss the audit findings. Replies received from DJB and views expressed in the Exit Conference have been suitably incorporated in the Report. However, reply from the Department/Government was awaited (April 2025).

## **1.7 Structure of the Report**

The findings of the Performance Audit have been arranged in line with the audit objectives and are discussed in the following chapters.

- Chapter 2: Raw water arrangement and treatment
- Chapter 3: Water Supply and Distribution System
- Chapter 4: Sewerage Management
- Chapter 5: Projects/works execution by DJB
- Chapter 6: Financial Management
- Chapter 7: Human Resource Management

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<sup>3</sup> The selected 14 Zonal Revenue Offices (ZROs) are Ashok Vihar, Burari, GTB Enclave, Kakrola More, Lajpat Nagar, MVV R K Puram, NWS Bhera Enclave, Punjabi Bagh, Pratap Nagar, Rohini, Rajendra Nagar, Saket, New Seelam Pur, and Vasant Kunz.