



Department of Environment,
Govt. of NCT of Delhi

Progress in Rejuvenation of River Yamuna

Action Plans & Timelines

January, 2024

Water Quality Monitoring

By DPCC



01 Water Quality Monitoring by DPCC

Compliances with prescribed standards



River Yamuna

At 8 locations



22 Drains

Out falling into
River Yamuna



37 STPs

(Operational)
At 20 locations



13 CETPs

(Operational)

02 Parameters as per Hon'ble National Green Tribunal

Water Quality of River Yamuna

As per the directions of Hon'ble NGT, the three parameters to be considered for determining the water quality of River Yamuna are Dissolved Oxygen (DO), Biochemical Oxygen Demand (BOD), and Faecal Coliform (FC).



Dissolved Oxygen

DO is the amount of oxygen available in dissolved form. Fishes can survive at or above DO of 4mg/l

Standards (≥ 5 mg/l): More DO is good



Biochemical Oxygen Demand

BOD is amount of DO required by aerobic microorganisms to decompose organic material present in a water body.

Standards (≤ 3 mg/l) : Less BOD is good



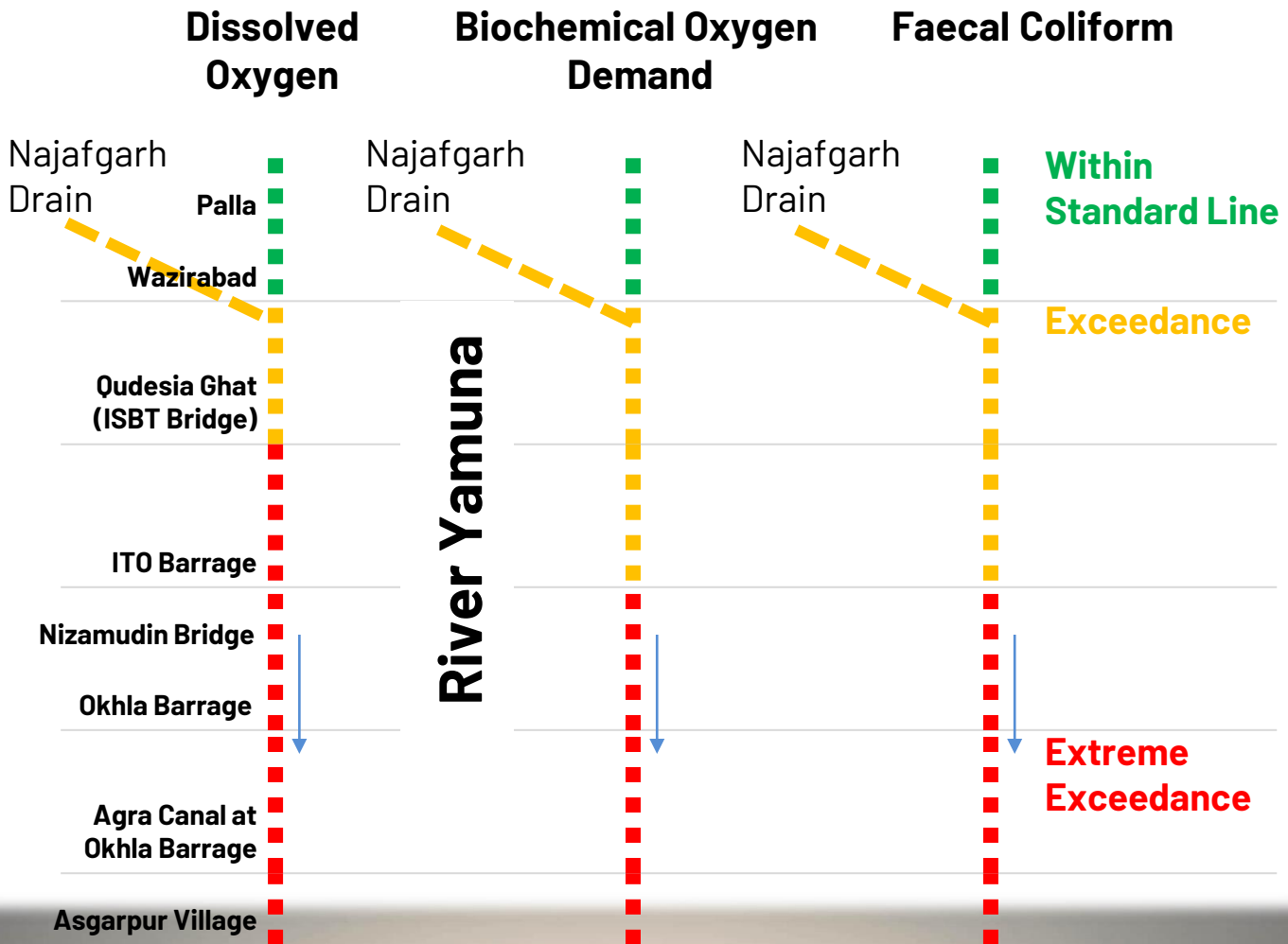
Faecal Coliform

Faecal Coliforms are a group of bacteria present in faeces of humans / homeotherms indicating discharge of untreated sewage in a water body.

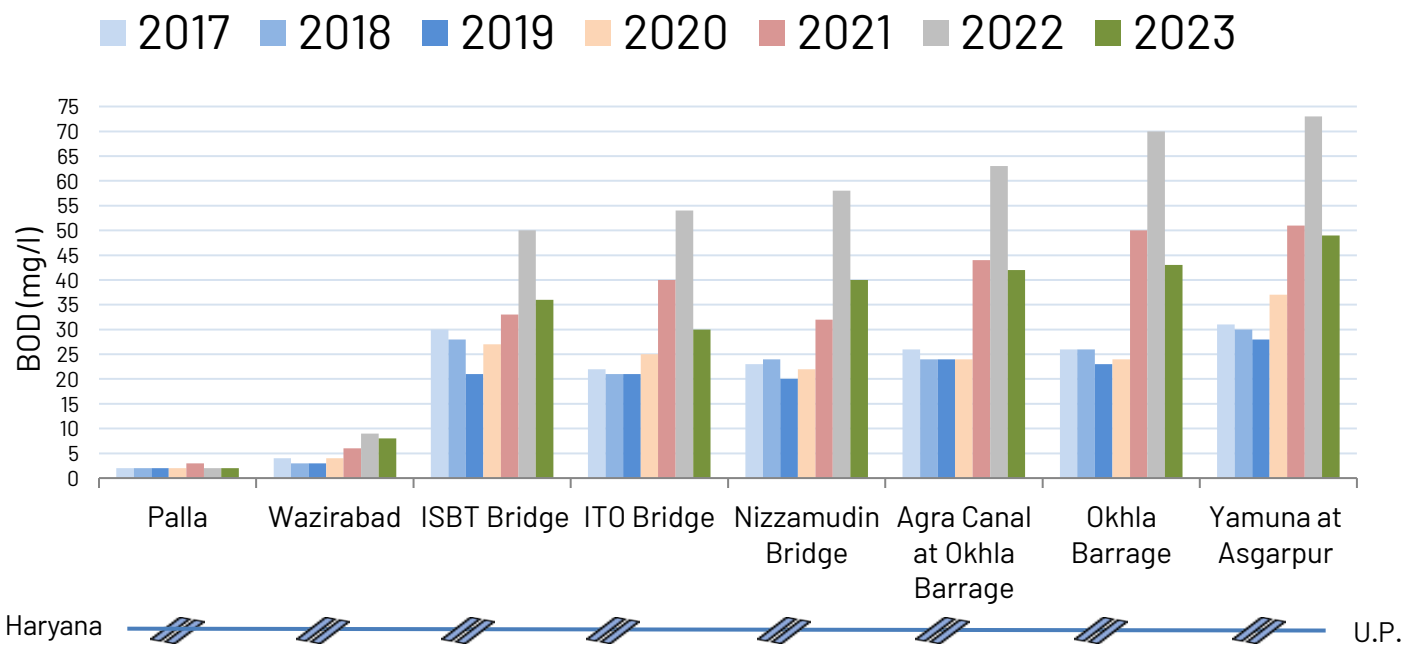
Standards: (≤ 500 MPN/100 ml - Desirable | ≤ 2500 MPN/100 ml - Maximum permissible): Less Faecal Coliform is good

02 Parameters as per Hon'ble National Green Tribunal

Water Quality of River Yamuna

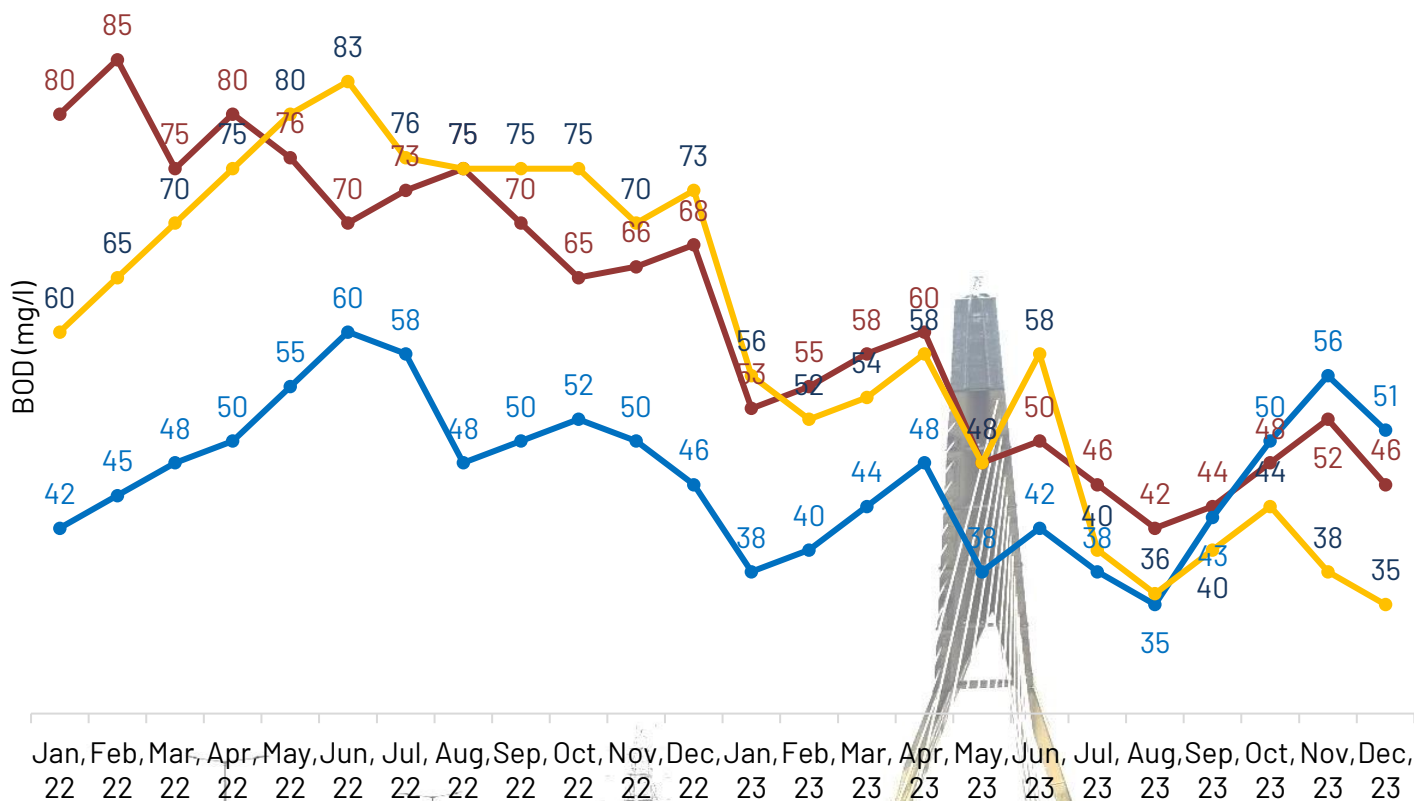


03 Annual Average Water Quality of River Yamuna



03 Annual Average Water Quality of River Yamuna

BOD variation : (January, 2022 to December, 2023)



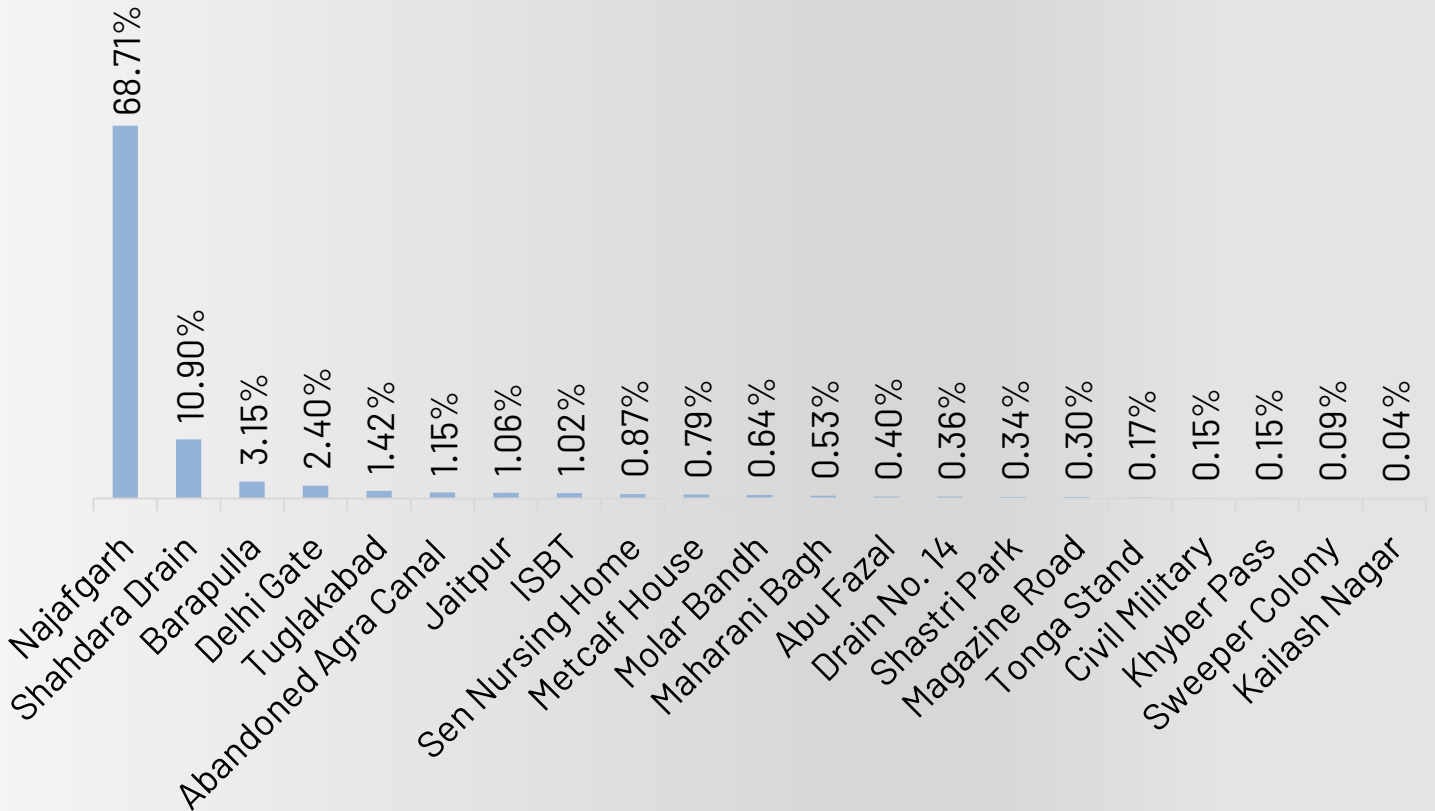
— Najafgarh Drain — ISBT (after meeting Najafgarh Drain) — D/S (After meeting Shahdra Drain)

Water Quality of Drains



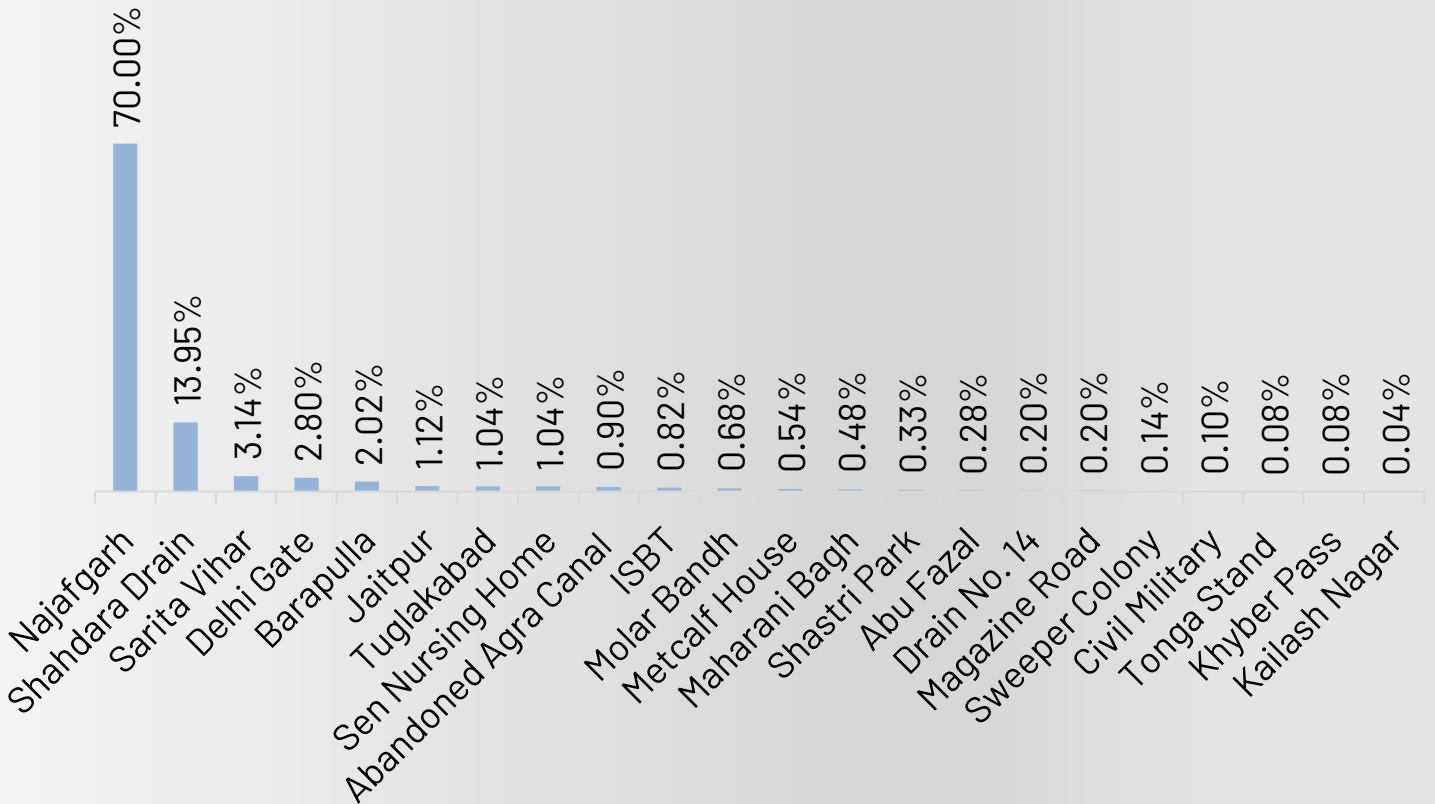
04 Discharge of wastewater from major drains Into River Yamuna at Delhi

Based on DPCC data, 2021.



05 Discharge of BOD load from Major Drains Into River Yamuna at Delhi

Based on DPCC data, 2021.



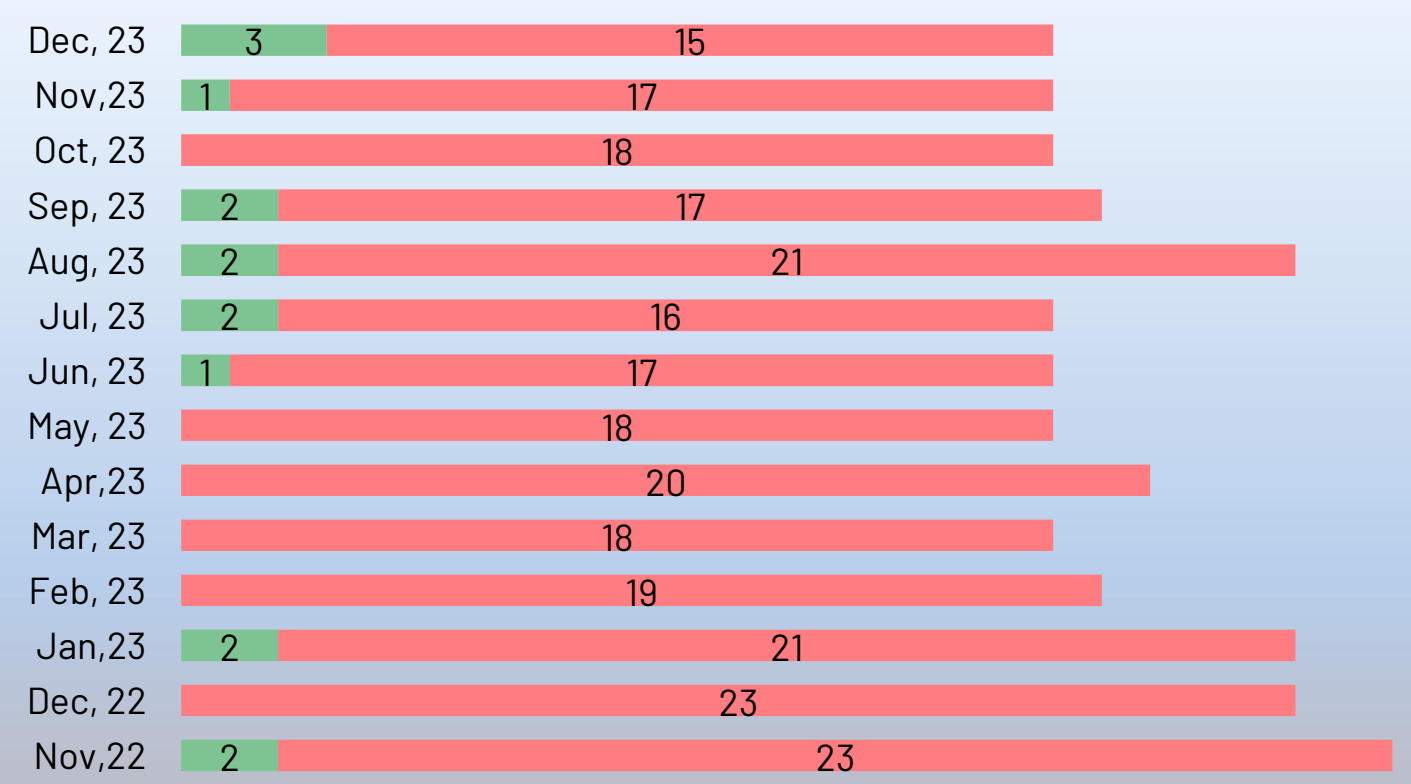
06 28 Drains

Water Quality Monitoring

03 Drains are complying with prescribed standards (w.r.t BOD 30 mg/l)

Whereas there was no flow observed in 10 drains as on December, 2023.

Complying drain : Shastri Park, Drain near Sarita Vihar Bridge, Molarband Drain

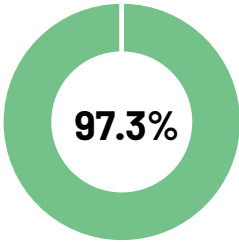


Water Quality of Sewage Treatment Plants

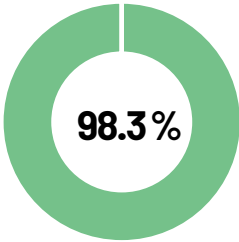


07 37 Sewage Treatment Plants Water Quality Monitoring

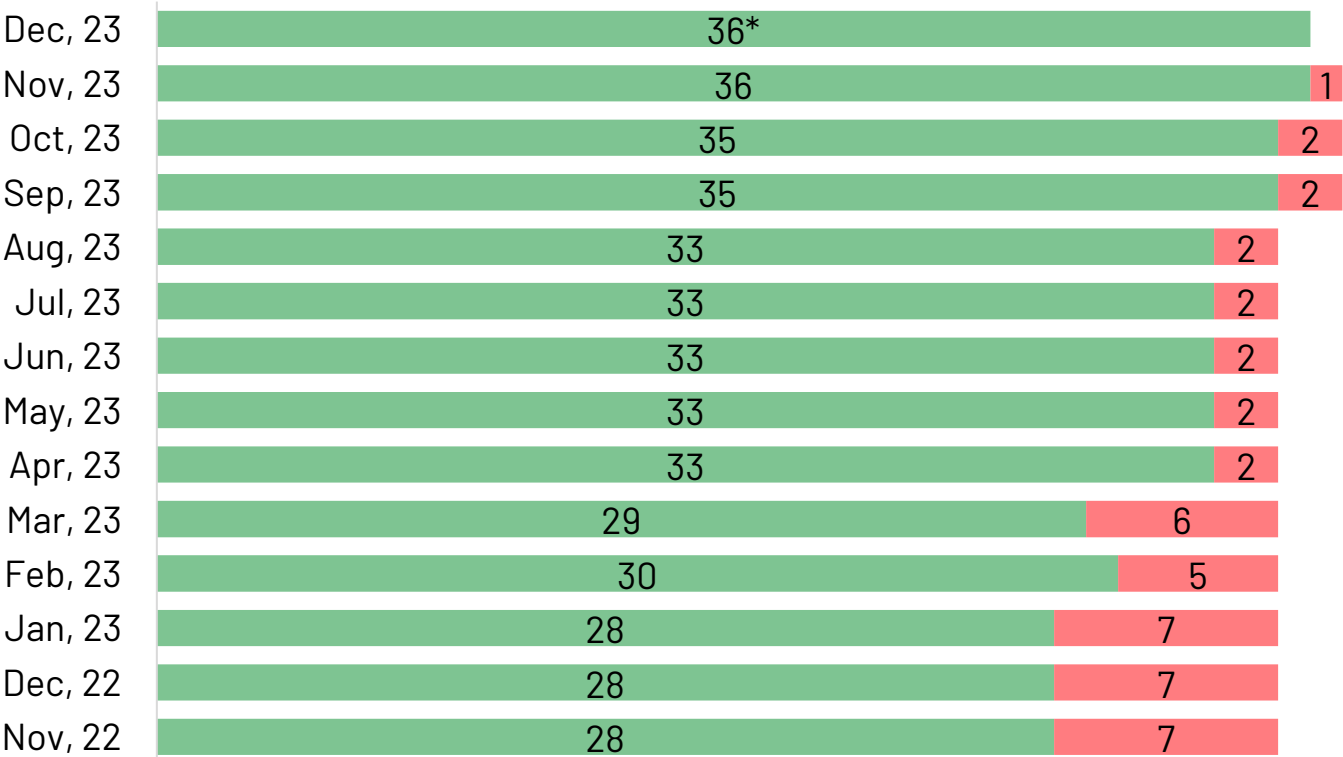
Compliance with design standards – BOD : TSS (30:50 / 20:30 / 15:20 / 10:15)



36/37 STP



555/565 MGD



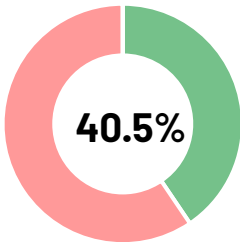
No. of STPs

*No flow observed in one STP

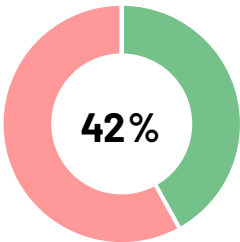
07 37 Sewage Treatment Plants

Water Quality Monitoring

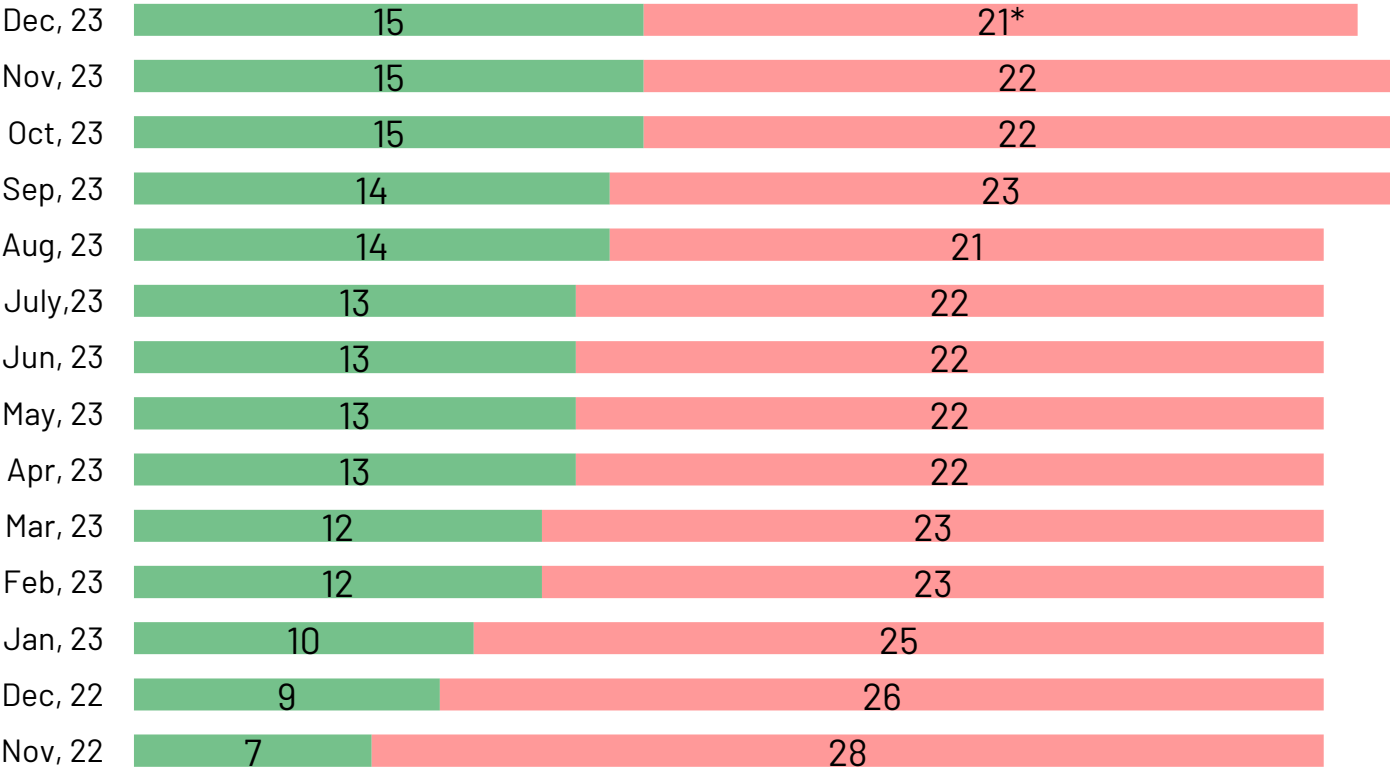
Compliance with prescribed standards BOD:TSS (10:10)



15/37 STP



237.04/565 MGD



No. of STPs

*No flow observed in one STP

Kondli Ph-II STP under Trial Run

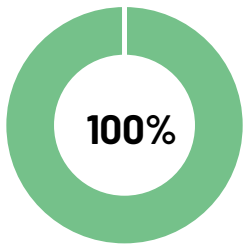
Water Quality of Common Effluent Treatment Plants



08 13 Common Effluent Treatment Plants

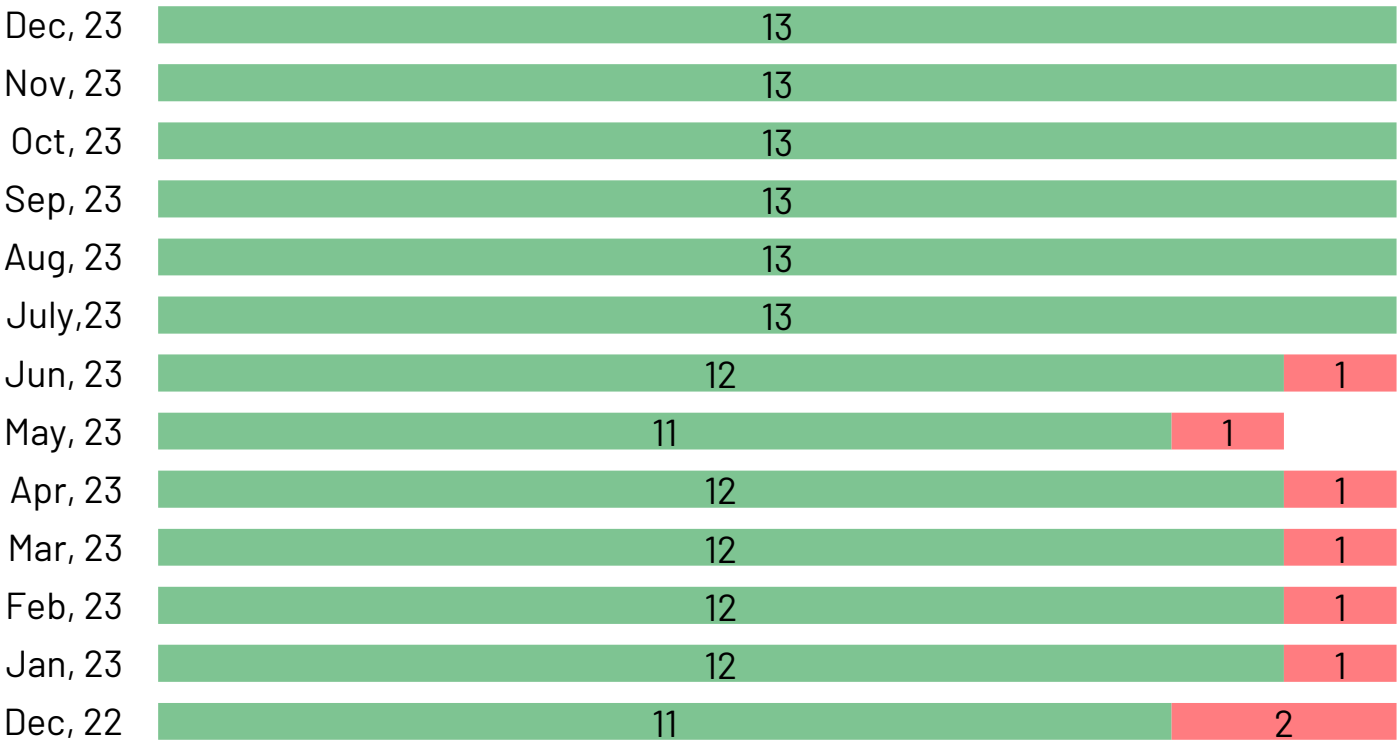
Water Quality Monitoring

CETP: Treatment systems specifically designed for collective treatment of effluent generated from small-scale industrial facilities in an industrial cluster.



Utilization Capacity (Dec, 2023):
64.2 MLD/212.3 MLD (31.2%)

13/13 CETP



No. of CETPs

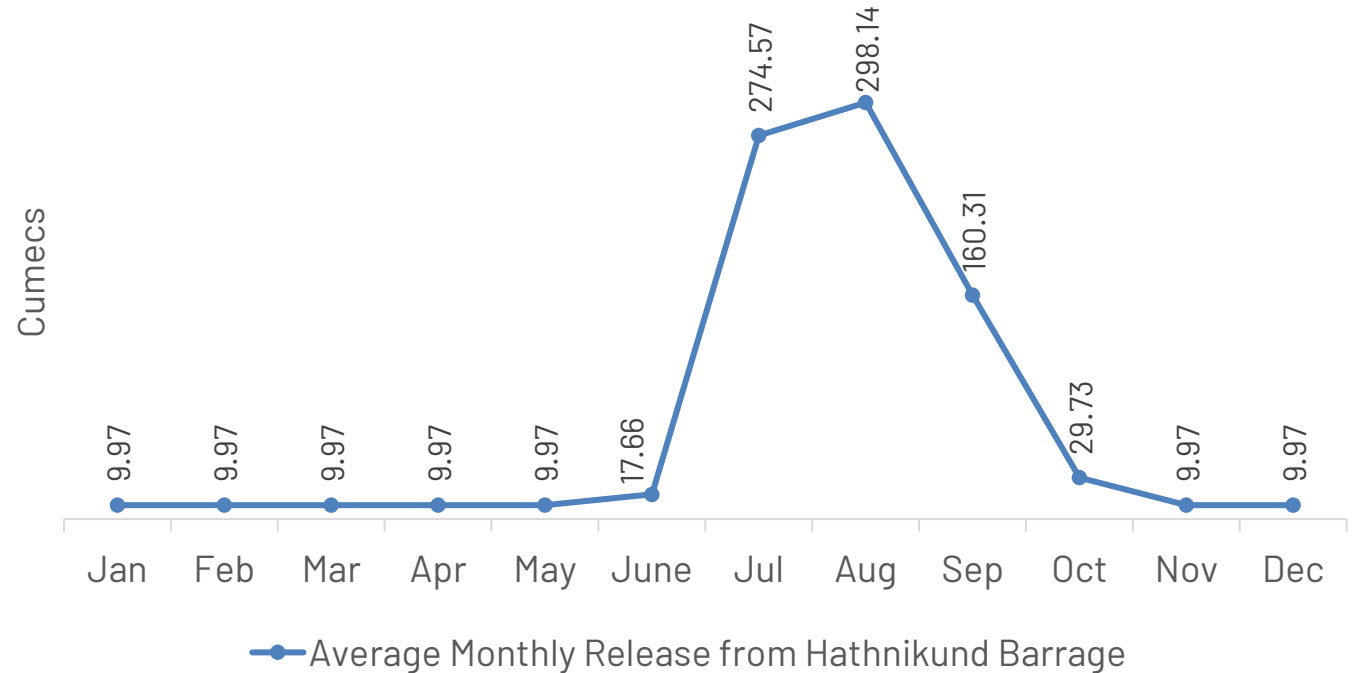
*01 found non operational

Improvement of **Water Quality in Yamuna**



09 Minimum Environmental Flow (e-flow)

E-Flow : Minimum quantity of flow of water that a river must have in order to preserve its ecosystems.



Minimum e-flow for dilution of polluted water in river Yamuna in Delhi is required to meet desired water quality levels in river Yamuna for bathing purpose i.e. $BOD \leq 3 \text{ mg/l}$ & $DO \geq 5 \text{ mg/l}$.

To assess minimum required e-flow of river Yamuna for stretch between Hathini Kund to Okhla, a comprehensive study was assigned by NMCG to National Institute of Hydrology (NIH), Roorkee on 24.12.2018.

09 Minimum Environmental Flow (E-flow)

- As per Final Draft Report submitted by NIH to NMCG. E-flow of 23 Cumecs (437 MGD) in lean season (May) has been recommended in NIH study.
 - Points : Hathnikund to Okhla Barrage
 - Present E flow: Approx. 10 Cumecs (190 MGD)
 - **Gap : Approx. 13 Cumecs (247 MGD)**
- **Possibilities:** Early construction and completion of below mentioned dams/Canals.
 - Renuka Dam project (Gol) - Approx. 13 Cumecs (Expected drinking water share of Delhi)
 - Lakhawar Dam project (Gol)
 - Kishau Dam project (Gol)
- Water sharing agreement of 1994 among riparian states of Uttarakhand, HP, UP, Haryana, Rajasthan and NCT Delhi is due for revision only in 2025.
- **Under E-flow of 23 Cumecs, BOD level would come down from 25 to 12 mg/l (Ideal BOD : 3 mg/l)**
- **For bathing standards of BOD 3 mg/l – E-flow required is more than 390 Cumecs (7410 MGD).**

Hathnikund Barrage

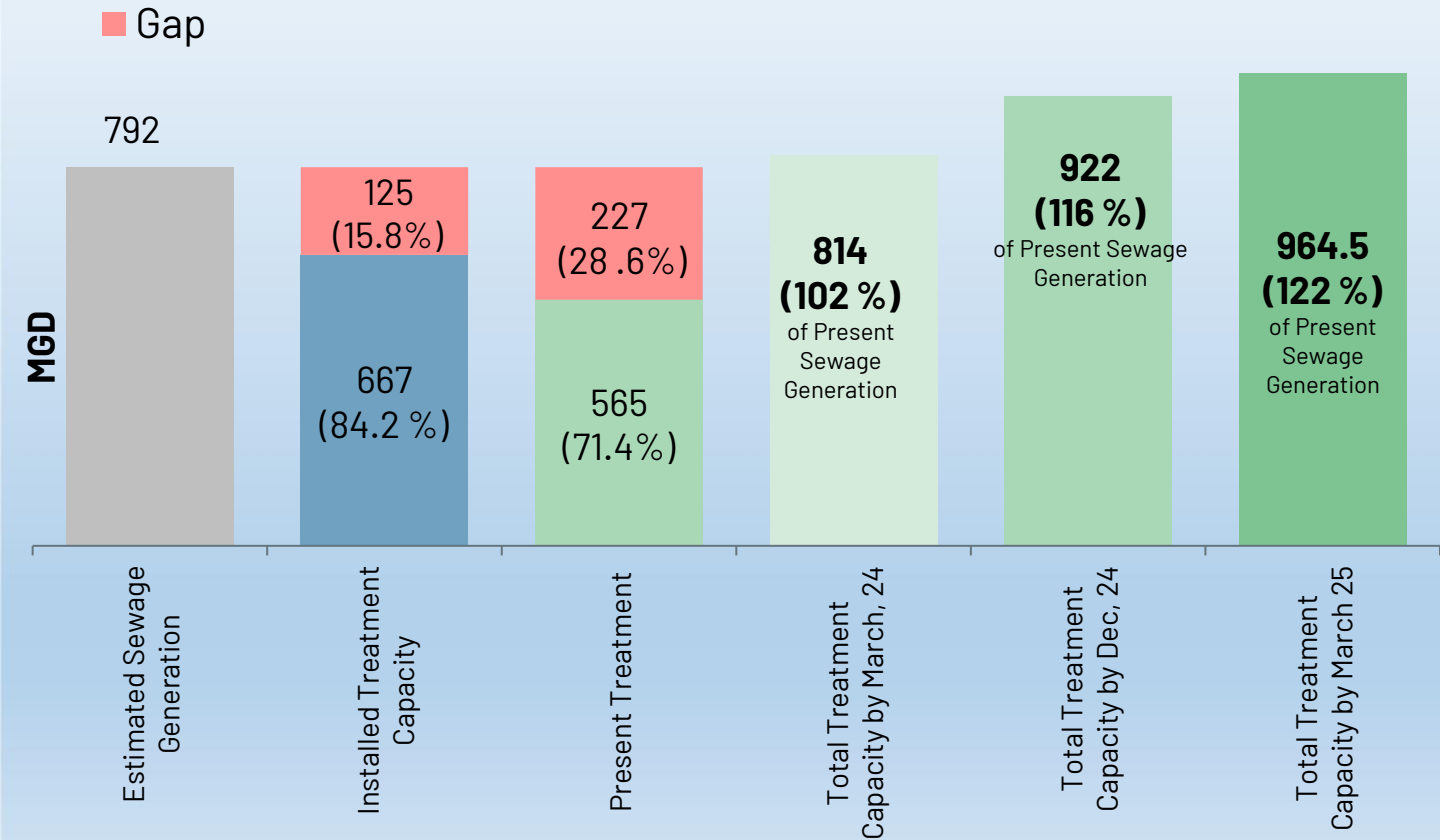
Okhla Barrage



Okhla
Barrage

10 Augmentation & Rehabilitation of Sewage Treatment Plants

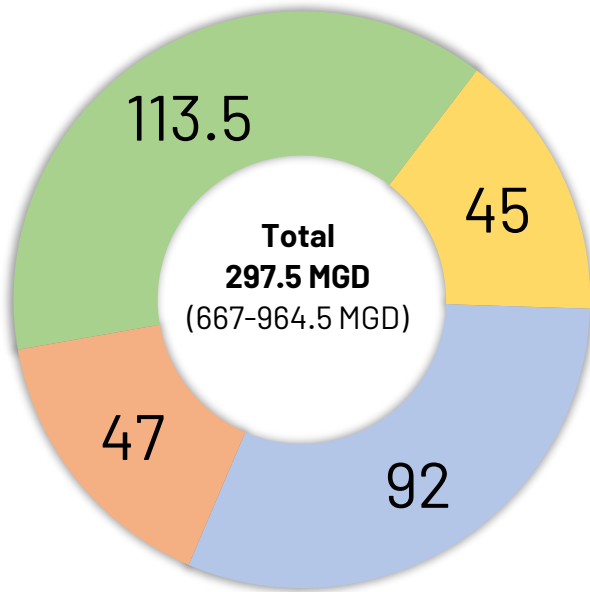
Generation, Treatment and Gap in Sewage Treatment



11

Augmentation & Rehabilitation of Sewage Treatment Plants

Focus Areas for Enhancing Sewage Treatment Capacity



- Upgradation and increasing capacity of existing STPs (18)
- Rehabilitation of existing STPs (3)
- Construction of 40 New DSTPs
- Construction of New STPs at Okhla, Delhi Gate & Sonia Vihar (3)



12

Progress in Construction of 3 new STPs

Capacity Addition: 47 MGD

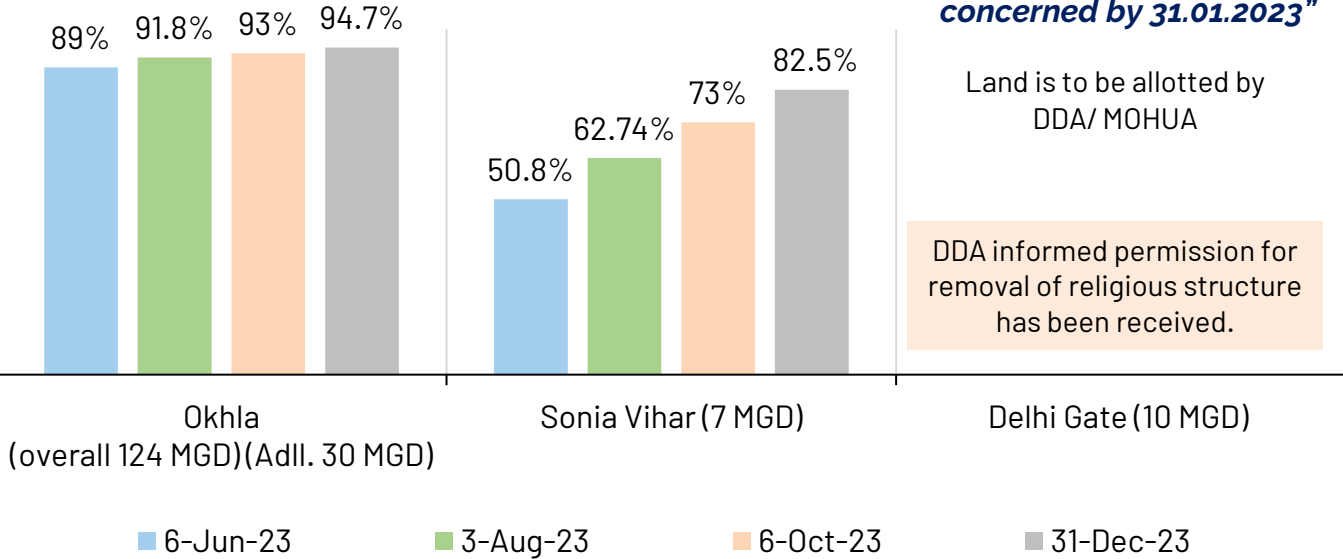
Focus Areas for Enhancing Sewage Treatment Capacity

Timeline : March,24

Timeline : March, 24

"Timeline: 12 months and matter of allotment of land shall be resolved by all concerned by 31.01.2023"

Physical Progress (%)

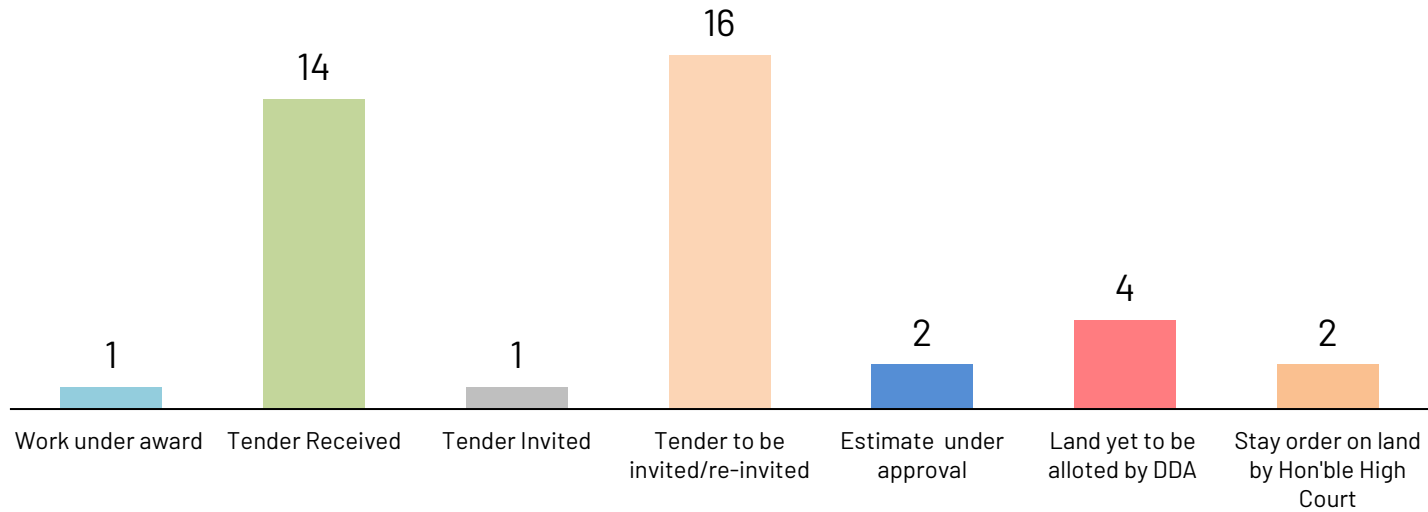


13

Construction of 40 New DSTPs Capacity Addition: 92 MGD

Focus Areas for Enhancing Sewage Treatment Capacity

"Timeline : December, 2024"



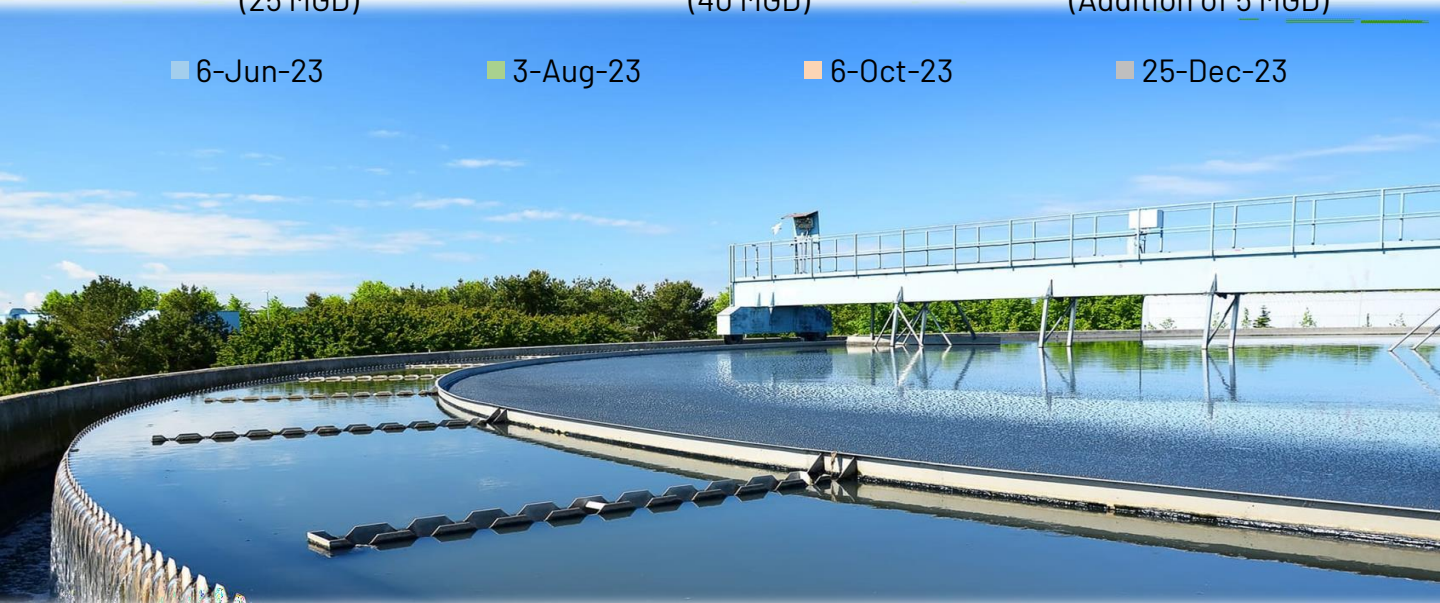
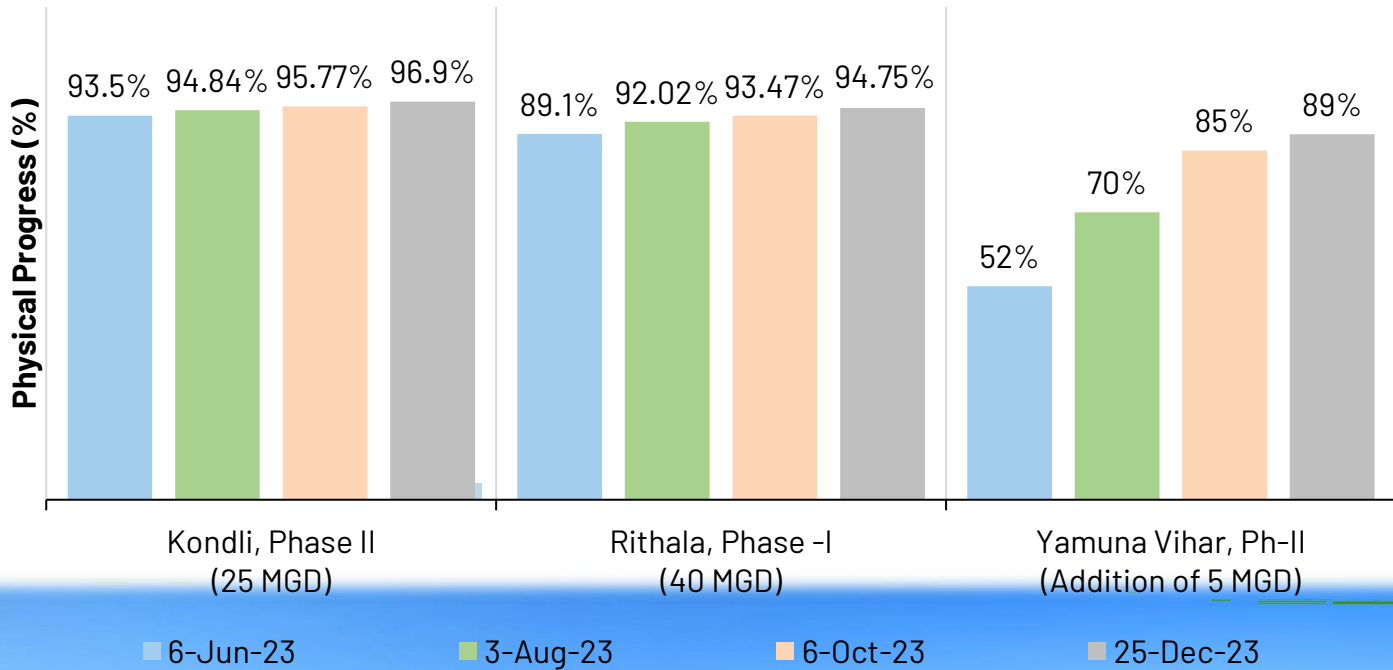
14 Rehabilitation of Existing 3 STPs Capacity Addition: 70 MGD

Focus Areas for Enhancing Sewage Treatment Capacity

Revised Timeline: March, 24

Revised Timeline: March, 24

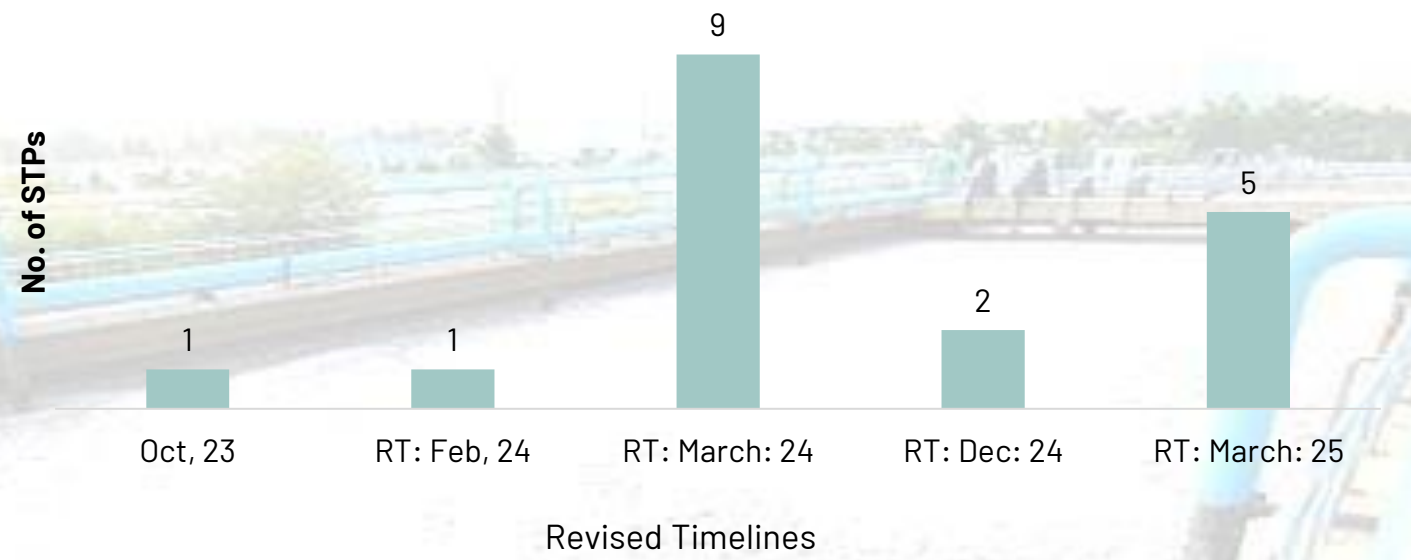
Revised Timeline: March, 24



15

Upgradation of Existing 18 STPs
Capacity Addition: 113.5 MGD

Focus Areas for Enhancing Sewage Treatment Capacity



Sr. No.	Name of STP	Existing Capacity	Enhanced Capacity (In MGD)	Status as on 25th Dec, 23	Timelines
1.	Rithala Phase -II	40	40	100% (Completed)	Completed
2.	Kondli Phase-IV	45	45	78%	Feb, 2024

15 Upgradation of Existing 18 STPs

Capacity Addition: 113.5 MGD

Focus Areas for Enhancing Sewage Treatment Capacity

Sr. No.	Name of STP	Existing Capacity	Enhanced Capacity (In MGD)	Status as on 25th Sept, 23	Status as on 25th Dec, 23	Revised Timelines
3	Pappan Kalan Phase - I	20	30	21 %	33 %	March, 2024
4	Nilothi Phase -II	40	60	21%	33 %	
5	Najafgarh	5	5	27%	45%	
6	Keshopur Phase -II	20	20	27 %	45%	
7	Keshopur Phase-III	40	60	27 %	45%	
8	Rohini Sector 25	15	25	25 %	39.5%	
9	Narela	10	15	25 %	39.5%	
10	Coronation Pillar Phase -I & II	20	20	25 %	39.5%	
11	Coronation Pillar Phase-III	10	10	25 %	39.5%	
12	Okhla Phase- V	16	16		Case has been put on hold due to scarcity of funds	Dec, 2024
13	Mehrauli	5	7.5			
14	Ghitorni	5	7.5			
15	Vasant Kunj	5	7.5			
						March, 2025

15

Upgradation of Existing 18 STPs
Capacity Addition: 113.5 MGD

Focus Areas for Enhancing Sewage Treatment Capacity

Sr. No.	Name of STP	Existing Capacity	Enhanced Capacity (In MGD)	Status as on 6th Oct, 23	Status as on 25th Dec, 23	Timelines
16	Yamuna Vihar Phase – I	10	15	4th consecutive call of tender has been done, in recent competent authority has been decided to discharge previous tender and re-invoke it with open technology. Tender will be invited next week.		March, 2025
17.	Keshopur Phase- I	12	18	File sent to competent authority for approval work at earliest	-	Dec, 2024
18.	Yamuna Vihar Phase – III	25	55	File has been sent to competent authority for administrative approval of Estimate.	File has been sent to competent authority for approval of Estimate.	March, 2025



16 Desilting Trunk/Peripheral Sewer : Approx 200 Km

66.428 Km Desilted

S. No.	Particulars	Total length (Km)	Cumulative Length Desilted as on 25.09.23 (Km)	Cumulative Length Desilted as on 25.12.23 (Km)	Timelines
1.	Desilting of 90.93 Km	94.93	60.516 (66.98%)	66.428 (70.4%)	
a	Yamuna Vihar STP	7.65	6.5	7.5	Completed
b	Rithala-Rohini STP	19.21	19.21	17.05	
c	Narela STP & Coronation Pillar	8.05	8.026	8.026	
d	Keshopur STP	2.84	2.84	2.84	
e	Nilothi STP	4.61	1.34	1.34	June, 24
f	Kondli STP in east zone	8.76	1.90	3.472	Feb, 24
g	Dwarka STP	27.10	6.0	11.5	March, 24
h	Okhla STP	11.51	9.5	9.5	Jan, 24
i	Desilting of gravity duct no. 1	5.20	5.2	5.2	Completed
	Total	94.93	60.516 (66.98%)	66.428 (70.4%)	
2.	Desilting of remaining 110 Km	110	Estimates are under approval		"Dec, 24"

Desilting of sewer line below 1000 mm Dia (Approx 442.63Km)

S. No	Particulars	Total length (Km)	Cumulative Length Desilted as on 06.10.2023 (Km)	Cumulative Length Desilted (Km)	Timelines
3.	Desilting of Sewer lines (below 1000 mm Dia)	Earlier: 442.63 Now: 529.5	111.54 (25.2%)	162.25 (36.66%)	-

17 Tapping of Drains

22 Major Drains

09 drains tapped out of 22 major drains & No flow observed in 1 drain

S.No	Drain	Status
1	Metcalf House Drain	Tapped
2	Khyber Pass Drain	
3	Sweeper Colony Drain	
4	Magazine Road Drain	
5	Tonga Stand Drain	
6	Moat Drain (Vijay Ghat)	
7	Drain No. 14	
8	Tehkhand Drain	
9	Civil Mill Drain	
10	Abul Fazal Drain	No Flow Observed

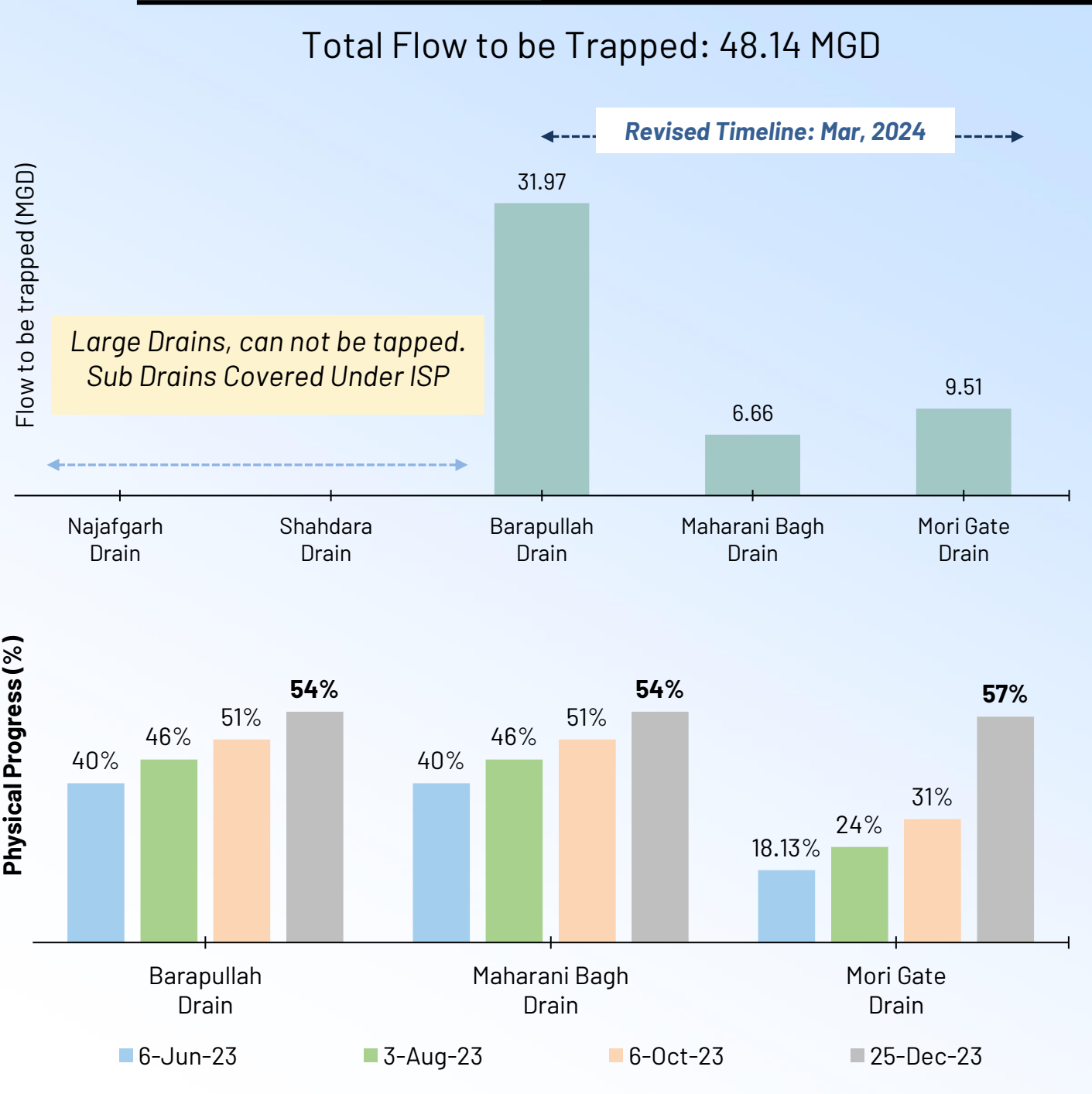
S.No	Drain	Status
11	Sen Nursing Home Drain	Partially Tapped
12	Delhi Gate Drain / Power House Drain	
13	Najafgarh Drain	Work in Progress
14	Barapulla Drain	
15	Maharani Bagh Drain	
16	ISBT Drain (Qudsia Bagh/ Mori Gate Drain)	
17	Sonia Vihar Drain (On Eastern Bank of Yamuna)	
18	Shahdara Drain	

S.No	Drain	Status
19	Kailash Nagar Drain (On Eastern Bank of Yamuna)	To be tapped
20	Shastri Park Drain (On Eastern Bank of Yamuna)	
21	Jaitpur Drain	
22	Tuglakabad Drain (Kalka Ji Drain merged in this drain)	



17 Tapping of all Drains

Remaining 3 untapped major drains



18

Tapping of all Drains 76 un-trapped sub drains

Sr. No.	Name of major Drain	Total No. of un-trapped drains	Number of sub drains	Timeline	Present Status		
1.	Najafgarh Drain	44	18	May, 23	Trapped		
			04	Jun, 23 RT: Dec, 23	03- Trapped	01- 99 %	
			22	Oct, 23 RT: Dec, 23	17 3- Under Progress 14- linked with DSTPs(Dec, 23)	2-Action to be taken by DDA	3- DSTPs land sub-judice
2	Shahdara Outfall Drain	02	02	"Jun, 23" RT: Dec, 23	73.4 %		
3	Supplementary Drain	30	14	Apr, 23	Trapped		
			1	May, 23	Trapped		
			14	Jun, 23 RT: Apr 24	13-Trapped	1-DSTP Estimate prepared	
			01	Sep, 23	Trapped		

19 In-situ Bioremediation/Phytoremediation of Sewage in Drains

Bioremediation broadly refers to any process wherein a biological system, living or dead, is employed for removing environmental pollutants.

Phytoremediation technologies use living plants to clean up soil, air, and water contaminated with hazardous contaminants.

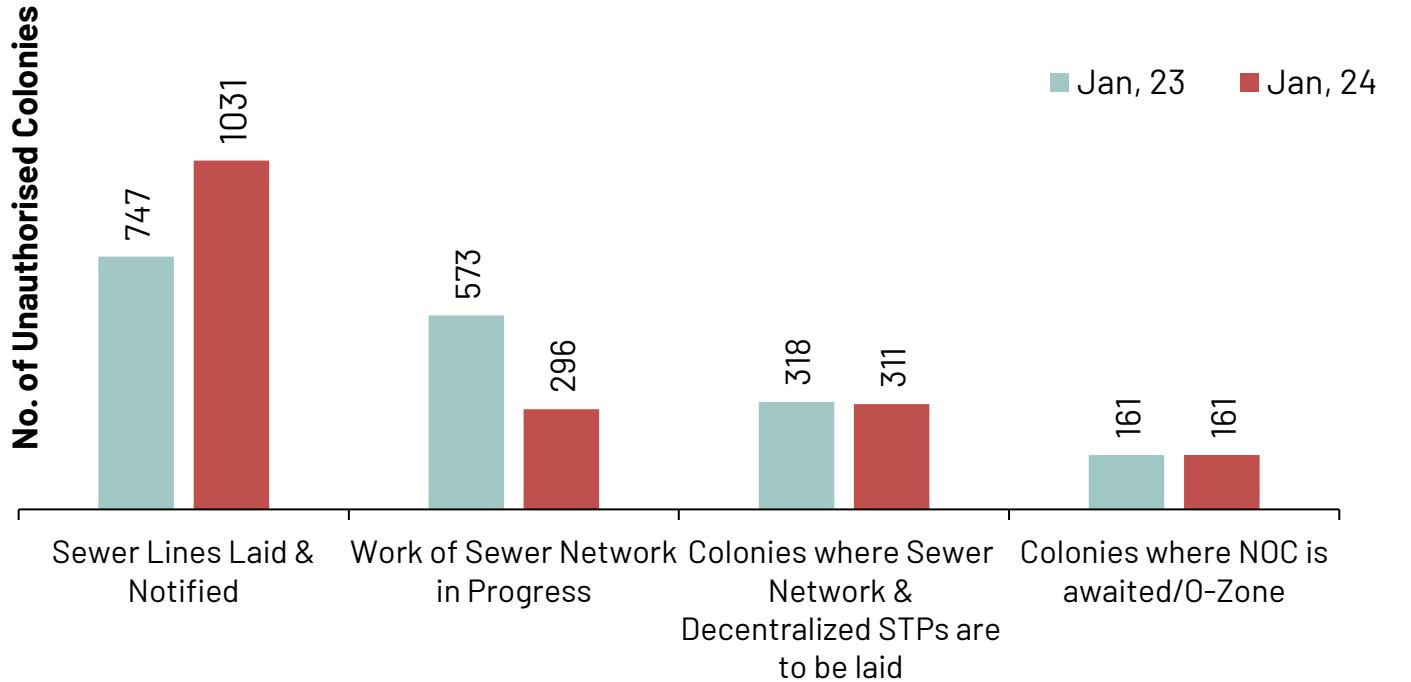
As per the NGT orders bioremediation/phytoremediation of sewage in drains is to be carried out.

Status of Drain Owning Agencies(DOAs)provided by DJB is as follows

S. No	Drain Owning Agencies	Measures Taken / Projects	Timeline
1	MCD	- Constructed Wetland / Treatment System of 3 MLD designed by NEERI at Jheel Park for treatment of incoming drains. The treatment system is functional. - Pushp Vihar Drain (1.9 Km stretch of Chirag Delhi Drain) as pilot project. - Pilot project for Phyto / Bio-Remediation of Qudesia Nallah in 350 m length. About 20 % work completed. New proposal is under consideration similar to work carried out in Pushp Vihar Drain.	Functional Work completed Dec, 2023
2	NDMC	Waste water in portion of Kushak Nallah falling under NDMC area is under Bio-remediation.	Functional
3	DCB	In-situ treatment in 6 Drains through chemical dosing since discharge is less (in the range of 1.5 MLD).	Functional
4	DDA	- Kalindi Biodiversity Park is being developed in 200 Hectares area in 6 kilometer length & 1-3 kilometer wide. 11 Constructed Wet Lands are being developed to treat sewage. 2 Wetlands-one at Kilokari drain (10-12 MLD) and another at Dhobighat drain (12-15 MLD) have been constructed & are functional. - The third Constructed Wet Land on Maharani Bagh drain is nearly completed. 8 Constructed Wet Lands are not functional due to construction of high speed road of NHAI from Sarai kale Khan to Faridabad. These require redevelopment.	3 out of 11 Constructed Wet Lands are Functional
5	PWD	- Bio-remediation Plant of 2.5 MLD capacity has been installed at Chattarpur. - Work of installation of Bio-remediation Plant of 0.75 MLD capacity between main gate of Chattarsal Stadium and Azadpur Metro Station is under progress. - Bio-remediation of remaining drains of PWD are not feasible due to space constraint and smaller size of drains.	Completed Dec, 2023
6	I&FCD	As per the feasibility report of the consultants, Phyto / Bio remediation is not feasible in the two major drains (Najafgarh drain and Shahdara drain) under I&FC Dept. due to heavy discharge , land constraint etc.	
7	DSIIDC	Bioremediation/Phytoremediation is not possible for drains since smaller in size.	

20 Sewerage Network in Unauthorised Colonies (1799)

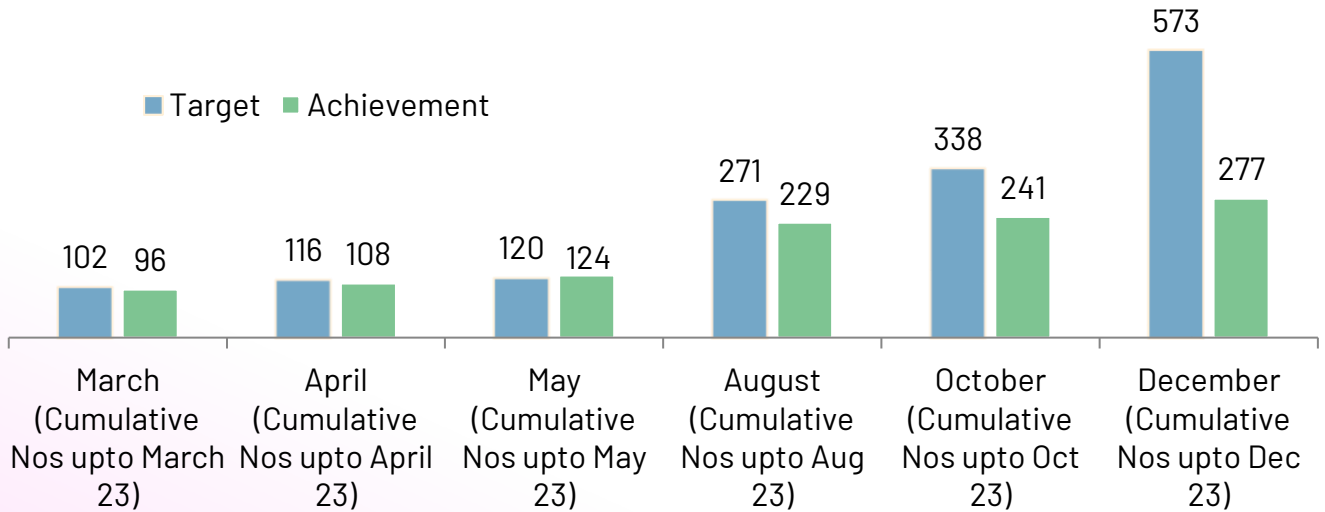
S. No	Description	Cumulative Status (No.)	Timelines / Remarks
1	Sewer line laid /commissioned	1031	Laid and commissioned
2	Work of sewer network is in Progress	296	November, 2024
3	Colonies where NOC is awaited / O Zone	161	The work shall be taken up after NOC from Forest Deptt./DDA.
4	Colonies where sewerage network is to be laid along with Decentralized STPs	311	The work shall be taken up after allotment & possession of land for DSTPs by DDA /Revenue Deptt.
	Total	1799	



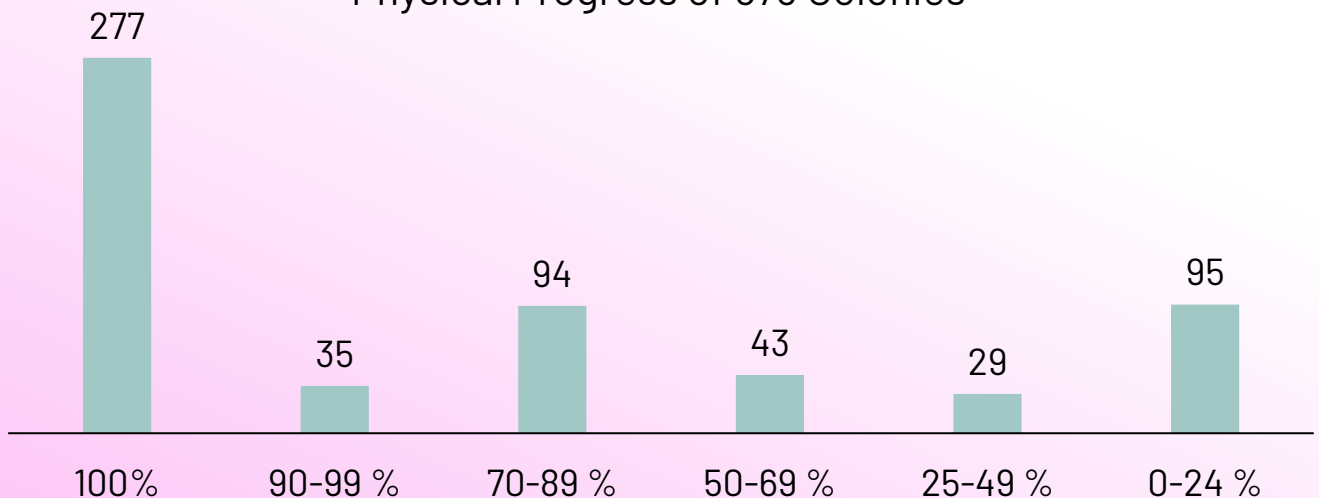
20 Sewerage Network in Unauthorised Colonies (1799)

573 Colonies where laying Sewer Network in progress

"Timeline: December, 24"

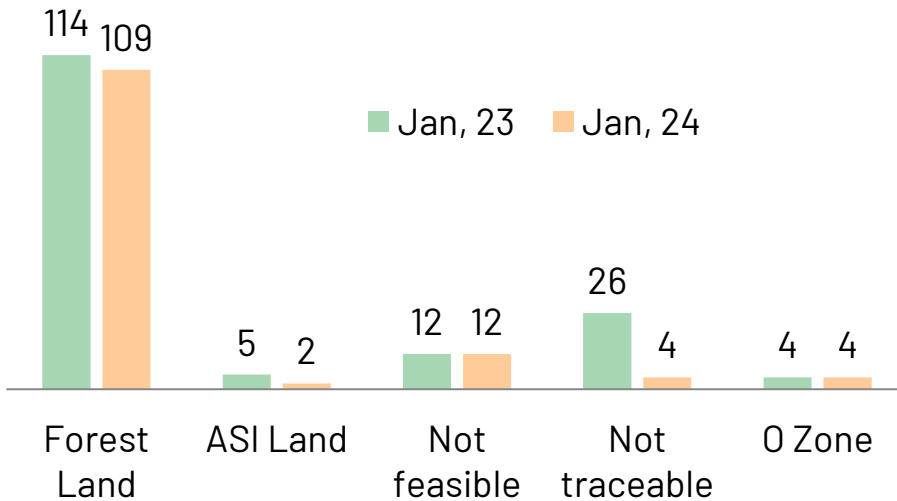
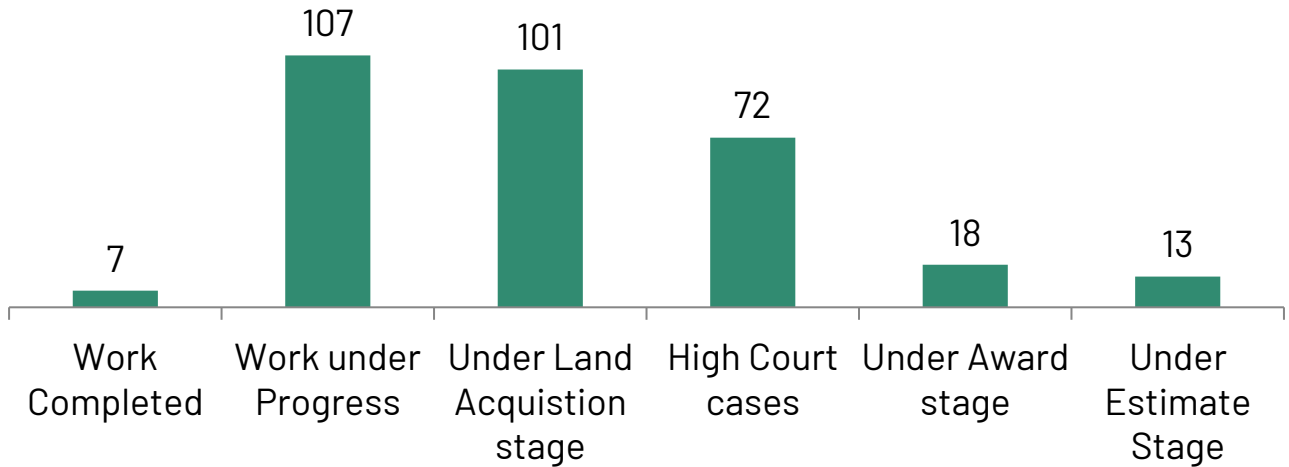


Physical Progress of 573 Colonies



20 Sewerage Network in Unauthorised Colonies (1799)

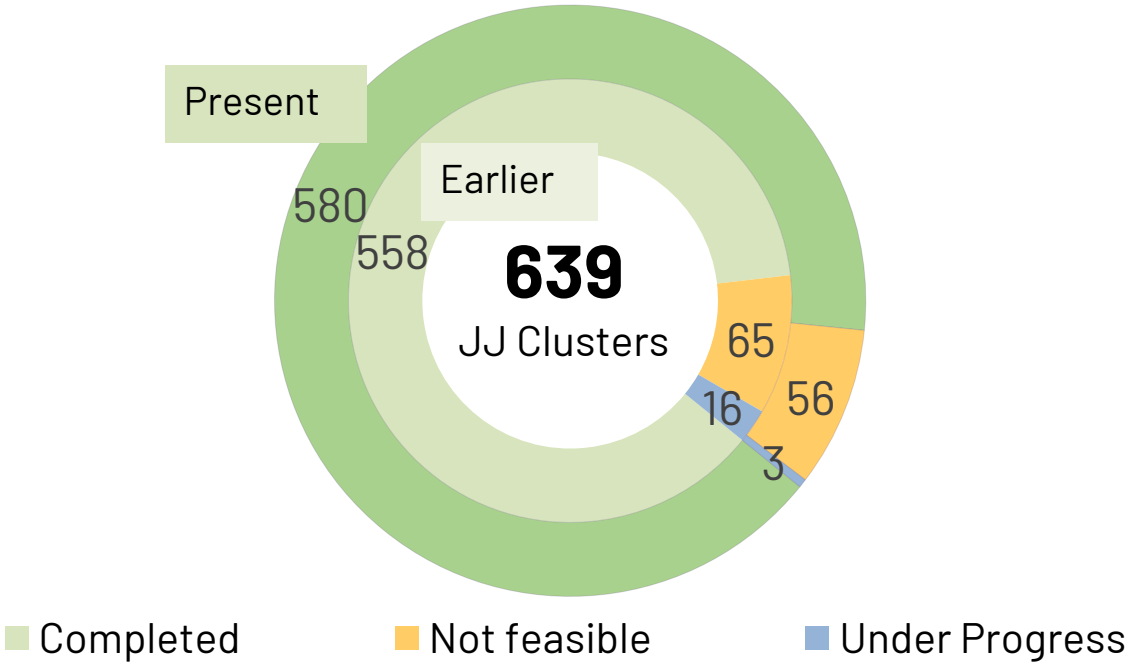
318 Colonies where sewerage network is to be laid along with Decentralized STPs



"Timeline for 161 Colonies where NOC is awaited / O Zone : 12 months after receipt of NOC but not later than June, 2024"

21 Connection of Drains/ Drainage system of JJ Clusters (639 Nos) with sewerage network

Connection of storm water drain at outfall points/ points of JJC's into nearest DJB sewerage system. **Timeline:** June, 2024



22 Management of Faecal Sludge (Septage)

- **Delhi Water Board Septage Management Regulations 2018 dated 12.11.2018** for collection, transportation and disposal of waste of septic tanks (Septage).
- Necessary action to be taken by DJB , District Magistrates & Local Bodies
- DM - authorized to ensure enforcement as well as compliance of these regulations. License issued by DJB to vendors for Collection, Transportation & Disposal at designated SPSs/STPs
- Septage Management Committees headed by concerned District Magistrates
- Divisional Commissioner taking review meetings with DMs on weekly basis

17.19 Total Amount of Environmental
Lakhs Compensation Imposed & 17.19 Lakhs received

136

Total No. of Meetings of Septage Management Committees held

64

No. of Vehicles/ Tankers found unauthorizedly discharging septage into Drains etc.

63

No. of Vehicles/ Tankers impounded

57

No. of Challans/notices issued

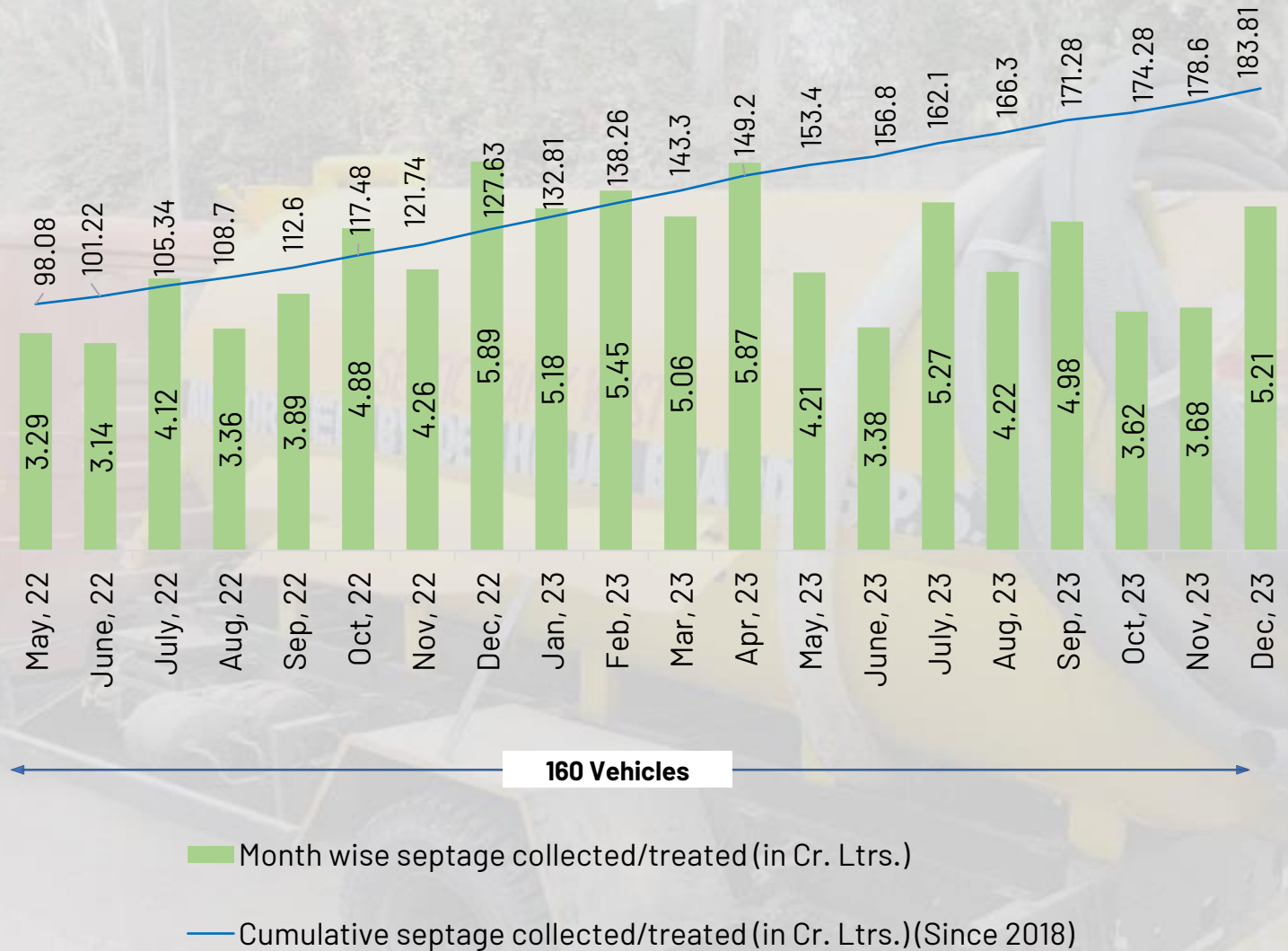
DPCC: Direction issued u/s 33(A) of Water Act on 27.03.2023

- Penalty for deposit of septage by unauthorized (unlicensed) entity: 50,000/-
- Penalty for disposal of Septage at places other than designated places: 50,000/-
- Penalty on person who uses services of unlicensed vendor/vehicles: 10,000/-

Competent Authority : DM, Delhi Police, MCD, IFCD and DJB

22 Management of Faecal Sludge (Septage)

Faecal Sludge (Septage) Collection & Treatment



183.81 Ltrs septage collected/treated till Dec, 23

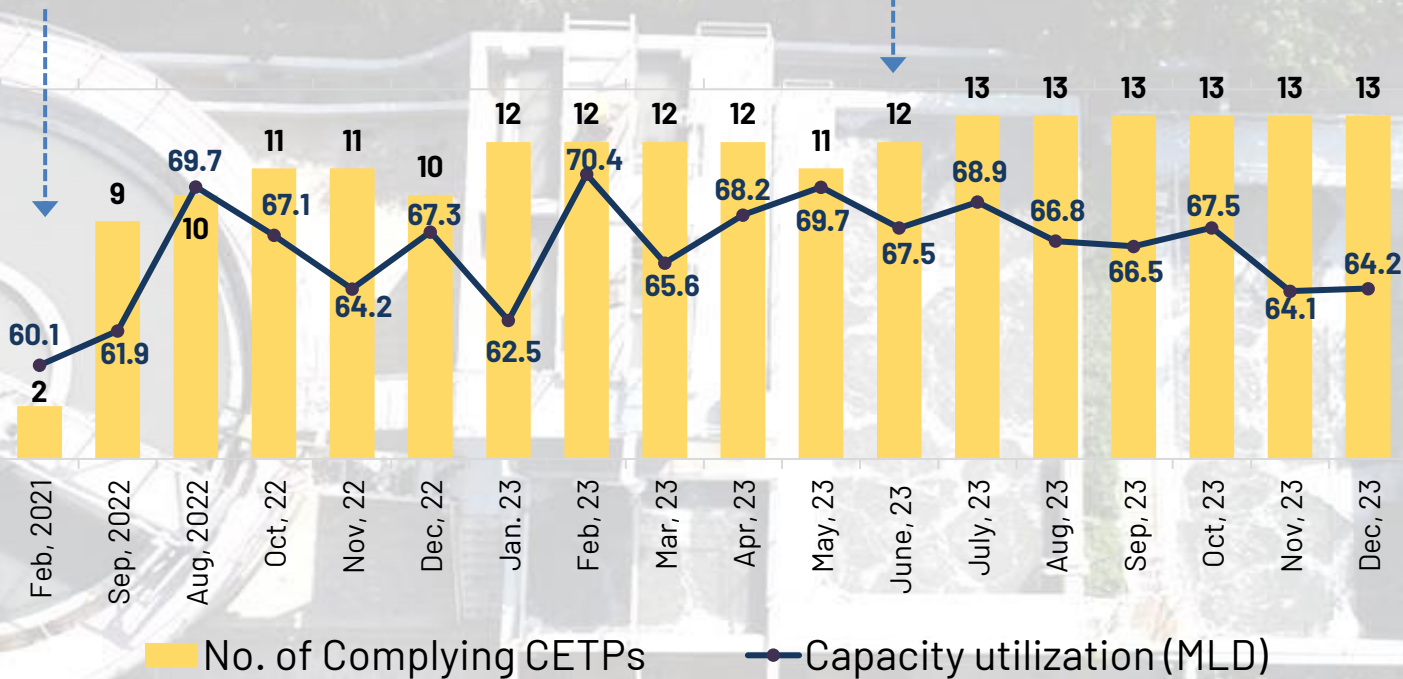
23 Industrial Effluent Management by Common Effluent Treatment Plants (13)

CETPs designed to meet prescribed standards under EP Act (Installed Capacity of all the 13 CETPs: 212.3 MLD).

DPCC monitors CETPs on monthly basis.

EC (12.05 Cr.) imposed on 12 CETP in July, 2021 for not meeting standards (Feb, 2019 to Feb, 2021)

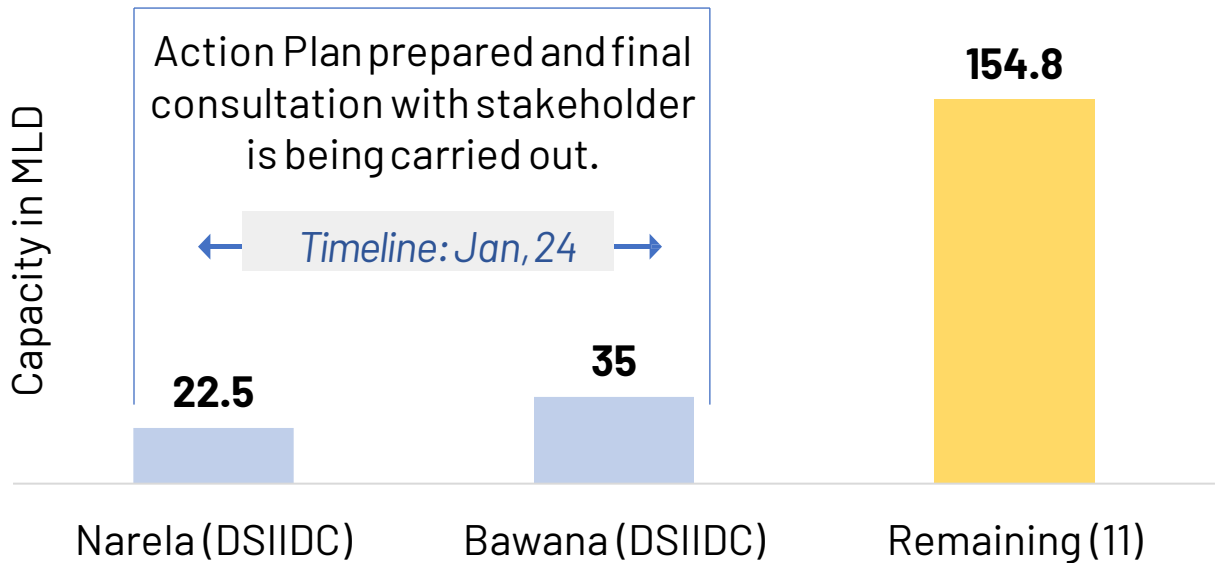
Jan, 2023: EC of Rs 6.05 Crores imposed on all 13 CETPs (Mar, 21-Dec, 22)



Action taken against Dyeing units in non-conforming areas of Delhi by Joint Team consisting of MCD, DPCC, Revenue Dept., Power Companies, DJB (28.04.2023 to 07.01.2024)

- ✓ Total No. Dyeing industries found during inspection : 305
- ✓ Close down/Sealed/ Disconnection of electricity : 134

24 Upgradation of Common Effluent Treatment Plants (13)



- Narela and Bawana CETPs will be upgraded by DSIIDC by December, 2023.
- Govt. of NCT of Delhi vide notification dated 01.01.2024 has given powers in respect of 11 CETPs presently being operated and maintained by CETPs Societies to DJB

25 Regulation of Flood plain Delhi Development Authority



Enforcement

661.22 Ha Area retrieved from encroachment

54,960 MT of C&D waste lifted & utilized



Protection Measures

125 Security Guards
93 CCTV cameras at 27 location



Demarcation

1 in 25 years Flood Plain
Fencing with 591 bollards
375 Flag Posts
27 Sign Boards



Restoration projects

Landscaping
Wetland construction
Public Utilities-pedestrian Pathways, Cycling Tracks, Bio-toilets,
Entrance Plaza, Signages

25 Restoration & Rejuvenation of Flood Plains

Status of 10 Projects



Completed Projects

- ✓ Asita East (Part A: 90 Ha)
- ✓ Asita West (Part A: 93 Ha)
- ✓ Kalindi Aviral (Part A: 100 Ha)



Projects in Advance Stage

- Asita East (Part B: 107 Ha)
- Asita West (Part A: 107 Ha)
- Kalindi Aviral (Part B: 163 Ha)
- Kalindi Biodiversity Park: 16 Ha
- Yamuna Vanasthali: 236.5 Ha
- Ghat Area (Part A: 16 Ha)
- Amrut Bio Diversity Park- (Part A: 90 Ha)



Projects in initial stage

- ❖ Ghat Area (Part B/C: 50 Ha)
- ❖ Amrut Bio Diversity Park- (Part B/C 26.5 Ha)
- ❖ Mayur Nature Park: 397.75 Ha
- ❖ Hindan Sarovar: 45 Ha
- ❖ Eco-Tourism area: (Part A: & B 30 Ha)

26 Utilization of Treated Wastewater

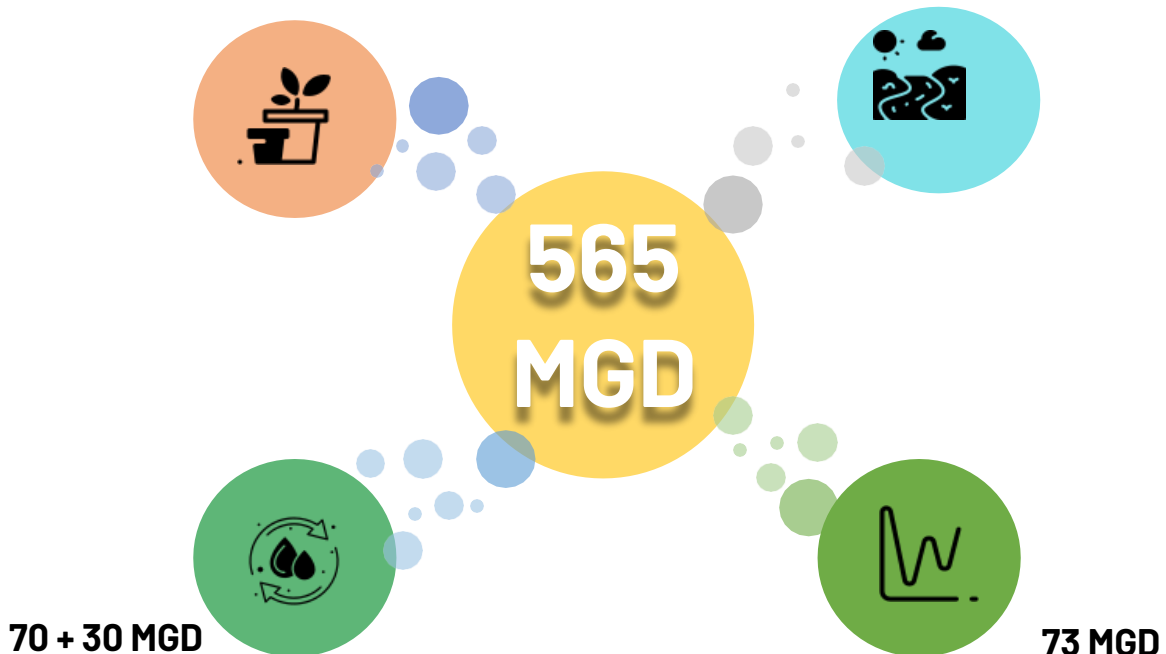
Action Plan by DJB (565 MGD)

125 (90+35) MGD

Being used in Horticulture and Lake Rejuvenation & water Bodies etc.

267 MGD

Mandatory Return Flow in Yamuna

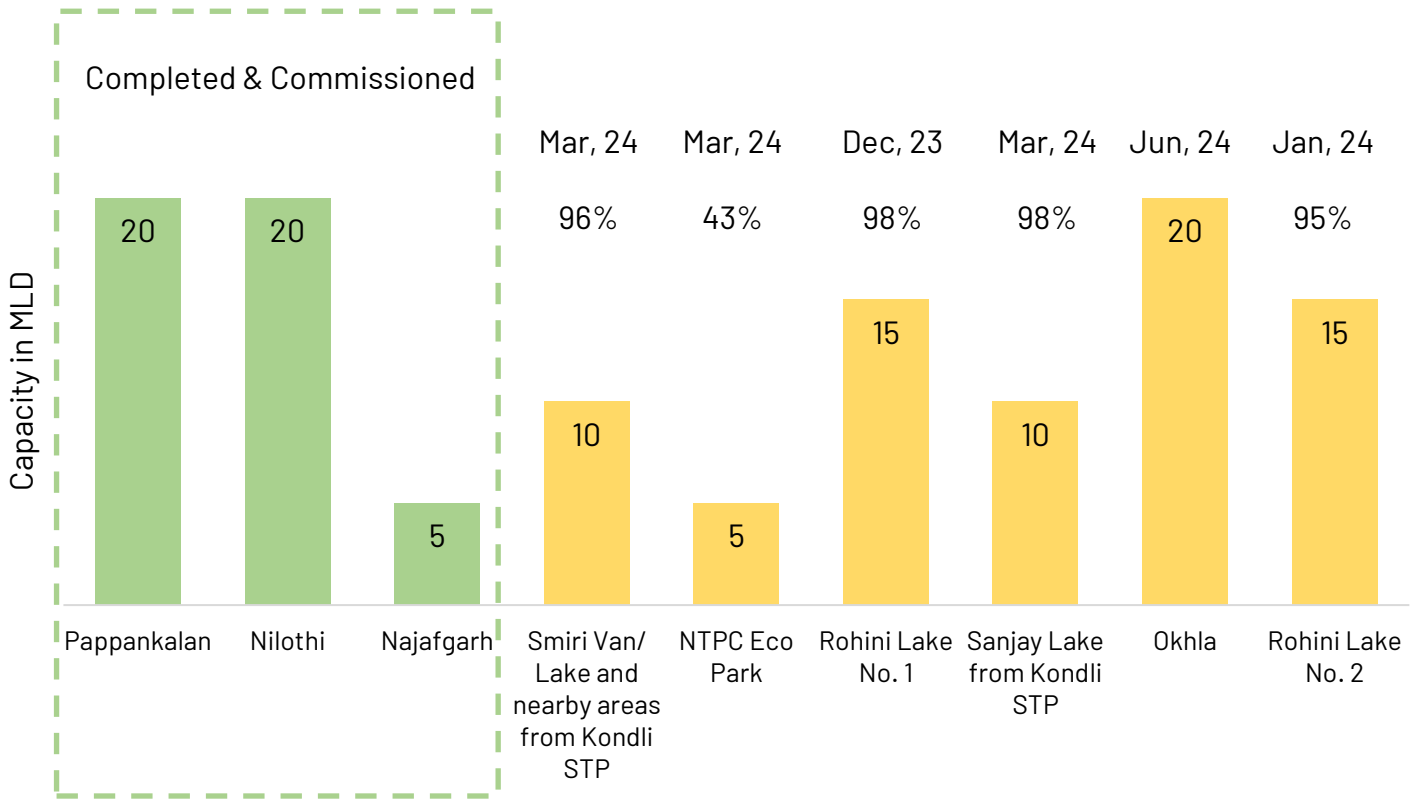


Proposed : Ground water recharge at DJB Marshy land near coronation pillar, Bhalwasa lake, Jhangirpuri Drain "March 24"

Gap

26 Utilization of Treated Wastewater

Action Plan for Utilization 75 MGD Treated Wastewater



DJB is also exploring the possibility of using treated STP Water in other usages like in Farm houses, Golf courses, Construction activities etc. and have already made available treated water at its STPs @ Rs 7/ Kilolitres.





Department of
Environment,
Govt. of NCT of Delhi