27

STANDING COMMITTEE ON WATER RESOURCES

(2023-24)

SEVENTEENTH LOK SABHA

MINISTRY OF JAL SHAKTI
DEPARTMENT OF WATER RESOURCES, RIVER DEVELOPMENT & GANGA REJUVENATION

REVIEW OF UPPER YAMUNA RIVER CLEANING PROJECTS UPTO DELHI AND RIVER BED MANAGEMENT IN DELHI

TWENTY SEVENTH REPORT

LOK SABHA SECRETARIAT

NEW DELHI

February, 2024 /Magha,1945 (Saka)

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Presented to Lok Sabha on 06.02.2024

Laid on the Table of Rajya Sabha on 06.02.2024

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CONTENTS

STANDING COMMITTEE ON WATER RESOURCES (2023-24)

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SECRETARIAT

1.	Smt. Suman Arora	-	Additional Secretary
2.	Shri Ajay Kumar Sood	-	Director
3.	Ms. Shanta B. Datta	-	Under Secretary
4.	Shri Gaurav Jain	-	Assistant Committee Officer

INTRODUCTION

I, the Chairperson, Standing Committee on Water Resources (2023-24) having been authorised by the Committee to submit the Report on their behalf, present the Twenty Seventh Report on "'Review of Upper Yamuna River Cleaning Projects Upto Delhi and River Bed Management in Delhi'".

2. The Standing Committee on Water Resources (2020-21) had taken up the subject "Review of Upper Yamuna River Cleaning Projects Upto Delhi and River Bed Management in Delhi'" for examination and report. As the Report could not be finalized during the tenure of the Committee (2020-21), this subject was again selected by the Committee in their successive tenures i.e. 2021-22, 2022-23 and 2023-24 for detailed examination and Report. The Committee took evidence of the representatives of the Ministry of Jal Shakti – Department of Water Resources, River Development & Ganga Rejuvenation; National Mission for Clean Ganga (NMCG), Central Water Commission (CWC), Upper Yamuna River Board (UYRB), Central Pollution Control Broad (CPCB), Delhi Pollution Control Committee (DPCC), Delhi Development Authority (DDA), Delhi Jal Board (DJB), Governments of Haryana, Delhi, Uttar Pradesh and Uttarakhand on 16 December, 2021; and 27 July, 2023.

3. The Report was considered and adopted by the Committee at their sitting held on 02.02.2024.

4. The Committee wish to express their thanks to the representatives of the Ministry of Jal Shakti – Department of Water Resources, River Development & Ganga Rejuvenation; National Mission for Clean Ganga (NMCG), Central Water Commission (CWC), Upper Yamuna River Board (UYRB), Central Pollution Control Broad (CPCB), Delhi Pollution Control Committee (DPCC), Delhi Development Authority (DDA), Delhi Jal Board (DJB), Governments of Haryana, Delhi, Uttar Pradesh and Uttarakhand.

5. The Committee would also like to place on record their sense of deep appreciation for the assistance rendered to them by the officials of the Lok Sabha Secretariat attached to the Committee.

NEW DELHI;
02 February, 2024
13 Magha,1945 (Saka)

Parbatbhai Savabhai Patel
Chairperson,
Standing Committee on Water Resources

ABBREVIATIONS

AM&R	:	Annual Maintenance and Repair
BCM	:	Billion Cubic Meters
BOD	:	Biochemical Oxygen Demand
CCEA	:	Cabinet Committee of Economic Affair
CEMDE	:	Centre for Management of Degraded Ecosystems
CETPs	:	Common Effluent Treatment Plants
CGF	:	Clean Ganga Fund
CGWB	:	Central Ground Water Board
COD	:	Chemical Oxygen Demand
CPCB	:	Central Pollution Control Board
CPWD	:	Central Public Works Department
CSIR	:	Council of Scientific & Industrial Research
CWC	:	Central Water Commission
CYF	:	Clean Yamuna Fund
DDA	:	Delhi Development Authority
DESU	:	Delhi Electric Supply Undertaking
DGC	:	District Ganga Committees
DJB	:	Delhi Jal Board
DPCC	:	Delhi Pollution Control Committee
DPR	:	Detailed Project Report
DO	:	Dissolved Oxygen
DoWR, RD & GR	:	Department of Water Resources, River Development & Ganga Rejuvenation
DTPCB	:	Delhi Thermal Power Control Board
EC	:	Environment Clearance
EFC	:	Expenditure Finance Committee
E-Flow	:	Environmental Flow
ETPs	:	Effluent Treatment Plants
FC	:	Fecal Coliform
FSSAI	:	Food Safety and Standards Authority of India
GNCTD	:	Government of National Capital Territory of Delhi

GoI	:	Government of India
GPIs	:	Grossly Polluting Industries
HFL	:	Highest Flood Level
HKB	:	Hathni Kund Barrage
HLC	:	High Level Committee
HPPCB	:	Himachal Pradesh Pollution Control Board
INTACH	:	Indian National Trust for Art and Cultural Heritage
IPGCL	:	Indraprastha Power Generation Co. Ltd
IUCN	:	International Union for Conservation of Nature
MCD	:	Municipal Corporation of Delhi
MCM	:	Million Cubic Metre
MGD	:	Million Gallons Per Day
MLD	:	Million Litres Per Day
MoEF&CC	:	Ministry of Environment, Forest and Climate Change
MoF	:	Ministry of Finance
MoU	:	Memorandum of Understanding
MPD	:	Master Plan of Delhi
MPP	:	Multi-Purpose Project
MSW	:	Municipal Solid Waste
NBRI	:	National Botanical Research Institute
NCT of Delhi	:	National Capital Territory of Delhi
NEERI	:	National Environmental Engineering Research Institute
NIH	:	National Institute of Hydrology
NWMP	:	National Water Quality Monitoring Programme
OCEMS	:	Online Continuous Effluent Monitoring System
O&M	:	Operations and Maintenance
PCC	:	Pollution Control Committees
PL	:	Price Level
PRS	:	Polluted River Stretches
PWQC	:	Primary Water Quality Criterion
SDM	:	Sub Divisional Magistrate

SPCBs	:	State Pollution Control Boards
STPs	:	Sewage Treatment Plants
TPD	:	Tonnes Per Day
UJVNL	:	Uttarakhand Jal Vidyut Nigam Limited
UPPCB	:	Uttar Pradesh Pollution Control Board
USEPA	:	United States Environment Protection Agency
UYRB	:	Upper Yamuna River Board
WZB	:	Wazirabad Barrage
YAP	:	Yamuna Action Plan
ZLD	:	Zero Liquid Discharge

Report

Part - I

NARRATION

Chapter - I

Introductory

1.1 The Yamuna River, originating from the Yamunotri Glacier in Uttarkashi, Uttarakhand, flows southward through northern India for about 1,376 kilometers before merging with the river Ganga at Allahabad, Uttar Pradesh. It passes through multiple States right from Uttarakhand through Himachal Pradesh, Haryana, Delhi, and Uttar Pradesh with its catchment area encompassing the Himalayas and the Ganges River basin. This vital waterway has important tributaries like the Tons, Chambal, Sindh, Betwa and Ken rivers, all contributing to its flow. The Yamuna River holds immense economic, cultural, environmental and religious significance in India. It supports agriculture and provides water for irrigation in the region. It is also a source of transportation and has been important historically for trade and commerce. Culturally, it is associated with various festivals and religious ceremonies. It holds religious importance in Hinduism, with many ghats and temples along its banks, including in cities like Delhi and Mathura.

1.2 However, river Yamuna and its tributaries are getting polluted due to discharge of untreated/partially treated/treated wastewater. The pollution in rivers is increasing due to rapid increase in population and resultant wastewater generation too. Over the years various efforts have been made for prevention and control of pollution in river Yamuna, however, they have not yielded desired outcomes. In this backdrop, the Committee have selected the subject 'Review of Upper Yamuna River Cleaning Project upto Delhi and River bed management in Delhi' and held deliberations with the representatives of the Ministry of Jal Shakti – Department of Water Resources, River Development and Ganga Rejuvenation; State Governments of Haryana, Uttar Pradesh and Delhi and other concerned Departments and Agencies. The Committee have also gone through written replies submitted by the Ministry which have enabled the Committee to comprehend the initiatives taken in cleaning the river Yamuna as well as the challenges faced in this huge task. In this regard, the Committee also undertook a local study visit to ITO Barrage, Baansera on Yamuna Floodplain and Okhla Barrage in New Delhi on

Wednesday, 23 August 2023 The Committee will now examine some of the specific issues related to the subject.

Salient features of the river Yamuna and its projects in the co-basin States

1.3 **Salient features of the Yamuna river along its co-basin States are as follows**:

Length of Yamuna River (Km)	1376#
Catchment Area (Sq. km.)	366,223#
Average Water Resources Potential (BCM)	57.2#
Utilizable Surface Water Resource (BCM)	NA
Live Storage Capacity of Completed Projects (BCM)	NA
Live Storage Capacity of Projects under construction(BCM)	NA
Total Live Storage Capacity of Projects (BCM)	NA

Source – Ganga Basin Report, March 2014, CWC and ISRO

Projects in Upper Reaches of river Yamuna

1.4 Asked to furnish the details of specific Hydel Projects/Barrages/Dams constructed and/or under construction in upper reaches of the river Yamuna, the DoWR, RD & GR, in its written reply, furnished the following information:

1. Renukaji Dam National Project:

"This project envisages construction of Storage project at River Giri (Yamuna), Sirmour District of Himachal Pradesh, with 148 m high rockfill dam having Dam toe Powerhouse of 40 MW. The live Storage capacity of project is 498 MCM. The project will supply drinking water supply of 23 cumecs to NCT of Delhi. The Revised estimated cost of Rs. 6946.99 Cr [Price Level (PL) October, 2018)] was accepted by Advisory Committee in its 143rd meeting held on 09.12.2019. The Funding of the project as per Expenditure Finance Committee (EFC) memo was accorded by Department of Expenditure – Ministry of Finance (MoF) vide O.M. dated 06.09.2021. Funding of Renukaji Dam Project has also been approved by Cabinet Committee of Economic Affair (CCEA) in its meeting held on 15.12.2021.Tendering for construction activities of the project has been started.

2. Lakhwar Multi-Purpose Project (MPP):

This project envisages construction of 204 m high concrete dam at River Yamuna, Village/Tehsil, Lohari, District Dehradun (Uttarakhand). The live Storage capacity of project is 330.66 MCM. The project will also cater for drinking and industrial water supply of 78.83 MCM. The Revised Cost Estimate, approved as Rs. 5747.17 Cr. (PL July 2018) was accepted by Advisory Committee of DoWR, RD & GR in its

141st meeting held on 11.02.2019. Funding of the project as per EFC memo was accorded by Department of Expenditure (MoF) vide O.M. dated 06.09.2021. Funding of Lakhwar MPP has also been approved by Cabinet Committee on Economic Affair (CCEA) in its meeting held on 15.12.2021. Tendering for construction activities of the project has started.

3. Kishau Multipurpose Project:

This project envisages construction of a Concrete Gravity Dam 680 m long and 236 m high on river Tons/Yamuna. The live Storage capacity of project is 1324 MCM with power generation of 660 MW. The project also has drinking water provision of 617 MCM. The Project is at ***Detailed Project Report (****DPR) stage. MoU regarding implementation of project is pending among the beneficiary States of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Haryana, National Capital Territory of Delhi and Rajasthan.*

4. Asan Barrage

The Asan Barrage is in the Uttarakhand-Himachal Pradesh border region in Doon Valley, (Dehradun district), situated at the confluence of the Eastern Yamuna Canal and the Asan River and about 11 km (7 mi) from Dakpathar and 28 km. northwest of Dehradun in Uttarakhand.

5. Dakpathar Barrage

The Dakpathar Barrage is across the Yamuna River adjacent to Dakpathar in Uttarakhand. In a run-of-the-river scheme, the barrage serves to divert water into the East Yamuna Canal for hydroelectric power production at the Dhakrani and Dhalipur Power Plants.

6. Ichari Dam

The Ichari Dam is a concrete gravity dam on the Tons River 13 km (8 mi) north of Dakpathar in Uttarakhand, India. The primary purpose of the dam is hydroelectric power production and it is a run-of-the-river-type ***project****. It was completed in 1972.*

7. Giri Project:

The Giri Hydroelectric Project is located in the Giri river of Mahrar town in Sirmour district of Himachal Pradesh. The power plant is situated on the river Giri of the Sirmour District of Himachal Pradesh. Giri Hydroelectric project has a total installed capacity of 60 Megawatts, with 2 units of 30 Megawatt each.

8. Tangnu Romani – I

The Tangnu Romani - I is Hydroelectric Power Project and is under construction. The approved capacity of the power plant is 44 Megawatt. The Tangnu Romani Hydroelectric Power Plant is located in the Pabbar river of Shimla district, Himachal Pradesh.

9. Tangnu Romani – II

The Tangnu Romani-II is Hydroelectric Power Project located in the Supin River tributary of river Pabbar of Shimla district, Himachal Pradesh and is under construction.

10. Swara Kuddu

The Swara Kuddu is Hydel project and is located on river Pabbar of Hatkoti, tehsil Jubbar & Rohru, District Shimla, Himachal Pradesh. The power house capacity is 111MW. The project was commissioned in January 2021.

11. Paudital Lassa

The Paudital Lassa is Hydroelectric project constructed on river Pabbar, a tributary of Tons river in District Shimla, Himachal Pradesh. The power house capacity is 24 MW.

12. Andhra Project

This is run of the river Hydel project constructed across river Andhra Khad a tributary of Pabbar in Shimla district of Himachal Pradesh."

1.5 When asked how far various irrigation activities, construction of Dams/Barrages, etc. in the upper reaches have affected the volume of water in the river Yamuna and whether any study has been undertaken by the Ministry in this regard, the DoWR, RD & GR, in its written reply, stated as under:

"A Memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 12th May, 1994 regarding allocation of utilizable surface flow of River Yamuna upto Okhla Barrage (Upper Yamuna) among the co-basin States. After the creation of Uttaranchal State in 2000, the resolution was modified to include Uttaranchal (now Uttarakhand) also in the Board in 2001.

The Upper Yamuna River Board allocated the water, amongst the beneficiary States, to be drawn from Hathnikund Barrage (earlier Tajewala) and Okhla Barrage within framework of this MoU. No major or medium category of project have been constructed in upper Yamuna basin. However, a few small projects which are mainly run off the river Hydro Electric project exists which do not significantly change the flow pattern of river.

Although three multipurpose projects i.e. Lakhawar, Renukaji and Kishau MPP in Upper Yamuna Basin are yet to be constructed, a study on water availability at Hathnikund barrage pre and post-construction of three multipurpose projects in Upper Yamuna Basin i.e. Lakhawar, Renukaji and Kishau MPP was carried out by Uttarakhand Jal Vidyut Nigam Limited (UJVNL) through National Institute of Hydrology and report was submitted in March 2021. As per the Study, post projects the water availability during non-monsoon period would increase once these projects are constructed".

Chapter – II
Floodplain/Wetland of River Yamuna

2.1 Floodplains are an integral part of the riverine ecosystem that comprises of wetlands, floodplain forests and grasslands with the river. They not only function together to recharge the aquifers but also prevent the threat of floods during monsoons by capturing excess water in the floodplain wetlands. Floodplain allows the river to spread its waters obstruction-free and encourage native flora and fauna to sustain in the ecosystem. Floodplain wetlands are biologically rich and most productive of the ecosystems that provide ecosystem functions that are much diverse than any other type of ecosystems. These include natural water quality improvement, nutritional security, opportunities for recreation and aesthetic appreciation at no additional cost. They have the potential to reduce the impacts of flooding, as they trap flood and rainwater, allow prolonged inundation and eventually release back to the river. These are characterized by specific soil quality, rich and diversified flora and fauna. In the past, anthropogenic interventions in the floodplains and climate change have caused severe impacts on this sensitive ecosystem disrupting the river hydrology. It has not only reduced the flood carrying capacity of the river but also affected the groundwater recharge potential of the floodplains. Floodplains in their natural form are a sign of good health of its river. Thus the protection of floodplains is a prime factor in maintaining the life of the river.

2.2 Flood plains and wetlands are also two landscape features which provide important ecosystem services such as flood control, wildlife habitat energy dissipation and water quality improvement. Flood plains provide temporary storage space for flood waters and sediments allowing for a lag period between the peak runoff caused by, for example, heavy rainfall and flood peak downstream. Floodplains support a diverse ecosystem by facilitating deposition of nutrient-rich sediments transportation of soil from upstream to downstream Therefore, flood plains help in maintaining balance between simultaneous processes of erosion and deposition thereby, playing an important role in maintaining the overall health of river. Wetland/ Flood Plain acts as catchment area during rainy season and prevent flooding.

2.3 When asked to furnish information regarding the total area of flood plains and total number of wet lands located along River Yamuna vis-a-vis floodplain/wetland area that has been encroached upon in the whole Yamuna basin (State-wise), the DoWR, RD & GR, in its written reply, stated as under:

Table 1: Total floodplain and wetland area of river Yamuna vis-a-vis the area encroached

S.No.	***Yamuna Basin States***	***Total Flood Plain Area of river Yamuna***	***Encroached Flood Plain Area of river Yamuna***	***Total Wetland Area of river Yamuna***	***Encroached Wetland Area of river Yamuna***
1.*	***Uttarakhand***				
2.*	***Himachal Pradesh***				
3.*	***Uttar Pradesh***				
4.	***Haryana***	*Karnal = 10960 Acre Panipat=5100 Acre HKB Jagadhri=8346 Acre*	*There is no wetland and* ***no*** *encroachment exists along the river Yamuna*		
5.	***Delhi***	*Total area of the Zone 'O' (River Zone/ floodplains) is 9,700 Ha. as per the Master Plan of Delhi (MPD)-2021. Out of this area, land available with DDA (inclusive of UP Irrigation Department land) for the restoration and rejuvenation works being carried out as per the directions of Hon'ble National Green Tribunal is* ***1675.10 Ha****.*	*161.95 Ha. (appx.)*	*59.82 Ha. (appx.)*	*Nil*
6.*	***Rajasthan***				

(*Data has not been received from concerned State Governments)

2.4 Further, asked to state the challenges/obstacles being faced in removal of encroachment on floodplains/wetland area, the DoWR, RD & GR replied as under:

(i) "Challenges like litigation of lands and consistent resistant from Jhuggis/clusters located in Flood Plain area are there. However, 477.79 Hectares area has been retrieved from the encroachment by DDA in the flood plains of River Yamuna.

(ii) *The demolition programme of some Yamuna Floodplains were not carried out for removal of encroachment due to some organization/ Society etc. going to Hon'ble Court, so that some area is under litigation. More over in some areas the private land area is being demarcated by SDM, GNCTD. The encroachment removal will be done accordingly".*

2.5 In reply to a query on any underground water extraction by borewells in areas near the Yamuna floodplains due to which the river goes dry in summer and winter, the DoWR, RD & GR, in its written reply, stated as under:

"Through various studies conducted by Central Ground Water Board (CGWB), four potential areas have been identified in Yamuna Flood Plain for construction of high yielding tubewells viz., Palla-Hiranki sector, AkshardhamMandir-MayurVihar sector, DND Flyover sector and KalindiKunj-Jaitpur Sector. From these four sectors, about 85 Million Gallon per Day (386 Million liter per day) of fresh ground water can be withdrawn on sustainable basis.

Further, as per the information available with CGWB, the Delhi Jal Board has already installed 130 production wells in these sectors, which are presently yielding 196 MLD (45 MGD) water.

There is still scope for withdrawal of additional 190 MLD (40 MGD) water.

There is scope that pumping of ground water from flood plains may impact the availability of base flow in river Yamuna during lean season. In fact, during lean season, river course quite often gets dry due to various reasons which may include pumping of ground water by borewells in flood plains".

Sand Mining

2.6 Asked to furnish the details of sand mining, if any, noticed/found in the floodplains of Yamuna (State-wise), the DoWR, RD & GR, in its written reply, stated as under:

"In the State of Uttar Pradesh, sand mining is done in Yamuna River from granted lease areas. To curb/restrict illegal mining/ transportation, the State of Uttar Pradesh has constituted 07-member Task Force at District level. In addition, the following steps are also being taken: -

i) *Online transit pass e-MMI-11/e-Form-C has been implemented for transportation of minor mineral with security features.*
ii) *Unified Command Center has been established under integrated mining surveillance system at Directorate level.*
iii) *Leases are being Geo-fenced, PTZ camera at mine site, Weigh Bridge at exit point of lease has been installed and integrated with Command Center at Directorate level.*
iv) *Automated check gates with camera an RFID reader at strategic places across state.*

As informed by State of Haryana, sporadic incident of illegal sand mining in flood plane of river Yamuna do come to the notice of mining department on which prompt action is being taken in time as provided under Law/ State Mining Rules, 2012. The State of Haryana has constituted the District Level Task Force under the Chairmanship of the Deputy Commissioner with Superintendent of Police and other related senior functionaries as members in each of the concerned district, in order to monitor/stop any incidence of illegal mining and ensure compliance with the orders of the Courts in this behalf.

Further, the action taken by these Task Forces are reviewed by another Task Force constituted at the State Level under the Chairmanship of the Chief Secretary, Haryana. The State vide notification dated 30.06.2023 has also established the Haryana "Enforcement Bureau Police Stations" for investigating the offences under 5 different Statutes which includes Mines and Minerals (Development & Regulation) Act, 1957 also for speedy investigation of the offences/illegal mining cases. Hence, State is taking every step under the ambit of law to curb illegal mining".

2.7 When asked to state that how many offenders were found guilty of illegal sand mining in riverbeds/floodplains of Yamuna (State wise), imposed penalty/imprisoned and the amount of penalty recovered in last 5 years, the DoWR, RD & GR, in its written reply, stated as under:

"As informed by Mining and Geology Department Haryana, the details of amount of penalty recovered in the last 05 years is as under:-

Sl.No	***Name of District***	***Total No. of cases***	***Fine/ Penalty Recovered***
1.	*Yamuna Nagar*	*2599*	***Rs**.21,22,79,522*
2.	*Panipath*	*151*	***Rs**.2,18,16,530*
3.	*Karnal*	*202*	***Rs**.2,20,12,810*
4.	*Sonipat*	*281*	***Rs**.3,04,79,802*
5.	*Faridabd/ Palwal*	*559*	***Rs**.3,98,09,405*
Total		***3,792***	***Rs.33,63,98,069***

Dumping of Debris in River

2.8 On being asked as to whether any dumping of construction debris as well as biomedical waste has been noticed by the concerned authorities in the riverbed of Yamuna and also the steps taken by them to tackle this problem, the Delhi Development Authority in its written reply stated as under:

"Yes, dumping of construction debris as well as bio-medical waste has been noticed in the riverbed of Yamuna. To stop this dumping the DDA has taken up following steps.

***Deployment of Security** : 134 Security Guards (Ex-servicemen) have been deployed round the clock in three shifts at vulnerable points, with patrolling vehicles in the Yamuna riverbed area from Wazirabad Barrage to Okhla Barrage to check illegal dumping of malba and Construction & Demolition Waste. GPS*

monitoring of security guards & patrolling vehicles is being done. In addition to this challans were also issued against the owners of the vehicles if observed dumping malba (if any) in the area of yamuna riverbed.

***Installation of Surveillance** : 93 nos. CCTV cameras have also been installed at 27 locations from Wazirabad Barrage to Okhla Barrage to check the illegal dumping of Malba and encroachments in the Yamuna riverbed. Barricading was also provided in some of the areas to prevent entry of dumping vehicles.*

***Public Awareness**: 27 nos. of sign boards have been installed at various locations to sensitize people that this is a sensitive zone and no malba dumping will be allowed here".*

2.9 Further asked to state how many offenders, found guilty of dumping waste in river Yamuna have been imposed penalty and how much penalty have been recovered from them in last five years, the DoWR, RD & GR, in its written reply, stated as under:

"As informed by Delhi Development Authority (DDA), the details are as under:

Sl.No	***Year***	***Offence***	***No. of Challans***	***Compensation Amount***	***Recovery Amount***
1.	*2018*	*Dumpint of Malba*	*1*	*Rs 50.000/-*	*Nil*
2.	*2019*	*Dumping of Malba, Unauthorized parking and garage in Yamuna River Flood Plain*	*186*	*Rs. 89,55,000/-*	*Rs. 17,85,00/-*
3.	*2020*	*Dumping of malba and unauthorized Parking in Yamuna River Flood Plain*	*54*	*Rs 21,30,000/-*	*Rs. 2,85,000/-*
4.	*2021*	*Dumping of malba and illegal parking in Yamuna River Flood Plain*	*610*	*Rs.1,14,05,500/-*	*Rs. 26,17,500/-*
		Total	*929*	*Rs. 2,41,45,500/-*	*Rs. 46,87,500/-*

2.10 In response to a query by the Committee as to whether any study has been conducted to assess the damage done to river Yamuna due to dumping of construction and demolition debris in it, the DoWR, RD & GR, in its written reply, stated as under:

"No such study has been conducted".

River Bed Management in Delhi

2.11 The Committee have been informed that Delhi stretch of the river Yamuna is believed to be highly impacted due to huge sediment deposits caused by storm water run-off and un-treated water coming from urban and industrial areas. Based on the draft proposal of CSIR-NEERI regarding prevention of deposits submitted to Yamuna Monitoring Committee of National Green Tribunal (NGT), CSIR recommended controlled dredging of river Yamuna bed.

2.12 However, the Department, has further informed that there is no scientific basis to support the view that there is legacy sludge accumulated in the river bed as the river bed would have undergone rise in its level due to deposition of sludge, year after year, thereby bringing more and more areas within the impact of flooding in and around Delhi. The increase in river bed level has not been evidenced as no perceptible change in the flood level during the past few years have been observed by Delhi Irrigation & Flood Control department. Accordingly, it may not be conclusively held that river bed level of Yamuna has been increasing over the years due to deposition of sludge. In fact, sludge deposited on the river bed during the lean flow season (pre-monsoon season) gets washed off and transported downstream due to scouring of river bed during high stages in the river when velocities are high and lot of turbulence is generated.

2.13 Delhi Irrigation & Flood Control department in collaboration with CSIR NEERI carried out sampling of river bed along the length of the river within Delhi to assess whether there is legacy sludge getting deposited year after year in the river bed and if so, the extent thereof. The team jointly collected sludge/ sediment samples from 8 different locations in the Yamuna River Bed during pre-monsoon (June 2019) and post monsoon (October 2019). Water samples were also collected from the middle of the river stream. The samples were analysed for various metal contents and some other key parameters at the laboratory of NEERI Zonal Centre, New Delhi. Sampling from 8 different locations (Palla Village, Wazirabad Barrage, Kudesia Ghat, Old Iron Bridge, Geeta Colony, Up-stream of ITO, Up-stream of DND Bridge and Up-stream of Okhla Barrage) was carried out during June 12-14, 2019 (representing pre-monsoon) and October 17- 18, 2019 (representing post-monsoon).

2.14 The sludge/sediment samples were collected from the mid, left side (river bed and 1 ft below the river bed) and right side river bed and 1 ft below the river bed) in the flow direction of the River Yamuna at 8 different locations both during pre-monsoon and post-monsoon season wherever possible due to site accessibility constraints. Also during the pre-monsoon season, the volume of water in the river was more, therefore at few locations dry sludge sampling was not possible.

2.15 All the sludge/sediment samples were analysed for different physico-chemical parameters (bulk density, porosity, water holding capacity & organic carbon) and metal contents (Cr, Fe, Cu, Pb, Mn, Ni, Zn, Co & Cd). Based on comparison of the

concentration of various heavy metals and other sediments characteristics in the pre-monsoon and post-monsoon season, following was seen:

i. Concentration of most of the heavy metals like Cr, Pb, Mn, Zn, Co, Cu, Cr and Ni are reducing in the sediments samples collected from the River bed in the post monsoon season with few exceptions. This indicates that the flushing of the Yamuna River bed is taking place during the monsoon floods when the river velocity is high and a lot of turbulence and churning takes place due to floods.

ii. On the other hand, the bulk density of the sediments collected from the mid of the River Yamuna is increasing during post monsoon season. This is due to the deposition of the sand on the Yamuna River bed in post-monsoon season. Due to this sand, the water holding capacity, porosity and organic carbon concentration of the sediments is reducing in post-monsoon. The reduction in the organic carbon concentration of the sediments collected from the mid of the River Yamuna also indicates toward flushing of the Yamuna River bed in post- monsoon.

iii. Levels of certain metals viz. Cr, Fe, Cu, Pb, Ni, Zn were observed to be exceptionally high in the sludge samples collected from mid-stream of Yamuna river at Old Iron Bridge, Geeta Colony and Up-stream of DND Bridge in pre- monsoon. In the upstream of Old Iron Bridge, Najafgarh drain mixes (about 6 km). For example; Cr level at these locations was 1082, 1001 and 1809 mg/kg respectively. However, no such trend was observed in post-monsoon season, which indicates scouring during monsoon flows.

iv. Sediment in the Yamuna River stretch from Kudesia Ghat onwards till the Okhla Barrage is found to be heavily polluted with respect to metal content (i.e. Cr, Cu, Pb, Ni, Zn, Fe, & Mn) when compared with USEPA Sediment Quality Guideline Values, particularly during the pre-monsoon period. However, the levels decreased considerably during post-monsoon period.

v. Though analysis of metals in the sludge/ sediment samples collected during pre & post monsoon season does not show any specific trend, as the samples were either collected from surface and 1 ft below the surface, possibility of legacy sludge in deeper section of the River Bed was not ruled out.

vi. Deep digging of sludge/sediment up to 5-6 ft at few select locations, to further support any conclusion/decision was recommended.

2.16 Further, during the course of oral evidence held on 27.7.2023, the representative of the National Mission for Clean Ganga (NMCG) apprised the Committee following in this regard:-

*"...**सर**, एक विषय दिल्ली में रिवरबेड मैनेजमेंट का था, इसको लेकर* 1-2 *स्लाइड्स हैं, मैं उसमें भी बताना चाहूंगा। सर, ऐसा माना जाता है, सोचा जाता है कि यमुना नदी दिल्ली में जब बहती है, तो उसका जो नदी तल है, वह लीगेसी स्लज और हेवीमेटल्स, टॉक्सिक मेटल्स की वजह से भरा हुआ है, उसमें डिपॉज़िशंस है, तो सीएसआईआर, नीरी –नेशनल एनवायरमेंटल इंजिनियरिंग रिसर्च इंस्टिट्यूट ने एक बार रिक्मेंड किया था कि इसकी कंट्रोल ड्रेजिंग की जाए, लेकिन उसमें समस्या यह थी कि इतनी बड़ी क्वांटिटी में ड्रेज मटीरियल को आप कहाँ ले जाएंगे, क्या करेंगे। अगर टॉक्सिक है तो उसको कहाँ डिपॉज़िट करेंगे।* There was a lack of scientific basis *कि यह स्टैब्लिश करने के लिए क्या वाकई लीगेसी स्लज है और इसके दो कारण थे। नदी का बेड ऐसा नहीं लगता था कि बेडराइज़ हो रहा है, एग्रेडेशन की वजह से, अगर स्लज डिपॉजिट हो रहा हे। अगर बेडराइज़ होता तो एडिशनल एरिया फ्लड में आते। ऐसा भी नहीं था कि एडिशनल एरिया फ्लडिंग में आए थे। इसकी वजह से, और एक ऐसा साइंटिफिक व्यू है कि जब हाईफ्लड्स आते हैं तो नदी में स्कॉरिंग की वजह से जो डिपॉज़िटिड स्लज है, वह भी वॉश ऑफ हो जाता है। लेकिन इस सबकी जांच के लिए सांइटिफि तरीके से जांच के लिए एक जॉइंट इनवेस्टिगेशन दिल्ली इरिगेशन एण्ड फ्लड कंट्रोल डिपार्टमेंट और नीरी के माध्यम से की गई थी। उन्होंने वर्ष* 2019 *के प्री-मॉनसून और पोस्ट-मॉनसून सीज़न में* 8 *लोकेशंस को सैम्पलिंग की थी। एक लोकेशन पर उन्होंने* 3 *जगह से सैम्पल उठाया तो कुल मिलाकर उन्होंने* 24 *सैम्पल लिए। ये सैम्पल नदी तल से एक फुट गहरे सैम्पल कोर्स उठाए गए। इन सैम्पल्स को फिज़िकोकैमिकल प्रॉपर्टीज़ और हैवीमैटल्स के लिए जाँच की गई। मेटल्स जो थे –क्रोमियम, आयरन, कॉपर, लेड, मेगनीज़, ज़िंक, कोबाल्ट एण्ड कैडमियम के लिए इनकी जाँच की गई। जो फाइंडिंग्स निकली थी, उससे एक बात स्पष्ट थी कि मानसून में फ्लशिंग होती है। यह जो स्लज डिपोजिट होता है, वह वॉश हो जाता है। पोस्ट मानसून सीजन में जो हैवीमैटल्स थे या जो आर्गेनिक कंटेंट था, वह प्रीमानसून के कंपैरिजन में कम पाया गया। यह जॉइंट इन्वेस्टिगेशन में आया। यह भी कहा गया कि डीपर डेप्थ पर एक फीट से नीचे लीगेसी स्लज हो सकता है तो उसको भी इन्वेस्टिगेट किया जा सकता है। डीपर सैंपलिंग की बात उसमें कही गई थी..."।*

Chapter III
Environmental Flow of the River

Environmental Flow (E-Flow)

3.1 Rivers are the main source of freshwater globally. The importance of natural functions that rivers provide, and the value of the biodiversity that lives in or is dependent on them is increasingly being recognized worldwide. Flow is taken as the major driver of biodiversity in rivers. A river's flow regime, ranging from low flows to high flows, significantly affects the river ecosystem. River water is used for numerous services such as drinking water, irrigation and industrial water supply, fishing, boating, recreation and cultural activities. On account of the burgeoning human population, food and energy needs and changing life styles, pressure on rivers has intensified to meet the manifold increase in water demand.

3.2 To serve the various water demands, water is stored and diverted through various structures built on rivers that change the flow regime and reduce flow in the downstream reaches. The emerging science of environmental flows (e-flows) aims to ensure a balance between the use and the protection of natural water resources for people by analyzing data from hydrological, hydraulics, social, environmental, biological, and other relevant sectors.

3.3 There are many definitions of environmental flows. The International Union for Conservation of Nature (IUCN) (2003) defines "E-flows as the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated".

3.4 According to the widely quoted Brisbane Declaration (2007), "Environmental flows describe the quantity, timing and quality of water flows required to sustain freshwater and estuarine ecosystems and the human livelihoods and well-being that depend upon these ecosystems" (Arthington, 2012).

3.5 National Water Policy (2012) stipulates that ecological needs of the river should be determined, through scientific study, duly accommodating development needs.

3.6 Para 5 of MOU of 19.05.1994 stipulates that a minimum flow in proportion of completion of upstream storages going upto 10 cumec shall be maintained downstream of Tajewala and downstream of Okhla Headworks throughout the year from ecological considerations, as upstream storages are built up progressively in a phased manner'.

3.7 The said storages are yet to be built. However, Hon'ble NGT Principle Bench, New Delhi vide order dated 11-06-2015 directed that "State of Haryana shall release 10 Cumec water directly into main stream of river Yamuna from Hathinikund Barrage and maintain e-flow of river till Wazirabad".

3.8 As per the water released data from Hathinikund Barrage and Okhla Barrage the minimum 10 Cumec (352 cucec) as stipulated in the MoU is being released downstream of Hathinikund Barrage and downstream of Okhla Barrage throughout the year".

3.9 In response to a query that whether the minimum 'e-flow' i.e., 23 cumecs as recommended by National Institute of Hydrology (NIH) has been agreed upon by the Yamuna basin States or whether differences exist amongst the Yamuna basin States on this NIH prescribed flow, the DoWR, RD & GR in its written replies, stated as follows:

a) *"There is almost no flow of fresh water in the river downstream of Wazirabad during lean season.*
b) *10 cumecs of flow is being released by the State of Haryana at Hathanikund during lean season. However, this is inadequate and most of it evaporates or percolates before it reaches Wazirabad during the lean season.*
c) *Even if DJB treats the entire sewage generated in Delhi upto BOD of 10 mg/l desired water quality of BOD < 3 mg/l & DO >5 mg/l may not be achieved in river Yamuna due to unavailability of fresh water in the river downstream of Wazirabad.*
d) *There is almost NIL environmental flow available at downstream of Wazirabad Barrage during most of the period i.e. 9 out of 12 months in a year. Environmental flow is only available during monsoon period of 03 months i.e., July- September.*
e) *Minimum Environmental Flow for the dilution of the treated water in river Yamuna in Delhi is required to meet the said water quality.*
f) *E-flow of 23 cumecs in the lean season has been recommended in the NIH in its study report submitted to NMCG/ Ministry of Jal Shakti.*

g) *There are differences among Yamuna basin States on e-flow assessment recommended by NIH. The recommendations of the report accordingly could not be accepted".*

3.10 When asked about the factors responsible for almost negligible flow of fresh water in the river Yamuna downstream of Wazirabad during most of the year leading to its near drying up and almost becoming a drain in Delhi, the DoWR, RD & GR, in its written reply, stated as follows:

"The water available in river Yamuna at Hathnikund barrage is being utilised for irrigation and supply of water for domestic/ industrial use. The requirement of water in the command served at this location is more than the availability during the non-monsoon period. In view of Hon'ble NGT order dated 11-06-2015, the concerned States are releasing at least 10 cumec of water downstream of Hathinikund barrage as eflows which reaches Wazirabad barrage. At this location

this water, besides contribution from intervening catchment upto about 120 cusecs is picked up for drinking water requirements of Delhi and rest, if any, is released downstream from the barrage. Since demand at Hathnikund barrage and Wazirabad barrage is more than availability invariably during non-monsoon seasons, the flows downstream of Warirabad are usually negligible or insignificant so far as requirements of river is concerned".

3.11 During the course of oral evidence held on 16.12.2021, the representative of the Ministry of Jal Shakti – DoWR, RD & GR, , made the following submission with regard to flow of the river:-

"...एक समस्या नदी की प्रदूषण की है और दूसरी समस्या फ्लो रिलेटेड है। The flow of the river is less because of agricultural abstraction. This 22 km. stretch of Yamuna in Delhi, though it is a very small part of the overall length of the river, is causing 75 to 80 per cent of the pollution in the river. Since the flow has become less in this stretch, the problem has become very acute".

Chapter IV
Water Quality of river Yamuna

4.1 Parameters/standards prescribed/fixed for good quality of river water, as informed to the Committee by the DOWR, RD & GR, in its written reply, stated as under:

"The standards specified for Primary Water Quality Criteria for Bathing Water: -

PRIMARY WATER QUALITY CRITERIA FOR BATHING WATER
(Water used for organised outdoor bathing)

CRITERIA		RATIONALE
1. Fecal Coliform MPN/100 ml:	500 (desirable) 2500 (Maximum Permissible)	To ensure low sewage contamination. Fecal coliform and fecal streptococci are considered as they reflect the bacterial pathogenicity.
2. Fecal Streptococci MPN/100 ml:	100 (desirable) 500 (Maximum Permissible)	The desirable and permissible limits are suggested to allow for fluctuation in environmental conditions such as seasonal change, changes in flow conditions etc.
2. pH:	Between 6.5 –8.5	The range provides protection to the skin and delicate organs like eyes, nose, ears etc. which are directly exposed during outdoor bathing.
3. Dissolved Oxygen:	5 mg/l or more	The minimum dissolved oxygen concentration of 5 mg/l ensures reasonable freedom from oxygen consuming organic pollution immediately upstream which is necessary for preventing production of anaerobic gases (obnoxious gases) from sediment.
4. Biochemical Oxygen demand 3 day,27°C:	3 mg/l or less	The Biochemical Oxygen Demand of 3 mg/l or less of the water ensures reasonable freedom from oxygen demanding pollutants and prevent production of obnoxious gases";

4.2 When a query was raised on the water quality of river Yamuna, the representative of the National Mission for Clean Ganga (NMCG) during the course of oral evidence held on 16.12.2023, apprised the Committee as follows:-

"This is one of the most important tributaries of Ganga with a length of 1,376 km. I will categorise this whole river into three parts. It starts from Yamunotri to HathniKund. हथिनीकुंड बैराज तक का जो पार्ट है, *that can be considered as unpolluted stretch.* सर, सेकेंड स्ट्रेच जो आगे है, वह हथिनीकुंड से लेकर पल्ला तक है, *that stretch is moderately polluted. The area of real concern is from Palla to Okhla. Primarily, the Delhi stretch of Yamuna becomes severely polluted. That is the cause of concern, and that is where a large number of projects are required to be taken up, and are being taken up...."*

Impact of pollution on water quality of river Yamuna

4.3 When asked about the impact of pollution on water quality of river Yamuna, the DOWR, RD & GR, in its written reply, stated as under:

"Central Pollution Control Board (CPCB) in association with State Pollution Control Boards (SPCBs) / Pollution Control Committees (PCCs) has established a National Water Quality Monitoring Programme (NWMP) under Control of Pollution Scheme of Ministry of Environment, Forest & Climate Change. Currently, there are 4484 locations monitored in the entire country, out of which 2108 locations are monitored on 642 rivers. River Yamuna is monitored on 33 locations including 04 in Uttarakhand, 04 in Himachal Pradesh, 06 in Haryana, 07 in Delhi and 12 in Uttar Pradesh. Based on this monitoring studies are carried out through analysis of data collected.

CPCB has identified Polluted River Stretches (PRS) based on the water quality data of rivers. For identification of PRS, locations/ stretches of rivers not meeting with the Primary Water Quality Criterion of Biochemical Oxygen Demand (BOD) parameter (indicator of organic pollution) for outdoor bathing is considered. BOD concentration exceeding 3 mg/l is identified as polluted stretches. Further, the PRS are also classified under Priority Class I to V, Priority I being most polluted with BOD value of more than 30 mg/l and Priority V least polluted with BOD ranging between 3 – 6 mg/l. The status report is put up in public domain and also shared with respective SPCBs/PCCs for taking necessary corrective measures for abatement of water pollution.

On River Yamuna, three polluted river stretches have been identified in Priority I category in Delhi, Haryana & Uttar Pradesh States in the year 2018 and year 2022. Details of stretches are provided in Table below:

Table : Identified Polluted stretches on river Yamuna during 2018 & 2022

STATE/ UT	***YEAR***	***IDENTIFIED STRETCH***	***BOD RANGE/ MAX. VALUE*** *(mg/L)*	***PRIORITY CLASS***
DELHI	*2018*	*Wazirabad to Asgarpur*	*9-80*	*I*
	2022	*Palla to Okhla D/s*	*83.0*	*I*
HARYANA	*2018*	*Panipat to Sonepat*	*4-55*	*I*
	2022	*Hathnikund to Palla &Palwal to Hasanpur*	*43.0*	*I*
UTTAR PRADESH	*2018*	*Asgarpur to Etawah& Shahpur to Allahabad (BaluaGhat)*	*12.0- 55*	*I*
	2022	*Along Asgarpur, NOIDA, Vrindavan to Hamirpur*	*127*	*I*

Water quality data of 33 monitored locations (Uttarakhand-04, Himachal Pradesh-04, Haryana- 06, Delhi- 07 and Uttar Pradesh- 12 locations) during January, 2021- May, 2023 ***(Annexure-I)*** *was analyzed for 4 parameters viz., Dissolved Oxygen (DO), pH, Biochemical Oxygen Demand (BOD) and Fecal Coliform (FC).*

The results were compared with the Primary Water Quality Criteria for Outdoor Bathing (PWQC) notified by Ministry of Environment, Forest & Climate Change under the Environment (Protection) Rules, 1986. The analysis revealed that:

1. *All the 04 monitored locations each in Uttarakhand and Himachal Pradesh are complying while all the 06 monitored locations are non-complying with the criteria in Haryana.*

2. *All the 07 monitored locations in Delhi were non-complying with the criteria during 2021. 06 locations were non-complying except at Palla (entry point of Delhi) which is observed complying during 2022 & 2023.*

3. *Out of 12 monitored locations in Uttar Pradesh, 11 are observed non-complying during 2021- 2023. One location at Prayagraj D/s (Balua Ghat) was observed complying with the criteria.*

4. *Overall, out of 33 locations on river Yamuna, 10 locations (04 in Uttarakhand, 04 in Himachal Pradesh, 01 in Delhi & 01 in Uttar Pradesh) are complying during 2021- 2023. Remaining 23 locations are non-complying (06 in Haryana, 06 in Delhi and 11 in Uttar Pradesh).*

5. *Highest concentration of BOD & maximum FC observed in Haryana is 30 mg/L and 16000000 MPN/ 100 ml respectively during 2021 at Rahimpur ka Nagla, Near Flyover Bridge (Mazawali).*

6. *Highest concentration of BOD observed in Delhi is 83 mg/L at Asgarpur after meeting of Shahdara drain and Tughlakabad drain during both 2021 & 2022. Maximum FC observed is 22000000 MPN/ 100 ml during 2021 at Asgarpur after meeting of Shahdara drain and Tughlakabad drain.*

7. *Highest concentration of BOD & maximum FC observed in Uttar Pradesh is 36 mg/L and 920000 MPN/ 100 ml respectively during 2021 at Mathura d/s near ShamshanGhat.*

DPCC is also monitoring the Water Quality of river Yamuna on monthly basis and results are placed on the website of DPCC.

Water Quality Status of River Yamuna in Delhi [Annual Average for last three years, year wise for 2021, 2022 & 2023 (till 30.06.2023)] is at ***Annexure-II***

4.4 Further asked, whether the Yamuna water is fit for bathing particularly in the State of Delhi, the DOWR, RD & GR, in its written replies, stated as under:

"River Yamuna enters Delhi at Palla from Haryana and exits Delhi to enter Uttar Pradesh at Asgarpur which approximately is a 40 km stretch. Water quality assessment of river Yamuna is carried out by CPCB at 33 locations, under NWMP in association with SPCBs of Uttarakhand (04 locations), Himachal Pradesh (04 locations), Haryana (06 locations), Delhi (07 locations) and Uttar Pradesh (12 locations). In stretch of Delhi, water quality of river Yamuna is monitored at 07 locations by DPCC from 2021 onwards.

The analysis results are compared with Primary Water Quality Criteria (PWQC) for Outdoor Bathing notified under Environment (Protection) Rules, 1986 with respect to parameters viz., DO, pH, BOD, Fecal Coliform and Fecal Streptococci.

Based on recent analysis of water quality from Jan 2021- May, 2023, following observations are made:

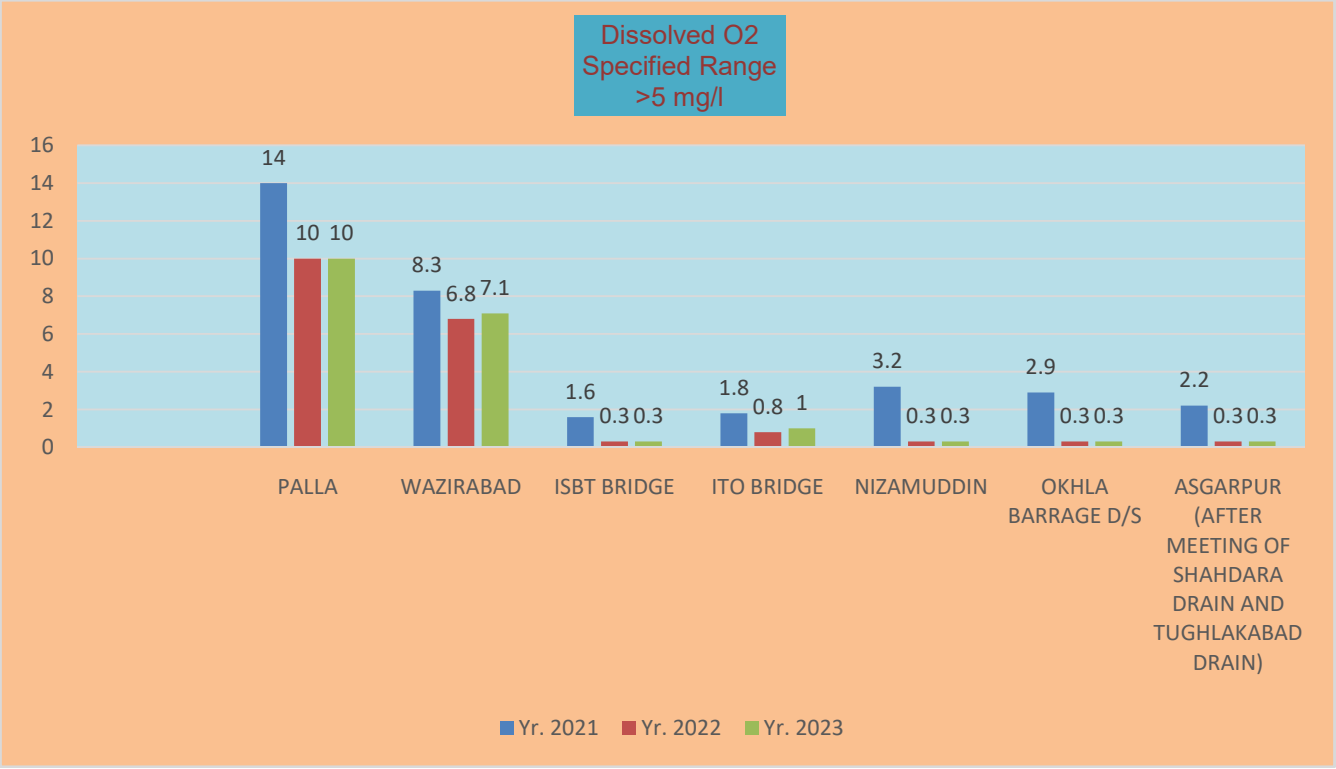
Table : Water quality data of river Yamuna in Delhi during January 2021- May, 2023

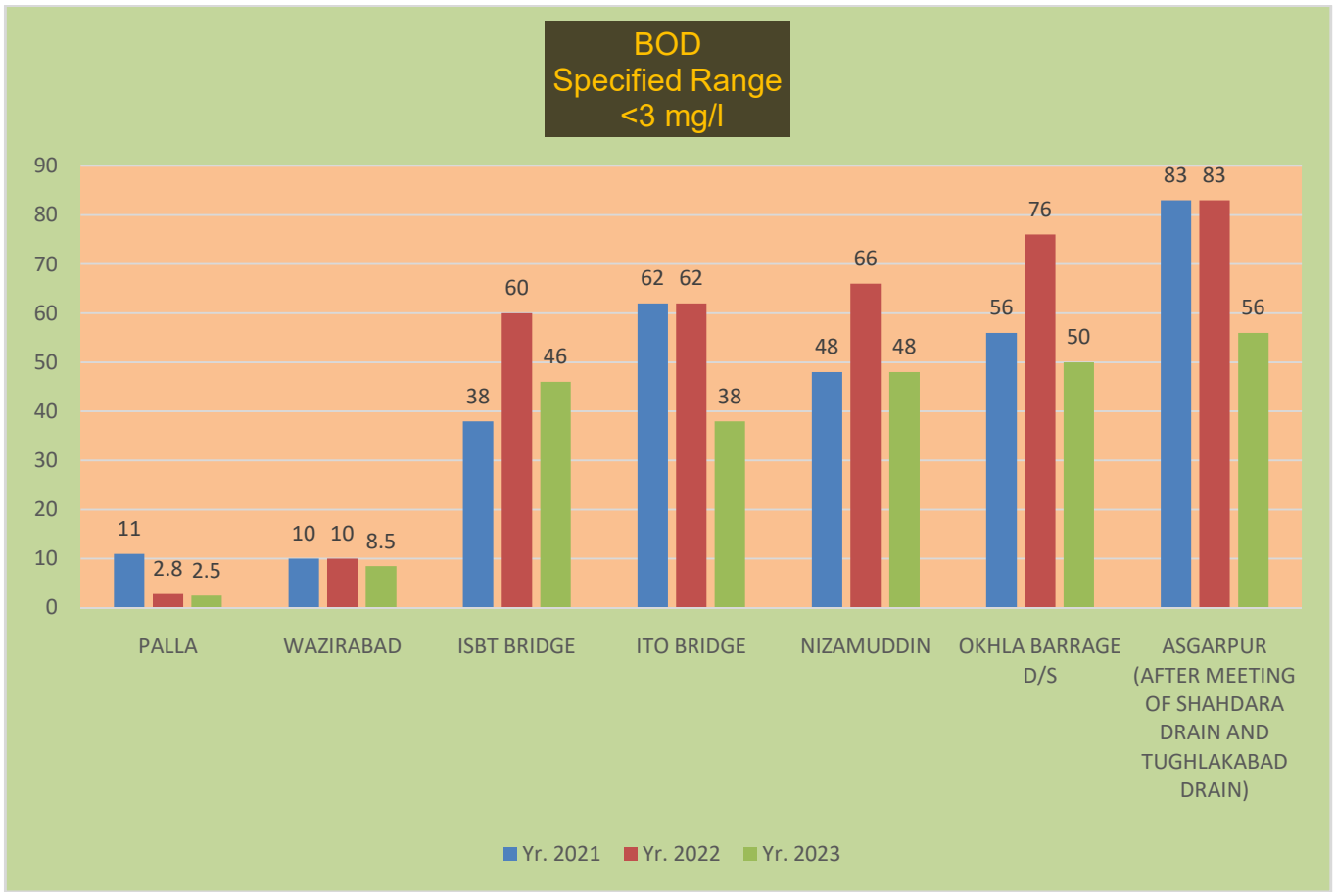
Station code	Station Name	Year	Dissolved O2 (mg/L)		pH		BOD (mg/L)		Fecal Coliform (MPN/100ML)	
			Min	Max	Min	Max	Min	Max	Min	Max
Primary Water Quality Criteria for outdoor bathing			>5 mg/l		6.5-8.5		< 3 mg/l		< 2500 MPN/100 ml	
1120	RIVER YAMUNA AT PALLA	2021	4.6	14.0	7.3	8.5	2.5	11.0	68	22000
		2022	8.0	10.0	6.6	7.6	1.5	2.8	1000	1400
		2023	8.0	10.0	7.2	7.3	1.5	2.5	180	560
5098	RIVER YAMUNA AT WAZIRABAD	2021	1.9	8.3	6.6	7.4	8.0	10.0	680	11000
		2022	5.0	6.8	7.2	7.7	7.0	10.0	2600	27000
		2023	5.0	7.1	7.2	7.4	6.5	8.5	560	5500
5099	RIVER YAMUNA AT ISBT BRIDGE	2021	0.3	1.6	7.15	7.5	34	38	17000	350000
		2022	0.3	0.3	6.9	7.5	42.0	60.0	63000	310000
		2023	0.3	0.3	7.1	7.4	38.0	46.0	11000	100000
5100	RIVER YAMUNA AT ITO BRIDGE	2021	0.3	1.8	7.37	7.6	26	62.0	22000	110000
		2022	0.3	0.8	6.7	7.3	42.0	62.0	200000	340000
		2023	0.4	1.0	7.3	7.5	30.0	38.0	8300	81000
1121	RIVER YAMUNA AT NIZAMUDDIN	2021	0.3	3.2	7.3	8.0	22.0	48.0	47000	4900000
		2022	0.3	0.3	7.1	7.6	40.0	66.0	38000	400000
		2023	0.3	0.3	7.2	7.5	40.0	48.0	9300	31000
1375	RIVER YAMUNA AT OKHLA BARRAGE D/S	2021	0.3	2.9	7.4	7.9	22.0	56.0	49000	11000000
		2022	0.3	0.3	6.8	7.5	52.0	76.0	550000	840000
		2023	0.3	0.3	7.2	7.4	42.0	50.0	140000	380000
1812	RIVER YAMUNA AT ASGARPUR (AFTER MEETING OF SHAHDARA DRAIN AND TUGHLAKABAD DRAIN)	2021	0.3	2.2	7.4	8.0	38.0	83.0	70000	22000000
		2022	0.3	0.3	6.4	7.5	60.0	83.0	600000	840000
		2023	0.3	0.3	6.8	7.5	48.0	56.0	200000	470000

1. *DO was found non-complying at all the monitored locations during 2021 whereas, during 2022 and 2023, two locations were observed complying (at Palla & Wazirabad).*
2. *pH was found complying to the stipulated criteria at all the locations during 2021- 2023 except at one instance during 2022 at Asgarpur (6.4).*
3. *BOD was found non-complying at all locations during 2021- 2023 (except at one location Palla during 2022 & 2023). Highest recorded concentration of BOD is 83 mg/L at Asgarpur after meeting Shahdara drain and Tughlakabad drain during 2021 & 2022.*

4. *Fecal Coliform was found non-complying during all the years 2021- 2023 except at Palla during 2022 and 2023. Highest no. of FC observed was 22x10^6 MPN/ 100 ml at Asgarpur after meeting of Shahdara drain and Tughlakabad drain during 2021.*
5. *From 2021- 2022, BOD showed decrease in concentration at 01 location (at Palla), increase at 03 locations (at ISBT Bridge, Nizamuddin & Okhla Barrage d/s) and no variation was observed at 03 locations (at Wazirabad, ITO Bridge &Asgarpur).*
6. *From 2021- 2022, FC showed decrease 05 out of 07 locations and increase at 02 locations (at Wazirabad& ITO Bridge).*
7. *Water of River Yamuna in Delhi is not fit for bathing".*

4.5 Following Bar Graphs, showing the trend of deteriorating water quality of river Yamuna in the last three years in terms of the main parameters furnished by the Department in the above reply indicates the pathetic condition of the river and requires urgent steps to address the situation:




BOD
Specified Range
<3 mg/l
90
80
70
60
50
40
30
20
10
0
11
2.8
2.5
10
10
8.5
38
60
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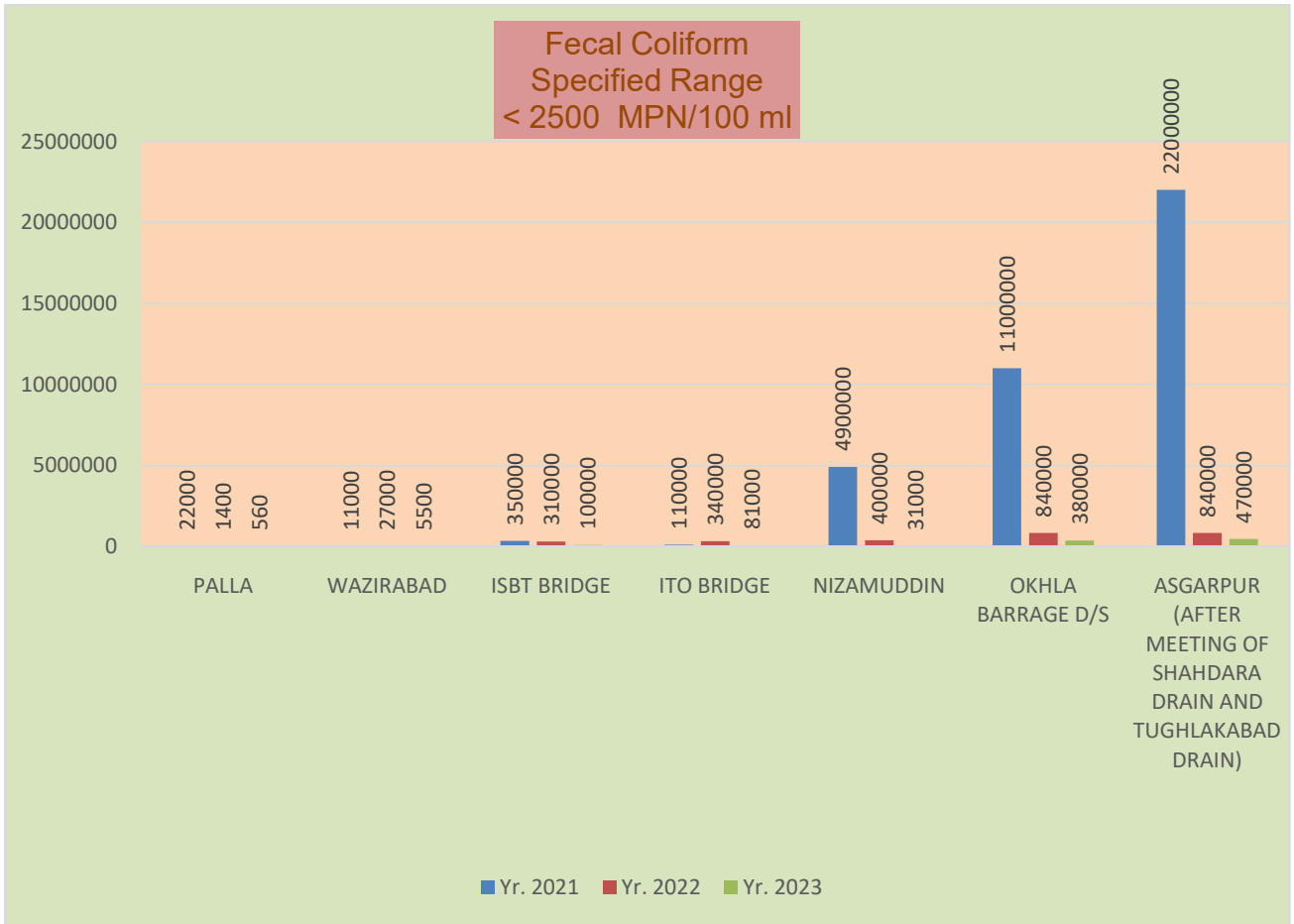
PALLA
WAZIRABAD
ISBT BRIDGE
ITO BRIDGE
NIZAMUDDIN
OKHLA BARRAGE D/S
ASGARPUR (AFTER MEETING OF SHAHDARA DRAIN AND TUGHLAKABAD DRAIN)
Yr. 2021
Yr. 2022
Yr. 2023


Fecal Coliform
Specified Range
< 2500 MPN/100 ml
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15000000
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OKHLA BARRAGE D/S
ASGARPUR (AFTER MEETING OF SHAHDARA DRAIN AND TUGHLAKABAD DRAIN)
Yr. 2021
Yr. 2022
Yr. 2023

4.6 On being asked about the state of pollution of river Yamuna in Delhi, the representative of the National Mission for Clean Ganga (NMCG), during the course of oral evidence held on 27.07.2023, apprised the Committee as under:-

> "...ओखला के बाद जैसे ही नदी दिल्ली में घुसती है, यह गंभीर रूप से प्रदूषित क्षेत्र है, भयंकर रूप से प्रदूषित क्षेत्र है। इस बीच में डिजाल्व्ड ऑक्सीजन, जो नदी के जीवंत होने का द्योतक है, दिखाता है कि नदी जीवंत है या नहीं, वर्चुअली नॉन एग्जिसटेंट है, एक मिलीग्राम प्रति लीटर से कम है, करीब-करीब जीरो के आसपास है। बीओडी बहुत ज्यादा बढ़ जाती है। बीओडी की हमने मिनिमम और मैक्सिमम वैल्यू *27* से *114* दिखायी है, जो कि मात्र *3* मिलीग्राम प्रति लीटर होनी चाहिए। फीकल कोलीफॉर्म भी लाखों की जो नॉनकम्प्लायंट है और उनकी रेंज लाखों में है, जैसे *6.65* लाख ओखला पर है। इसके कुछ रीजन्स हमने दिए हैं। दिल्ली में कुल *35* एसटीपीज हैं और उनमें से *22* एसटीपीज, जो एनजीटी ने मानक दिए हैं, उनके अनुरूप नहीं हैं, उनके अनुरूप काम नहीं कर रहे हैं। इनको अपग्रेड किया जा रहा है। हालाँकि राज्य सरकारें उनको अपग्रेड करती हैं और एक समयबद्ध तरीके से काम कर भी रहे हैं। इन सबका मिला-जुला प्रभाव यह है कि करीब-करीब *617* एमएलडी अनट्रीटेड सीवेज दिल्ली में नदी में गिरता है..."।

<u>Impact of Pollution on the ecology of Yamuna</u>

4.7 In their background Note, the Ministry of Jal Shakti – Department of Water Resources, River Development and Ganga Rejuvenation have stated the following with regard to the impact of pollution on the ecology of Yamuna river:

> *"For healthy fish environment, the Dissolved Oxygen (DO) levels in the river should not reduce below 50% of saturation value for significant periods. DO values less than 30% of saturation value are lethal to the coarse fish and results in fish deaths. Although, the BOD value of the river water increased, the DO levels in the river water were sufficient enough for the sustenance of aquatic life. Below Wazirabad barrage upto Okhla barrage, the river receives approx. 6140 kg/hr BOD load out of which around 70% loadis contributed through Nazafgarh drain".*

4.8 When asked that whether the river Yamuna in Delhi is meeting the above prescribed parameters regarding healthy fish environment, the DoWR, RD & GR, in its written replies, stated as under:

> *"It is ascertained that for healthy sustenance of life, minimum DO requirement is >4 mg/l (Designated Best Use Water Quality Criteria- Class D: Propagation of Wild life and Fisheries) which is generally observed NIL in Delhi stretch of river Yamuna except at Palla.*

River Yamuna in Delhi is not meeting the prescribed parameters regarding healthy fish environment in the stretch between downstream of Wazirabad Barrage after meeting Najafgarh Drain to Asgarpur Village.

The Dissolved Oxygen level in the stretch of river Yamuna between downstream of Wazirabad Barrage after meeting Najafgarh Drain to Asgarpur Village is generally found Nil.

Incidents of dead fishes and shoals of dead fish washed ashore on the banks of river Yamuna in Agra have been reported a few times. The reasons for fish kill in river Yamuna could be due to:

- *Discharge of treated/ untreated and partially treated sewage and industrial effluent through drains from the cities and towns located on the upstream of river Yamuna apart from lean flow in river Yamuna.*
- *Non-availability of adequate infrastructure for treatment of generated sewage and improper operation of existing Sewage Treatment Plants (STPs) or captive Effluent Treatment Plants (ETPs) or Common Effluent Treatment Plants (CETPs) located on upstream of Agra including discharges from Delhi.*
- *Generally, water including wastewater from upstream of Mathura in river Yamuna gets accumulated at Gokul barrage at Mathura and discharge of water from Gokul barrage flushes out accumulated sediments/sludges from the river/river bed and gets agitated due to turbulence on the downstream of the Gokul Barrage and thereby depletion of dissolved oxygen occurs and such condition may lead to fish kill.*

However, no study to assess the damage to ecology of Yamuna and the fish environment has been conducted".

4.9 On being further asked as to how dangerous is the Biological Oxygen Demand (BOD) load i.e. 6140 kg./hr., which the river receives from the stretch below Wazirabad barrage upto Okhla barrage, for the overall health of river and its ecology, the DoWR, RD & GR, in its written submission, apprised the Committee as follows:

"Discharge of BOD load of 6140 kg/hr (which is equivalent to BOD concentration of approx. 40mg/l) may lead to depletion of DO in river water. The depletion of DO may impact the aquatic life and river rejuvenation capacity. Water quality data monitored under NWMP, for the stretch of river Yamuna between Wazirabad to Okhla depicts that DO level is NIL and not meeting the Primary Water Quality Criteria for Outdoor Bathing.

Based on the monitored data of 2021 & 2022, it was observed that discharge of high organic load in Delhi stretch resulted in the concentration of DO 'NIL' at Okhla downstream in Delhi. Dissolved oxygen recovers only after confluence with river Chambal at Etawah while a decrease in Biochemical Oxygen Demand is observed only at Hamirpur after confluence of tributary Betwa with river Yamuna.

Water quality of river Yamuna meets the criteria at location Prayagraj downstream Balua Ghat w.r.t the Primary Water Quality Criteria (PWQC) in terms of all parameters".

Chapter - V
INDUSTRIAL POLLUTION IN YAMUNA AND ITS TRIBUTARIES

5.1 The total number of industrial clusters in Yamuna basin States and Common Effluent Treatment Plants (CETPs), as furnished by the DoWR, RD & GR, in its written submission, is stated as under:

"There are 50 industrial clusters of Grossly Polluting Industries (GPIs) in Yamuna main stem States (Uttar Pradesh, Haryana and Delhi) and 34 Common Effluent Treatment Plants (CETPs). State wise details are as follow:

State	***Industrial clusters***	***Connected to CETP***	***CETPs***
Uttar Pradesh	*8*	*2*	*2 CETPs (Mathura, Tronica City)*
Haryana	*14*	*10*	*19 CETPs (Panipat-03, Faridabad-02, Gurugram-02, Ambala-02, Jind-01, Panchkula-01, Rewari-01, Rohtak-03, Sonipat-04)*
Delhi	*28*	*17*	*13 CETPs (Badli, Bawana, Karnal Road, Jhilmil, Lawrence Road, Mangolpuri, Mayapuri, Naraina, Narela, Okhla, SMA CETP, Udyog Nagar and Wazirpur).*

The wastewater generated from 29 clusters is treated through designated CETPs and wastewater from remaining clusters is discharged through drains to river Yamuna and its tributaries. During annual inspections 2021-22, out of total 34 CETPs located in Yamuna main stem, 33 were found operational and 01 non-operational. Out of 33 operational CETPs, 19 were found complying and 14 were non-complying w.r.t standards prescribed by concerned SPCB/PCC.

Re-development Areas

- *There are 26 areas notified by the Industries Department, Govt. of NCT of Delhi for re-development. These areas are non-conforming clusters of industries for redevelopment. Most of the industries/ units in these re-development areas are dry/ non water polluting.*
- *These redevelopment areas are lacking infrastructural facilities which are to be developed as per the norms for redevelopment of clusters of industrial concentration in non-conforming areas as given in point no. 7.6.2.1. of MPD-2021".*

5.2 When asked to furnish the total number of industrial clusters in Delhi which are connected to CETPs, the DoWR, RD & GR, in its written replies, stated as under:

"Delhi Pollution Control Committee (DPCC) has informed that there are 28 approved industrial areas in Delhi out of which 17 are connected with the 13 CETPs. Most of the units operating in remaining 11 approved industrial areas are Non-Water Polluting. Water Polluting units in these 11 approved industrial areas have individual waste water treatment facilities".

5.3 When asked as to whether all the CETPs and STPs are meeting the standards prescribed by the Delhi Pollution Control Committee (DPCC), the DoWR, RD & GR, **in** its written replies, stated as under:

- *"CETPs - As per the latest Analysis Report of DPCC for the Month of July, 2023 all the 13 CETPs are meeting the prescribed standards.*

- *STPs (based on Analysis Reports of June, 2023)*
  - *No. of Operational STPs : 35*
  - *No. of Complying STPs : 13*

  [w.r.t. Standards prescribed by DPCC (BOD/TSS: 10/10 mg/l)]
  - *No. of Complying STPs : 33*

  [w.r.t. Design Parameters]

5.4 In response to a query as to whether these CETPs and STPs are functioning as per their optimal level or there is a gap in treatment capacity, the Department stated as under:

CETPs :
Having sufficient capacity however are under-utilised.

Capacity of 13 CETPs : 212.3 MLD
Capacity Utilisation : 67.5 MLD
(31.8 % of Capacity)

STPs :

- *Installed Treatment Capacity of 35 Operational STPs : 2874 MLD*

- *Capacity Utilization of existing 35STPs :2542 MLD*
  (88.5% of Capacity)"

5.5 When asked by the Committee as to how many unauthorized industries are operating in Delhi and whether any arrangement has been made for treating the industrial effluents generated from these unauthorized industries, the Department in its written submission stated as under:

"As informed by DPCC, no such information is available.

Hon'ble Supreme Court vide judgment dated 07.05.2004 in WP (C) No. 4677 of 1985 in the matter of M.C. Mehta Vs. UOI &Ors has directed that all industrial units that have come up in residential/ non-conforming areas in Delhi on or after 1st August,1990 shall close down and stop operating as per the schedule given in the said order.

Hon'ble Supreme Court vide said Judgment also appointed a Monitoring Committee comprising (i) Chief Secretary of Delhi (ii) Commissioner of Police, Delhi, (iii)Commissioner, Municipal Corporation of Delhi (iv) Vice Chairman of

Delhi Development Authority and made this Committee responsible for stoppage of illegal industrial activity in NCT of Delhi.

As per the decisions taken in the meeting of Chief Secretary, Govt of NCT of Delhi held on 13.09.2018, for effective implementation of said order dated 07.05.2004 of Hon'ble Supreme Court, MCD has/ is taking necessary action for closure of unauthorized/ illegal Industries in residential/ non-conforming areas in Delhi.

Joint Teams consisting of MCD, DPCC, Revenue Dept., Power Companies, and DJB have also been constituted for taking action taken against dyeing industries/ units in non-conforming areas of Delhi".

Grossly Polluting Industries (GPIs)

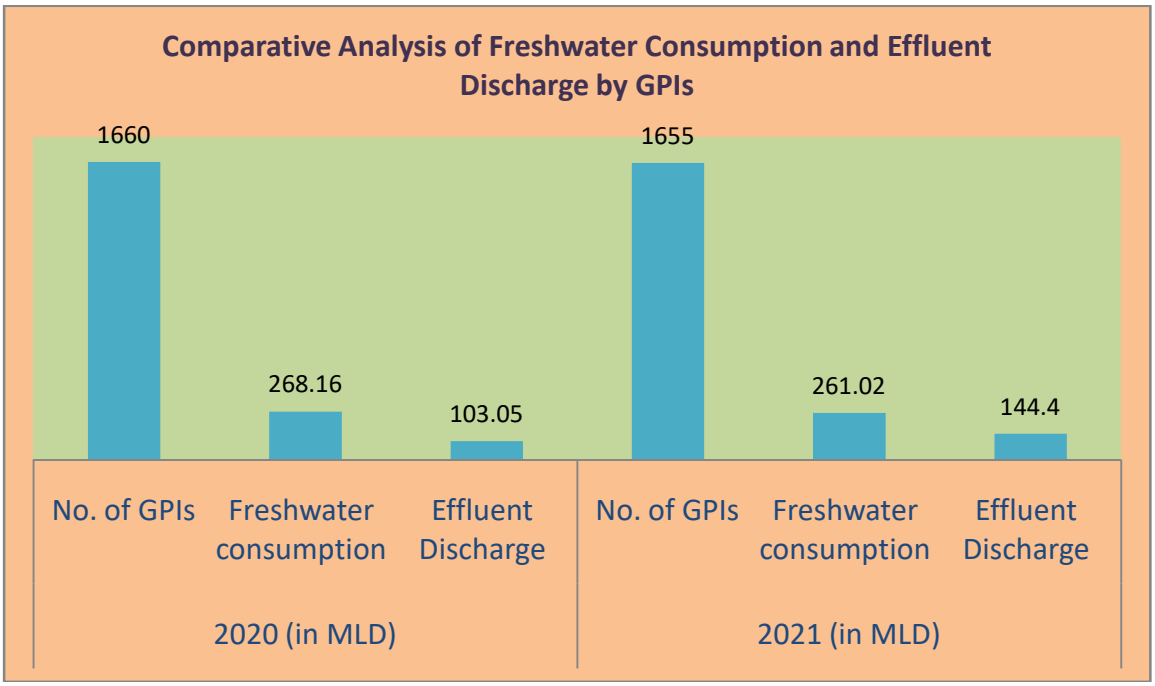
5.6 When asked by the Committee to give State-wise details regarding number of GPIs located in Yamuna main stem States and the water consumed by them and waste water/total effluents generated, the DoWR, RD & GR, in its written replies, stated as under:

"Annual inspection of GPIs operating in river Yamuna main stem States namely Uttarakhand, Haryana, Delhi-NCT and Uttar Pradesh having potential to discharge into river Yamuna and its tributaries is being carried out since 2020. A total of 1660 GPIs during 2020-21, 1655 GPIs during 2021-22 and 1957 GPIs during 2022-23 were inspected.

During 2020-21, out of total 1660 GPI, freshwater consumption of 268.16 MLD and discharge of 103.05 MLD waste water was estimated from 1219 operational GPIs. During 2021-22, out of total 1655 GPIs, freshwater consumption of 261.02 MLD and discharge of 144.4 MLD waste water was estimated from 1319 operational GPIs. State-wise details are as furnished in Table below:

Table 4: State wise details of freshwater consumption and effluent discharge by GPIs

States	2020 (in MLD)			2021 (in MLD)		
	No. of GPIs	Freshwater consumption	Effluent Discharge	No. of GPIs	Freshwater consumption	Effluent Discharge
Delhi	267	5.04	1.90	210	15.28	2.4
Haryana	832	133.6	38.87	924	113.13	54.59
Uttar Pradesh	551	124.27	59.42	510	128.21	84.75
Uttarakhand	10	5.25	2.86	11	4.4	2.66
Total Load	**1660**	**268.16**	**103.05**	**1655**	**261.02**	**144.4**



5.7 On being asked to furnish the details regarding Real Time Effluent Monitoring systems installed in GPIs and their performance in reducing pollution in the Yamuna till 30.06.2023, the DoWR, RD & GR, in the written replies, submitted as under:

> *"CPCB issued directions dated 11-03-2021 to State Pollution Control Boards of Uttarakhand, Haryana, Delhi and Uttar Pradesh to further direct GPIs to install Online Continuous Effluent Monitoring System (OCEMS). Till date, 540 GPIs out of 1957 GPIs in Yamuna main stem have installed OCEMS and connected with SPCB and CPCB server".*

Health hazards from industrial effluents

5.8 On being asked about the health hazards associated with industrial effluents discharged into river Yamuna and its tributaries, the DoWR, RD & GR furnished following written submission:

> *"River Yamuna and its tributaries are getting polluted due to discharge of untreated/partially treated/treated wastewater. The pollution in rivers is increasing due to rapid increase in population and resultant wastewater generation too, due to which presence of high content of detergent, laundry chemicals, and phosphate compounds formed layers of toxic froth covering the rivers. Also, heavy metals presence in river water is due to their toxicity, accumulation and non-degradable nature, constitute one of the health hazards.*
>
> *The details of pollutants, its sources and probable health effects are as follows:*

Pollutants	***Major Sources***	***Effect on Human Health***
Lead	*Paint, Pesticide, Batteries, Crystal Glass Preparation.*	*Cognitive Impairment In Children, Peripheral Neuropathy In Adults, Developmental Delay*
Copper	*Electroplating, Pesticide Production, Mining.*	*Headache, Nausea, Vomiting Diarrhea And Kidney Malfunctioning*
Zinc	*Effluents from Electroplating Industries, Sewage Discharge, The Immersion of Painted Idols*	*Vomiting, Diarrhea, Icterus, Liver And Kidney Damage*
Nickel	*Stainless Steel Manufacturing Units, Electroplating Factory Discharge*	*Neurotoxic, Genotoxic, And Carcinogenic Agent, Nickel Dermatitis*
Cadmium	*Electroplating, Preparation of Cd-Ni Batteries, Control Rods, Shields within Nuclear Reactors, Television Phosphors.*	*Kidney and Liver Damage. Renal Dysfunction, Gastrointestinal Damage.*
Chromium	*Mines, Electroplating*	*Gastrointestinal, Hepatic, Renal, Neuronal Damage*

In addition to above, Ammoniacal Nitrogen and Nitrate besides organic pollution load are the health hazards associated with industrial effluents discharged. The health hazards associated with Nitrogen is given below:

S. No.	***Pollutant***	***Effects***
1.	*Nitrate-N (NO_3-N)*	*Methemoglobinemia in infants and susceptible adults. Toxic to aquatic life, especially freshwaters Eutrophication and low oxygen (hypoxia), especially in coastal waters*
2.	*Nitrite-(NO_3)*	*Methemoglobinemia in infants and susceptible adults. Toxic to aquatic life*
3.	*Ammonia-N (NH_3-N)*	*Toxic to aquatic life*
4.	Ammonium-N (NH_4-N)	Can convert to more highly toxic ammonia in high pH and temperature waters
5.	Organic-N	Can convert to ammonium and ultimately nitrate under certain conditions

Chapter - VI
YAMUNA WATER POLLUTION FROM MUNCIPALITIES / NON-POINT SOURCES

6.1 The issue of pollution in Yamuna river water from non industrial sources was also deliberated. A query was raised as to what extent municipal sewage discharge have contributed to the overall pollution and degradation of the river Yamuna. Replying to this, the Department, in its written replies stated as under:

> *"As per broad assessment carried out, untreated sewage from municipalities contribute approx. 80% of pollution load into the river. Thus they remain important point source impacting river health".*

6.2 With regard to pollution in river water in UP, the DoWR, RD & GR submitted following written reply:

> *"As informed by UPPCB, it is estimated that discharge of sewage contributes approximately 80 percent of total pollution load in River Yamuna in the State of U.P".*

Major Drains falling into river Yamuna

6.3 In response to a query regarding details of total number of drains in Yamuna basin (State-wise), their flow and pollution load contribution in respect of Yamuna river and its tributaries during the last three years (year wise) till 30 June, 2023, the DoWR, RD & GR, in its written replies, stated as under:

> *"As per the information submitted by respective SPCBs, the major drains contributing to pollution in river Yamuna are:*

S. No.	***State***	***No. of drains***
1.	*Delhi*	*18*
2.	*Haryana*	*11*
3.	*Uttar Pradesh*	*35*
Total		***64***

> *..... As informed by UPPCB, there are total 137 drains discharging in river Yamuna in the State of U.P. Detail regarding flow estimation for all the drains has not been worked by UPPCB. However, out of 35 major drains,18 drains are carrying mixed wastewater and 17 are carrying purely domestic sewage.*

> *The major drains from Delhi falling or discharging into river Yamuna are monitored by CPCB, the range of discharge of wastewater, BOD and COD are listed below:*

S. No.	Drains in Delhi	Discharge (MLD)		BOD (mg/l)		COD (mg/l)	
		min	max	min	max	min	max
1	Najafgarh Drain	1966	2379	23	78	76	271
2	Magzine Road drain	2	4	114	139	251	270
3	Sweeper Colony drain	3	4	14	21	31	75
4	Khyber pass drain	2	14	5	53	31	95
5	Metcalf house drain	3	7	9	27	38	107
6	ISBT+Mori gate drain	31	63	10	109	41	246
7	Tonga Stand drain	1	24	2.7	201	20	958
8	Shastri park drain	5	13	26	137	116	428
9	Kailash Nagar drain	9	29	113	428	232	1085
10	Civil Mill drain	4	14	10	75	48	195
11	Power house drain	48	245	6	169	10	460
12	Sen Nursing home drain	26	403	23	240	82	647
13	Drain no. 14	7	102	5	16	26	59
14	Barapulla drain	138	898	29	87	98	281
15	Maharani Bagh Drain	28	112	28	153	122	481
16	Abu Fazal drain	16	96	11	132	89	320
17	Jaitpur drain	16	48	69	237	170	610
18	Tuglakabad drain	19	54	34	171	115	608
19	Shahdara drain	484	829	54	163	168	574
20	Saritavihar drain	21	130	27	260	126	854
21	Mold Bandh drain	4	43	60	163	175	512"

6.4 Regarding discharge of drains into Yamuna river in Himachal Pradesh, the DoWR, RD & GR submitted following written replies:

"As informed by Himachal State authorities, there is no direct municipal sewage discharge into River Yamuna in Paonta Sahib area of District Sirmaur. In addition to this there are 4 no's of drains in municipal limits identified carrying grey water and ultimate discharge in River Yamuna as furnished below:

Sr. No.	Name of Drain	Flow	Analysis Results of Parameters based on sampling carried out by HPSPCB in Nov, 2022					
			pH	TSS (mg/l)	COD (mg/l)	BOD (mg/l)	Oil & Grease (mg/l)	TC (MPN/100 ml)
1.	MC Paonta Sahib Drain near Shri Deiji Sahiba Temple Devinagar, Paonta Sahib	0.5 MLD	6.98	213	648	300	8.4	320000
2	MC Paonta Sahib Drain, KripalShilla Gurudwara, Devinagar, Paonta Sahib	0.019 MLD	7.12	540	756	390	11.6	480000

3	*MC Paonta Sahib Drain near Sabji Mandi*	*0.5 MLD*	*7.57*	*36*	*112*	*35*	*3.2*	*108000*
4	*MC Paonta Sahib Drain near Old SBI, Paonta Sahib*	*0.9 MLD*	*7.04*	*80*	*236*	*95*	*2.8*	*184000*

6.5 On the issue of drains, the representative of the National Mission for Clean Ganga (NMCG) during the course of oral evidence held on 27.07.2023, apprised the Committee as follows:-

"...आप देखें कि जब यह हरियाणा में हथिनीकुंड बैराज के बाद एंटर होती है, तो यहां दो मुख्य ड्रेंस मिलती हैं – ड्रेन नंबर – 2 और ड्रेन नंबर – 8, ड्रेन नंबर – 2 पानीपत एरिया को ड्रेन कर रही है और ड्रेन नंबर – 8 सोनीपत शहरी क्षेत्र से निकलकर आती है। ये दो मुख्य ड्रेंस हैं, जो हरियाणा में पॉल्युशन की कारक हैं..."।

... *यह जो ड्रेन नंबर* 2 *और* 8 *जिसका अभी पहले जिक्र किया था, इसकी वजह से भी बहुत बड़ी मात्रा में आर्गेनिक लोड और इंडस्ट्रियल पॉलूशन आता है...।*

... हरियाणा के बाद जब यह दिल्ली में एंटर होती है, तो यह वजीराबाद के डाउनस्ट्रीम में जो मुख्य ड्रेंस हैं, जैसे नजफगढ़ ड्रेन है, जो बहुत बड़ी मात्रा में दिल्ली का ट्रीटेड और अनट्रीटेड, दोनों तरीके का पानी लाती है। यह करीब 23 क्यूमैक्स पानी लाती है। इसके बाद कई सारी ड्रेंस हैं, जो ओखला तक मिलती हैं..."।

6.6 Regarding pollution of Yamuna river water in Uttar Pradesh, the representative of the National Mission for Clean Ganga, during the course of oral evidence held on 27.07.2023 further informed the Committee as under:

"...महोदय, उत्तर प्रदेश भी यमुना के लिए एक स्टेक होल्डर है। इसकी हिंडन एक मुख्य नदी सहारनपुर से गाजियाबाद तक प्राइयोरिटी-वन की पॉल्यूटेड स्ट्रेच है। इस नदी का बीओडी 30 मिलिग्राम प्रतिलीटर से ज्यादा रहता है। करीब 453 वॉटर पॉल्यूटेड इंडस्ट्रीज हिंडन नदी के पास हैं जिनमें छह जिले इनवॉल्वड हैं। इनमें से 55 इंडस्ट्रीज सी. ई. टी. पी. 6 एमएलडी से कनेक्टेड है। बाकी बची हुई करीब 400 इंडस्ट्रीज के अपने ट्रीटमेंट प्लांट्स हैं और 22 जो 453 इंडस्ट्रीज़ हैं, उनका 78 मिलियन लीटर्स प्रतिदिन एफ्युलेंट है, वह हिण्डन में जाता है या हिण्डन की जो सहायक नदिया हैं, कालीवेस्ट और कृष्णी, उनमें जाता है। लेकिन ये जो एस्टीमेट्स हैं, जो यूपी पॉल्युशन

कंट्रोल बोर्ड ने एक कनसेंट दिया हुआ है, इन इंडस्ट्रीज़ को ऑपरेट करने का, यह फिगर्स के सापेक्ष है। लेकिन ऐसा लगता है कि जो इंडस्ट्रीज़ हैं, वे जो एफ्यूलेंट जनरेट कर रही है, उससे कहीं अधिक है। सर, जो म्युनिसिपल सीवेज की सिचुएशन है, यूपी में करीब 22 एसटीपीज़ हैं, जिनकी टोटल एग्ज़िस्टिंग ट्रीटमेंट कैपेसिटी 1163 एमएलडी है। 22 में से जो राज्य रेग्युलेटर ने बताया है, तीन एसटीपीज़ नॉनकम्पलायंट हैं, बाकी सारे एसटीपीज़ कम्पलायंट हैं। हालांकि जो ड्रेंस हैं, नाले हैं या हिण्डन नदी है, उसकी कंडीशन देखकर ऐसा नहीं लगता है कि ये एसटीपीज़ कम्लायंट होंगे या इंडस्ट्रीज़ जो ट्रीट कर रही हैं, वे कंपलायंट होंगे...”।

6.7 When asked to furnish whether any timeline has been fixed for trapping all the drains discharging into river Yamuna particularly in the State of Delhi, the DoWR, RD & GR, in its written replies, stated as under:

“As informed by UPPCB, as per Hon’ble NGT Order dated 13.07.2017 in O.A. No- 200/2014 MC Mehta Vs Union of India all the drains discharging into River Ganga shall be intercepted and subjected to suitable treatment so as to ensure no untreated discharge reaches the rivers.

As informed by DPCC, there are 22 drains which are out falling into river Yamuna in the Delhi. Out of 22 Drains, 09 drains have been trapped, 02 drains are partially trapped [Delhi Gate Drain - STP of 10 MGD is proposed for treating the remaining Flow and Sen Nursing Home Drain - Due to ongoing construction activity by CPWD around the WHO complex, subsoil water is also being pumped into the drain after the trapping. Complete trapping of the drain is possible after stopping discharge from the construction activity of CPWD].

Two Drains i.e. Najafgarh&Shahdara are large drains and technically not feasible to trap whole drain however these drains are included in the Interceptor Sewer Project where substantial flow of sub-drains under their command areas will be trapped and treated after trapping of their sub drains.

Flow is yet to be trapped / diverted to sewer / STPs in case of 09 drains.

In case of 03 Drains (Mori Gate, Barapulla& Maharani Bagh Drains) brief status is as given below:

*(i) **Mori Gate Drain (9.51 MGD)** - Sewage will be carried to Nehru Vihar SPS by laying a rising main from proposed SPS at ISBT Kashmere Gate for treatment in the Coronation Pillar STP. Work order has been issued on 23.12.2022. Work is under progress and likely to be completed by November, 2023 (Earlier Timeline was Sept, 2023).*

*(ii) **Barapulla Drain (31.97 MGD)** - Flow is proposed to be diverted by laying of interceptor sewer through micro tunneling for conveying to Okhla STP for treatment. Work is under progress and to be completed by December, 2023 (Earlier Timeline was Sept, 2023).*

*(iii) **Maharani Bagh Drain (6.66 MGD)** – The work of trapping of 9-10 MLD flow in C.V. Raman Marg Trunk sewer has been completed. The balance flow of about 20 MLD will be trapped in the proposed scheme of Barapullah Drain for*

treatment in Okhla STP. Work is under progress and to be completed by December, 2023 (Earlier Timeline was Sept, 2023).

Delay occurred due to Rains & Flooding in Delhi.

Information about out falling drains into River Yamuna in Delhi and their water quality as per Analysis Reports of DPCC in the month of June, 2023 is at ***Annexure- III"***

6.8 On being further asked to furnish the reasons for compliance/non-compliance with the prescribed parameters/standards as far as water of the major drains falling into river Yamuna is concerned, the (DoWR, RD & GR) in its written replies stated as follows:

"As informed by HPPCB, concerned Municipal Committee and Jal Shakti Vibhag have not taken corrective measures as per the Yamuna Action Plan such as carrying out survey, preparation of DPR for STP at Pujarighat, 100% household connectivity to existing STP.

As informed by UPPCB, the exceedance has been mainly due to incomplete interception/diversion/treatment.

Reasons for non-compliance with the prescribed parameters/ standards by the major drains out falling into river Yamuna in Delhi are as follows:

(i) Untreated sewage discharge from Unauthorised Colonies in Delhi

(ii) Untreated sewage discharge from JJ Clusters in Delhi

(iii) Gap in Estimated Sewage Generation (3600 MLD) and installed Treatment Capacity of existing 35 STPs of DJB (2874 MLD).

(iv) Waste water (untreated/ partially treated sewage/industrial effluent) coming from Haryana through various drains [L III (Badshahpur Drain) from Gurugram, L II from Dharampur from Gurugram, L I from Bajgera PalamVihar from Gurugram, Drain No. 6 from Sonipat, Mungeshpur Drain &Bhupania Drain from Bahadur Garh&Bhupania region] and discharging into Najafgarh Drain which finally discharges effluent into river Yamuna in Delhi.

(v) Waste water (untreated/ partially treated sewage/industrial effluent) coming from Uttar Pradesh through various drains [Shahibabad Drain, Indirapuri Drain &Banthala Drain] and discharging into Shahdara Outfall Drain which finally discharges effluent into river Yamuna in Delhi.

As informed by DPCC, untreated/partiallytreatedsewage/industrialeffluent discharged through Hindon cut canal into river Yamuna at the Upstream of Okhla Barrage".

Sewage Interventions

6.9 Asked to furnish a detailed note on the latest status of Sewage Treatment Plants (STPs) indicating total number, installed and utilized capacity (MLD), number of STPs

not in operation as well as non-complying to the established norms (State – wise) in Yamuna main stem States, the DoWR, RD & GR, in its written reply, stated as under:

> *"Gaps are identified in sewage generation and treatment capacity. Gaps are calculated based on Sewage Generation vis-à-vis actual utilization or compliance capacity, whichever lower".*

State	***Estimated Sewage generation for the whole State***	***Existing Treatment Capacity in the State***	***Utilization Capacity***	***Non-operational STPs***	***Non-complying STP***
Delhi	***3600 MLD***	***35 STPs of 2874 MLD***	***2486.7 MLD***	***NIL***	***22***
Haryana	***1506.9 MLD***	***156 STPs of 1835.2 MLD***	***1465.7 MLD***	***NIL***	***64***
Uttar Pradesh	***5500 MLD***	***130 STPs of 4074.5 MLD***	***3187.27 MLD***	***7***	***27***
Uttarakhand	***329.32 MLD***	***69 STPS of 427.9 MLD***	***245.78 MLD***	***4***	***30***
Himachal Pradesh	***91.95 MLD***	***75 STPs of 126.33 MLD***	***85.827 MLD***	***NIL***	***22***

(Status as of June 2023")

6.10 On being asked about the factors that have hampered proper execution of sewage treatment works in Yamuna basin States along with remedial steps taken by the Government to address these issues, the DoWR RD & GR, in its written reply stated as follows:

> *"Currently, work of STPs Zone-III in Village Kishanpura, Paonta Sahib in Himachal Pradesh is completed. Sewage connectivity with households is under process. There is lack of motivation in people to undertake sewage connections. Jal Shakti Vibhag Paonta Sahib is encouraging people to get sewage connections.*
>
> *The delay in permission from Railway Department for passing sewer lines/ pressure mains below existing railway line through culvert, permission for tree transplantation/ cutting from State Forest Department, permission from Irrigation department for laying pressure main along bridge over river, permission from Forest department, permission from PWD/ local authorities are found main issues for delay in project implementation. The issues were resolved through intervention by the Central Govt / MoJS to different concerned departments.*
>
> *Unauthorised Colonies/ JJ Clusters which are not having sewerage system for conveying the sewage to the STPS. Delhi Jal Board has taken the task of providing sewerage network in all the 1799 Unauthorised Colonies in Delhi and the status of sewerage network is at* ***Annexure- IV.***
>
> *DJB is also required to connect the drains/drainage system of JJ Clusters with the sewerage network of DJB. Connection of each and every household to sewerage network (including connections in all the 1799 unauthorized colonies) is also required to be done by DJB".*

6.11 When asked about the number of unauthorised colonies located in Delhi and out of these, how many colonies have been connected to sewer lines, the DoWR RD & GR, in its written submission, stated as under:

> *"There are 1799 nos. of unauthorised colonies in Delhi. Till Dec 2021, sewer lines are laid and commissioned in 685 unauthorised colonies. Sewer line works are under progress in 469 nos. of unauthorised colonies and in 161 colonies, the NOC from the forest department is awaited. In 484 no of colonies, sewerage system is to be laid and will be connected with Decentralized STPs after possessions of land by DDA & Revenue Deptt".*

6.12 In response to another query on total area under the NCT of Delhi, which is yet to be covered under the DJB sewerage network, the DoWR, RD & GR, in its written submission stated as under:

> *"At present about 79% area is sewered and 21% area is unsewered. As regards 1799 unauthorised colonies, sewerage system has been laid and commissioned in 706 nos. of unauthorised colonies and work is in progress in 448 unauthorized colonies. There are 161 number of unauthorised colonies for which NOC has not been issued due to being in O-zone/ Forest land/ASI land etc.*
>
> *Proposals for STPs, SPSs and sewerage network are being framed for balance 484 number of unauthorised colonies and it is proposed to complete sewerage network by Dec. 2024 subject to availability of land parcels for STPs and SPSs".*

<u>Use of fertilizer and pollution of river Yamuna</u>

6.13 When asked that whether the Government has assessed the extent and impact of discharge of pesticides residue used in agriculture on the pollution of river Yamuna and the extent and magnitude of pollution caused in river Yamuna due to application / use of fertilizer in agriculture during the last five years, the DoWR, RD & GR in its written submission stated as follows:

> *"Assessment regarding the extent and magnitude of pollution caused in river Yamuna due to application / use of fertilizer in agriculture during last five years has not been carried out by CPCB and monitoring of agronomic practices adding to pollution load/ components in river Yamuna daily and remedial agronomic practices do not come under the work domain of CPCB. However, in compliance to the directions of Monitoring Committee on river Yamuna (MC) constituted by Hon'ble NGT in O.A No 06/2012 in the matter of Manoj Mishra Vs UoI, CPCB conducted a onetime study and tested vegetables grown on the bank of river Yamuna through laboratories identified by FSSAI in Delhi during 2019 in flood plains of Delhi stretch of river Yamuna. The findings of the study are given as below:*
>
> - *Ground water quality contains heavy metals such as Mn and Fe, predominantly which may be due to anthropogenic sources in all over the 48 Km stretch of River Yamuna.*

- *A small concentration of Al, Cr and As have been observed at Geeta Colony and Madanpur Khadar.*
- *Metals are detected in the river water with exceedances of mainly Al, Mn, Fe, Cu & Pb on comparing the river water quality with drinking water standards of BIS 10500, 2012.*
- *No exceedance was observed in vegetable and fodder samples for metals and pesticides with respect to FSSAI notifications, 2011(metals) and 2018 (pesticides) as no significant level of metals were observed in ground water.*

In view of the above it is concluded that the contamination of soil was observed at most of the monitoring sites which may be due to excessive use of fertilizer. However, water quality of River Yamuna depicts trace amount of metals at some locations is primarily due to industrial wastewater discharge. Organic farming may be encouraged to reduce the hazardous effect of chemical fertilizers and pesticides in Delhi flood plain of River Yamuna".

Solid Waste

6.14 On being asked to furnish the State-wise details of the extent and magnitude of pollution caused by the discharge of solid wastes into the river Yamuna and its tributaries including its composition and percentage share in the overall pollution of the river Ganga, the DoWR, RD & GR, in its written submission, stated as under:

Sl. No.	State	No. of Yamuna Towns	Current Waste Generation (TPD)	Processing Capacity created TPD (towns)	Actual utilization of Processing Capacity created)	Gap in Processing Capacity
1#	Uttarakhand					
2	Himachal	1	11 TPD	8.65 TPD	100%	2.35
3	Uttar Pradesh	06	1832	1335	1201	497
4#	Haryana					
5	Delhi	1	11376	8219	7529	3157*
6#	Rajasthan					

**To fill the Gap in capacity Additional Municipal Solid Waste (MSW) facilities with total capacity of 6470 Tonnes Per Day (TPD) are proposed to be installed by December, 2027.*
(# Data has not been received from concerned State Governments)

6.15 Asked to state the details of the work of trapping solid waste through provision of screens in drains before it enters into river Yamuna and its tributaries, the DoWR, RD & GR, in its written replies, stated as under

Sl. No.	State	No. of drains/Nallahs discharging in Yamuna	No. of drains/Nallahs having screens or tapped to STPs with Screens	No. of drains/Nallahs where Screens yet to be installed
1	Uttarakhand			
2	Himachal Pradesh	5	One Drain tapped with STPZone-III (Paonta Sahib) and other4 drains are provided with screens to prevent solid waste entering into stream of RiverYamuna	0
3 *	Uttar Pradesh			
4 *	Haryana			
5 *	Delhi			
6 *	Rajasthan			

*(*Data has not been received from concerned State Governments")*

6.16 When asked to state as to what extent the existing cremation process is responsible for pollution in Yamuna river, the DoWR, RD & GR, in its written submission, stated as under:

> *"No such study results are available. In the Nigambodh Ghat, the pollution in the Yamuna river in the present way is very less. Air pollution is mainly caused by smoke.*

6.17 When enquired by the Committee as to how many electric crematoria / improvised wood-based crematoria have been set up on the banks of Yamuna river so as to contain Yamuna pollution, the DoWR, RD & GR, in its written reply stated as follows:

> *"It is informed that only Nigam Bodh crematorium is situated on the bank of Yamuna in the area of North Delhi Municipal Corporation, in which 6 CNG furnaces, 6 Moksha Dah furnaces and about 90 open platform facilities are available for the rites. To reduce poll in Yamuna, rituals are discouraged on the pyres built on the banks of Yamuna. And whatever remains are found on the banks of Yamuna, proper arrangements are made for their cleaning so that there is no water pollution in Yamuna. North Delhi Municipal Corporation and Badi Panchayat Vaish Bisa Aggarwal have done many works from time to time and issued appropriate. instructions to reduce pollution in Yamuna.*

Chapter VII
Formation of Foam in River Yamuna

7.1 Froth / Foam formation in river Yamuna in Delhi particularly at the downstream of Okhla Barrage near KalindiKunj occurs particularly when the gates/ under sluices of Okhla barrage are opened and water is released through energy dissipating arrangements which creates churning and formation of froth. This is often witnessed during Chhat Pooja prior to onset of winter. The Committee undertook a local Study visit to Okhla Barrage to study the causes and impact of foam formation on Yamuna water surface.

7.2 When asked to furnish the reasons for formation of foam in river Yamuna and its impact, the DoWR, RD & GR in its written reply stated as follows:

> *"Incidences of foaming in river Yamuna at identified locations such as at ITO Bridge, Okhla and Kalindi Kunj in Delhi have been observed and also highlighted in news reports during last few years.*
>
> ***Reasons for formation of Foam in River Yamuna:***
>
> - *At Okhla barrage, all treated and untreated wastewater of Delhi is impounded and only excess wastewater released downstream. Release of wastewater from barrage agitate surfactants present and foam formation takes place; foam quantities increase with discharge quantity of wastewater from the barrage.*
> - *Presence of surfactants and phosphates in detergents indicate discharge of untreated sewage or partially treated sewage or industrial effluent containing laundry chemicals.*
> - *Detergents contain phosphates (Sodium tri-poly-phosphate) released from households or dry cleaning or other industrial operations. The phosphoric compounds get settled in the form of sludge on the river bed. During monsoon or when there is a sudden change in gradient of a water body, due to agitation and turbulence, the phosphoric compounds present in the water body get agitated and surface forming piles of foam arises.*
>
> ***Sources of pollutants causing foaming at Okhla Barrage:***
>
> a. *Discharge of untreated/ partially treated sewage in river Yamuna in Delhi.*
>
> b. *The Okhla Barrage is being maintained by U.P. Irrigation Department. Large amount of water hyacinth growth on the pondage of Okhla Barrage and release surfactants on decomposition.*
>
> ***Impact of foaming:***
>
> - *The foam contains polluted river water and can cause skin irritation and infections.*
> - *Phosphates in water cause eutrophication of algae which creates conditions favorable to formation of harmful algal blooms. These blooms prevent light and*

oxygen from getting into the water, leading to the death of organisms in the ecosystem.

Proposed Remedial/ Preventive Action:

For prevention of foaming in river Yamuna following actions are proposed to be taken by Delhi Government:

1. Entire sewage generated from the stretch of Delhi requires proper treatment. Surfactants released from households or commercial establishments get biodegraded in sewage treatment plants, which will reduce the foam formation in river Yamuna to negligible levels. The treated sewage is re-used for purposes such as flushing, irrigation, etc.

2. BIS has stipulated standards for household detergents and industrial detergents (IS-4155 & 4156). These standards have been revised and reduced phosphates in the products. All detergent manufacturing units in the country should be directed to produce detergents only as per BIS Specification, after obtaining BIS Certification.

3. The alternatives for phosphates in detergents, such as sodium aluminum silicate, sodium citrate, polyacry latest and tetra sodium etidronate should be introduced.

4. U.P. Irrigation Department may remove all the water hyacinth existing in the Okhla pondage to reduce release of surfactants from the dying weeds/ hyacinth in the river.

5. Bio-culture based foaming treatment may be carried out by drain owning agencies and also by U.P. Irrigation department (for Hindon cut and downstream of Okhla barrage).

6. Eventually, up gradation of existing Sewage Treatment Plants (STPs), Common Effluent Treatment Plants (CETPs) in Haryana, Delhi and UP States and ensuring compliance to the discharge norms by the existing STPs, captive ETPs and CETPs located in Haryana, Delhi and UP may also help in reducing the foaming problem by removing the bio nutrient levels".

7.3 In responding to a query as to whether any previous steps have been taken by the UP Government in removing the water hyacinth existing in the Okhla pondage, the DoWR, RD & GR, in its written reply, stated as under:

"Irrigation and Water Resources Department, Government of Uttar Pradesh informed that Okhla barrage is a diversion scheme meant for Agra canal, to provide the water for irrigation to Uttar Pradesh, Haryana and Rajasthan. Okhla barrage feeds the water to Agra canal for irrigation purpose. For diversion of water in Agra canal, it is essential to maintain a certain level of pondage in upstream of Okhla barrage. In lean period upstream of Okhla barrage Yamuna River carry polluted water. Polluted water is the main cause of water hyacinth in water bodies. Removal of water hyacinth is not the subject of UP Irrigation department. If water

in Yamuna River is clean and free from any pollution then only water hyacinth growth can be stopped".

7.4 Asked further to state the steps taken to remove the foaming and also the efficacy of these steps, the DoWR, RD & GR, in its written reply, stated as under:

"Froth/Foam formation in river Yamuna is due to presence of Phosphates & Surfactants and untreated sewage in river Yamuna. Froth/Foamformation at the downside of Okhla Barrage is more due to turbulence caused by fall of water from the Okhla Barrage.

Solution for prevention of Froth/Foam formation in river Yamuna is complete treatment of sewage by Delhi, Haryana and Uttar Pradesh which is being discharged through various drains into river Yamuna and also prevention of discharge containing Phosphates and Surfactants into river Yamuna.

Action taken by DPCC for prevention/minimising the Froth/Foam formation in river Yamuna:

(i) Letter dated 19.11.2020 followed by Reminders dated 21.01.2021, 23.03.2021, 30.06.2021, 12.11.2021 were issued by DPCC to Irrigation and Water Resources Department, Uttar Pradesh, for removal of the Water Hyacinth from the pondage of Okhla barrage in Delhi.

(ii) A meeting was held on 12.11.2021 with the Experts of various Technical Institutes and concerned Departments in Delhi on Froth/Foam Formation in river Yamuna particularly at the downstream of Okhla Barrage in Delhi and Minutes of the meeting were sent to all the concerned Departments for taking action for control of froth/foam formation in river Yamuna in Delhi.

(iii) DO Letters 05.01.2022 & 22.03.2022 were issued by DPCC to Irrigation and Water Resources Department, Uttar Pradesh for necessary action including following

a) Removal of water hyacinth from the pondage area of Okhla Barrage.

b) To provide gentle slope at the Okhla barrage for smooth flow to avoid turbulence at the downstream. Gates of the barrage should be opened in such a manner that free fall of discharge is prevented.

c) Arrangements of smooth discharge spillway provision for smooth discharge instead of vertical fall at Okhla Barrage to be examined. Hydraulic Experts may be consulted in this regard.

d) Change in cleaning schedule of Agra canal (being maintained by Irrigation Department of UP) to avoid excessive Foam/Froth formation at the downside of the Okhla Barrage during Chattha Puja.

e) Opening and closing of gates of Okhla barrage should be regulated in consultation with concerned Departments of Govt. of NCT of Delhi (Irrigation and Flood Control Department and Delhi Jal board)

DPCC has issued letters to Haryana State Pollution Control Board (HSPCB) on 19.11.2020, 21.01.2021, 23.03.2021 & 12.11.2021 and Uttar Pradesh Pollution Control Board (UPPCB) on 19.11.2020, 21.01.2021, 23.03.2021, 30.06.2021 &

12.11.2021 for taking urgent necessary action for up-gradation of their STPs and treatment of Untreated Sewage/Waste Water to meet the standards of BOD:SS<10:10mg/liter with bionutrient removal to ensure that there is no discharge of Untreatedse wage/Waste Water into river Yamuna through their drains.

DO Letters in this regard were also issued by DPCC to HSPC Band UPPCB on 05.01.2022 & 22.03.2022.

A Joint Committee comprising of NMCG,UYRB,UP Irrigation Department, Delhi Jal Board, Irrigation & Flood Control Department of Delhi & DPCC was constituted by NMCG vide Office Memorandum Dated 13.10.2022 to oversee and coordinate the efforts being made by all concerned agencies to control/minimize froth formation downstream of Okhla barrage in River Yamuna during the Chhath Puja. Meeting of the said committee was held on 21.10.2022 and as decided, Delhi Jal Board sprayed anti surfactants at the downstream of Okhla Barrage 2- 3 days before the Chattha Poja in 2022 due to which Foam / Froth Formation was minimal.

Directions in respect of Soap & Detergents

Following Directions under Section 33(A) of the Water (Prevention and Control of Pollution) Act,1974, as amended to date, have been issued by DPCC on 14.06.2021 and Public Notice was also issued on 17.11.2021:

(i) Sale, Storage,Transportation and Marketing of Soaps & Detergents not conforming to the revised BIS Standards shall be completely prohibited in NCT of Delhi.

(ii) All the concerned Departments/Authorities including Municipal Corporation/Local Bodies, Civil Supplies Department and District Administrations having control over the Shops and other Establishments (Suppliers,Stockiest,Transporters etc.) having Sale,Storage,Transportation and Marketing facilities for Soaps and Detergents in NCT of Delhi shall ensure the compliance of directions at (i) above through strict vigil and surprise checks on such establishments.

Joint Teams consisting of MCD, DPCC, Revenue Dept., Power Companies, and DJB have been constituted for taking action taken against Dyeing Industries/Units in Non-Conforming Areas of Delhi.

Following action has been taken by the said Joint Teams in the period of 28.04.2023 to10.09.2023:

- *Total No.of Dyeing Industries found during inspection : 203*
- *Notice issued : 27*
- *Close down/Sealed/Disconnection of electricity : 98*

DPCC has also issued directions on 22.06.2023 to Local Bodies, DDA, DJB & Discoms (BSES/NDPL) for closure/sealing & disconnection of Electricity and Water Supply of all Dyeing units and Jeans/Denim washing units operating outside the Approved IndustrialAreas/IndustrialEstates/Redevelopment Area operating without mandatory consent of DPCC".

Chapter - VIII
Institutional mechanism for prevention & control of pollution

8.1 The institutional mechanism for prevention & control of pollution is as follows:

A. Legal / Administrative Framework

Central Government enacted Water (Prevention and Control of Pollution) Act, 1974 with the objective to promote cleanliness of streams and wells and maintaining or restoring of wholesomeness of water.

i. The Water (Prevention and Control of Pollution) Act, 1974 mentions the power and functions of Central Pollution Control Board (CPCB), stated below:

Section 3 - Constitution of CPCB

Section 16 – Power & Functions

- Advise the Central Government
- Plan program for prevention, control & abatement of Pollution
- Collect & disseminate environment data
- Advisory function, Investigation & Research
- Lay down standards

Section 18 – Power to give Directions

Directions to SPCBs/PCCs

ii The power and functions of State Pollution Control Board (SPCBs) for States / UTs under The Water (Prevention and Control of Pollution) Act, 1974 are mentioned below:

Section 4 - Constitution of SPCBs

Section 17 – Power & Functions

- Advise the State Government
- Plan Program for the prevention, control or abatement of pollution
- Collect & disseminate environment data
- Advisory function, Investigation & Research
- Lay down standards

Section 23 -Power of Entry & Inspection

Section 25 (4) (a) Grant of Consent to establishment

iii.The Environment (Protection) Act, 1986 is enacted to take measures to protect and improve the quality of environment. The power and functions of Central Government under EPA, 1986 are as follows:

Section 3 - power to take all such measures as it deems necessary or expedient for the purpose of protecting and improving the quality of the environment and preventing, controlling and abating environmental pollution

Sub Section 2(iii) - laying down standards for the quality of environment

Sub Section 2(iv) - laying down standards for emission or discharge of environmental pollutants

Sub Section 2(v) - Restriction of areas

Sub Section 3 – Constitute an authority

Section 5 - Power to give directions

Section 6 – Rules to regulate environmental pollution

Section 23 – Powers to delegate

Section 25 – Power to make rules

B. Role of Administrators/ District Magistrates/ Collectors

i.The Solid Waste Management Rules

- ✓ To facilitate identification and allocation of suitable land for setting up solid waste processing and disposal facilities to local authorities;
- ✓ To review the performance of local bodies, at least once in a quarter on waste segregation, processing, treatment and disposal and take corrective measures in consultation with the Commissioner or Director of Municipal Administration or Director of local bodies and secretary-incharge of the State Urban Development

ii.The Plastic Waste Management Rules

- ✓ To provide necessary assistance to SPCBs, Secretary in charge of Urban Development of State and Gram Panchayat within the territorial limits of the jurisdiction of the concerned district in the enforcement of the provisions of these rules.

iii.Bio-Medical Waste Management Rules, 2016

- ✓ To monitor the compliance of the provisions of these rules in the health care facilities generating bio-medical waste and in the common bio-

medical waste treatment and disposal facilities, where the bio-medical waste is treated and disposed of.

iv. Steps taken under Namami Gange

- ✓ District Ganga Committees (DGCs) constituted under chairmanship of District Magistrates in five Ganga basin States in 139 districts.
- ✓ State Ganga committees constituted under chairmanship of Chief Secretary in nine Ganga basin States.
- ✓ Physical verification of non-complying GPIs through District Magistrate under Annual inspection programme of NamamiGange.

v. Others:

- ✓ To chair the District Level Committee and ensure the execution of action points of city action plan under National Clean Air Programme (NCAP).
- ✓ To ensure the uninterrupted power supply.
- ✓ District Magistrates to monitor implementations of District Environmental Management plans.
- ✓ Post Environment Clearance (EC) Compliance Monitoring Policy: Few examples- Alert generations on delay in reporting.
- ✓ Capture compliance reports from different agencies.
- ✓ Encourage industries with good track record in environmental compliance.
- ✓ Integrating IT based end to end monitoring system with Parivesh 2.0.
- ✓ District Magistrates authorized to regulate NoCs for Mining

C. Actions taken for control and abatement of pollution are:

1. The Central & State Pollution Control Boards are implementing the provisions of both - The Water (Prevention and Control of Pollution) Act, 1974 & The Environment (Protection) Act, 1986 to prevent and control pollution of aquatic resources.
2. General standards for discharge of Environmental pollutants – Effluents (Part A) and waste water generation discharge standards (Part B) under

schedule-VI of Environment (Protection) Rules, 1986 so that all the industrial effluents are treated before discharging.

3. Regulation of industrial Pollution is implemented through various provisions of Water (Prevention and Control of Pollution) Act, 1974 under Consent mechanism by the respective State Pollution Control Board (SPCB) and Pollution Control Committees (PCC).
4. Online Continuous Effluent Monitoring Systems (OCEMS) are installed by the industrial units in the country through directives issued by CPCB for getting real time information on the effluent quality and non-complying units are identified for follow-up inspections and actions.
5. CPCB circulated the 'Revised Guidelines for Idol Immersion' ,2020 to all SPCB/PCCs in which roles of all the agencies including Local Bodies/ Authorities and State Pollution Control Boards are specified.
6. Central Government has notified standards for treated effluent of Sewage Treatment Plants.
7. Government of India have formulated river action plans to restore water quality of rivers. The river action plans have been taken up on rivers by Govt. of India through State Govt. to intercept, divert and treatment of municipal wastewater from urban centers which is not been able to adequately handle the complete sewage treatment.
8. CPCB is also periodically issuing directions to all the concerned departments in the States for management of sewage and waste water in accordance with the provisions notified under the E (P) Rules, 1986 and for ensuring proper operation of existing STPs, CETPs and industrial pollution control, under Section 18 (1)(b) of The Water (Prevention and Control of Pollution) Act, 1974 as well as under Section 5 of The Environment (Protection) Act, 1986. The directions/ guidelines issued by CPCB in recent years, for prevention & control of pollution in river Yamuna are detailed below:

S.No	Date of Direction	Direction Issued	To
1	18.05.2023	Regarding Annual Inspection of GPIs under NamaiGange Programme	DPCC, HSPCB, UPPCB, UKPCB, JSPCB, BSPCB, WBPCB
2	10.03.2023	Regarding non-complying STPs at Kondli and discharge of untreated wastewater into Shahdara drain	DPCC

S.No	Date of Direction	Direction Issued	To
3	19.01.2023	To enlist technologies to ensure Zero Liquid Discharge (ZLD) in Molasses based Distilleries.	All SPCBs/ PCCs.
4	02.01.2023	Augmentation and upgradation of CETPs and display of OCEMS data by CETPs located in Delhi and Haryana.	DPCC and HSPCB
5	02.01.2023	Industrial Ammoniacal discharge into River Yamuna.	DPCC and HSPCB
6	02.03.2022	Non-compliance status of M/s CETP, Mangolpuri Industrial Area, Phase-I, Delhi-110083.	DPCC
7	23.02.2022	Non-compliance by M/s CETP, Lawrence Road Industrial Area, ring Road, Delhi- 110035.	DPCC
8	23.12.2021	Regarding Industrial Aammonical discharge in to river Yamuna.	HSPCB and DPCC
9	06.12.2021	In the matter of control of pollution in river Yamuna.	UPPCB, DPCC and HSPCB
10	24.09.2021	For ensuring 100 % collection and treatment of domestic and industrial wastewaters generated in the catchment of Shahdara drain	DPCC
11	11.03.2021	For installation & connectivity of Online continuous effluent monitoring systems (OCEMS) by GPIs.	HSPCB, DPCC and UPPCB
12	15.02.2021	Wider use of Mobile based application on STP monitoring.	All SPCB/ PCCs.

8.2 With an aim to restore and rejuvenate the floodplains of River Yamuna, DDA has been working as per the directions of the Hon'ble NGT and recommendations of the Principal Committee of Hon'ble NGT. For this, the 22 kms urban stretch of Yamuna in Delhi spanning from Wazirabad Barrage to Okhla Barrage (both eastern and western banks) has been subdivided into 11 projects for the ease of execution. The total site area being taken up in these projects is approximately 1675.1 Hectares (including DDA land & land under U.P Irrigation Department).

8.3 The main aim of DDA's Restoration plan is to restore, revive and rejuvenate the floodplains of River Yamuna to their most possible natural state and to make them accessible to the public at large.Projects are being taken up with respect to:

1. Protection of floodplains - By demarcation of the Yamuna floodplains and repossession of the floodplains under the jurisdiction of DDA.
2. Restoration of the wetlands - By deepening and enlarging the existing ones and creating new wetlands.
3. Connect to the river for the general public - By means of providing public spaces connected with natural pathways, cycle tracks and seating areas in the Greenways.

8.4 The restoration scheme includes:

1. Green buffer areas up to 300 mts wide along the river planted with species of riverine ecology.
2. Greenways which are a belt of about 100-150mts along the peripheral roads for public amenities with continuous trail of natural pathways and cycle tracks throughout its extent
3. Variety of open spaces for passive activities along these trails.
4. Restoration and deepening of the existing depressions/wetlands and creation of new wetlands wherever feasible for the catchment of floodwaters.
5. Floodplain forests and grasslands of native origin around these wetlands and trails.
6. Constructed wetland systems for treatment of waste water out falling into Yamuna at feasible locations
7. Creation of biodiversity parks at various locations in the floodplains beneficial for native flora and fauna by creating a variety of habitats.

8.5 The details of the projects being taken up for restoration works by DDA are mentioned below:

1. **Asita**- Old Railway Bridge to ITO Barrage (Eastern Bank) 197 Ha.

   The area has been repossessed and planned following principles of ecological restoration. Multiple layers of ecological planting over a period of time have made the revival of the riverine ecosystem's integrity and biodiversity here at Asita East possible. Through a scientific approach and with constant efforts, the

DDA has been able to restore 90 hectares and work on balance 107 hectares is under progress.

A. **Works already achieved in 90 Hac are detailed below-**

i. Greenway:

A public zone has been developed comprising of *kaccha*walkways, water body and large open spaces for congregation with facilities like kid's play areas, yoga and meditation spaces along with amenities like bio-toilets, benches selfie point etc. Interactive signages have been developed for knowledge dissemination.

ii. Ecological Zone

The area along the edge of the river has been developed as an 'Ecological Zone' with *kachha* trails and with plantation of pure riverine grasses along the edge up to 300 mt width and balance area has been planted with mix of riverine grasses and tree species. Total 12-15 varieties of riverine grasses have been planted. The combination of Grasslands and varieties of trees make the area suitable to insects, bees, butterflies and birds in this area.

iii. Wetland

The area has a restored wetland of about 2.5 hectares which is currently augmenting more than 6 Crore ltr. of water during peak monsoons. This wetland is planted with riverine native grasses of the Yamuna floodplains strategically planted along its periphery. The edge of the wetland towards the public zone is kept visually open and benches are placed at view points for public to enjoy bird watching.

It attracted more than 63 varieties of resident and migratory birds this winter alone in different habitats created by DDA in the form of wetlands, grasslands and floodplain forests. A range of resident birds like Spot billed duck, Indian moorhen, Purple swamphen and migratory birds like Indian paradise Flycatcher, Verditer, Flycatcher, Grey headed canary Flycatcher have been spotted by birders.

2. **Ongoing works in 107 Ha under UP Irrigation and flood Department:**

Three nos. of water bodies spreading over approx. 14 acres have been restored, which have a capacity of augmenting about 13.8 Crore litre of water

during peak monsoons. Rest of the works are in progress. The area was recently visited by Chief Secretary UP and appreciated.

i. Status of Plantation

1. Total no of Trees of native varieties planted – 25000
2. Total no of native riverine species of Grasses planted – 5.64 lakh approx.

ii. Water bodies

3. **Kalindi Aviral** - Nizamuddin Bridge to DND Flyway (Western Bank) 100 Ha.

Restoration works have been completed and the area has been developed with kachha walkways, cycle tracks and trails along the embankments, creation of water-bodies and plantation of riverine species.

i. Status of Plantation

1. Total no of Trees of native varieties planted – 32,000
2. Total no of native riverine species of Grasses planted - 75 lakh approx.

ii. Water bodies

Three water bodies measuring 19.1 acres augmenting about 24 Crore ltr. of water during peak monsoons.

However, post restoration works, National Capital Region Transport Corporation (NCRTC) is developing a Regional Rapid Transit System **(**RRTS) corridor which has destroyed the ecology to a large extent.

a. Kalindi Aviral Extension – Nizamuddin Bridge to DND Flyway (Western Bank) 163 Ha.(Inclusive of Baansera 12-ha.)

Restoration works are under progress and the area has been developed with pathways, parking, entrance, kachha walkways and restoration of depressions and plantation of riverine species.

i. Status of Plantation

1. Total no of Trees of native varieties planted – 22150
2. Total no of Bamboo - 14000
2. Total no of native riverine species of Grasses planted – 1.5 lakh approx.

ii. Water bodies

Three water bodies measuring 9.8 acres augmenting about 24 crore ltr. of water during peak monsoons.

b. Kalindi Biodiversity Park- DND to Kalindi By-pass (Western Bank)115 Ha.

DDA is developing this area in collaboration with Centre for Management of Degraded Ecosystems (CEMDE). Constructed Wetlands were proposed to be developed for treatment of wastewater coming from 11 drains around the biodiversity Park. Three numbers of Constructed Wetland Systems near Kilokari, Maharani Bagh and Dhobi Ghat were completed and were treating raw sewage.
NHAI is constructing a Six lane access-controlled Delhi Faridabad Ballabhgarh expressway which has disturbed the entire area.

4. **Asita West (Yamuna Vatiika)**- Old Railway Bridge to ITO Barrage (Western Bank) 200 Ha.

After removal of encroachments and re possession of the area, work has been completed in 93 hectare of land. The area has been developed with kachha walkways, cycle tracks and creation of water-bodies and plantation of riverine species.

A. **Works already achieved in 93 Ha. are detailed below-**

i. Status of Plantation

1. Total no of trees of native varieties planted – 5700
2. Total no of native riverine species of Grasses planted – 52 lakh approx.

ii. Water bodies -

Three nos. of water bodies spreading over approx. 15.68 acre have been restored, which have a capacity of augmenting about 15.8 crore ltr of water during peak monsoons.

B. **Status of work in 107 Ha.**

i. Status of Plantation -

1. Total no of trees of native varieties planted – 10,750
2. Total no of native riverine species of Grasses planted – 6.29 lakh approx.

ii. Water bodies –

Five nos. of water bodies spreading over approx. 6.50 acres have been restored, which have a capacity of augmenting about 6 crore ltr of water during peak monsoons.

4. **Amrut Biodiversity Park** – New Railway Line to Nizamuddin Bridge (Eastern & Western Banks) 116.25 Ha. (8.25+18+90) Ha.

A. 8.25 hectare on Western Bank is to be developed by CPWD as a part of New India Garden. The Horticulture works for DDA's area (18+90) has been entrusted to National Botanical Research Institute (NBRI)

B. **Status of work in progress in 90 Ha.**

i. Status of Plantation -

1. Total no of Trees of native varieties planted- 1480
2. Total no of native riverine species of Grasses planted – 1.50 lakh approx.

ii. Water bodies –

Six nos. of water bodies spreading over approx. 27.85 acres have been restored, which have a capacity of augmenting about 22.71 crore ltr. of water during peak monsoons.

Entrance areas, Parking and stepped seating has been developed.

C. Works at 18 hectare of land on Western Bank is yet to be taken up by NBRI.

5. **Ghat Area** – Wazirabad Barrage to Old railway Bridge (Western Bank) 66 Ha.
The designing of the entire 66 Ha.area was entrusted to Indian National Trust for Art and Cultural Heritage **(**INTACH) along with execution of 16 Ha.

16 hectare of land at Qudesia Ghat (now Vasudev Ghat) is being developed.

i. Status of Plantation -

1. Total no of Trees of native varieties planted- 1000 Nos.
2. Total no of native riverine species of Grasses planted -1.75 Lakhs (approx.)
3. Total no of native Shrubs planted -15500 Nos.
4. Grassing Doob grass -10 Acre (appox.)

Work on the balance areas of 13.6 Ha. at Sur Ghat, 33 Ha.hectare at Eco-trail and 3.4 Ha. at Yamuna Bazar are under progress.

6. **Yamuna Vanasthali** – Wazirabad Barrage to ISBT Bridge (Eastern Bank) 236.5 Ha.

417.36 Ha. land is with forest dept over a period of years for compensatory plantation.

DDA has developed the area with waterbodies, kachha cycle tracks, walkways and public interactive spaces and pedestrian promenades connecting to the River.

i. Status of Plantation -

1. Total no of Trees of native varieties planted – 32,500
2. Total no of native riverine species of Grasses planted - 13.75 lakhs approx.

ii. Water bodies -

Seven nos. of water bodies spreading over approx. 48.72 acres have been restored, which have a capacity of augmenting about 49.3 Crore litres of water during peak monsoons.

7. **Mayur Nature Park** – Nizamuddin Bridge to DND Flyway (Eastern Bank)

Total Area – 397.75 Ha. (235 Ha. DDA + 162.75 Ha. UP I & FC)

Approx. 100 Ha. of land in DDA portion is de notified and the same has been marked on the ground as well. The comprehensive restoration proposal has been prepared accordingly.

1. **Hindon Sarovar** - Nizamuddin Bridge to DND Flyway (Eastern Bank)

Total Area – 53 Ha. (15 Ha. DDA +38 Ha. with UP I&FC)

Landscape plan is yet to be prepared.

2. **Eco-tourism area** – Geeta colony Bridge to ITO Barrage (Western Bank) 30 Ha.

13 Ha. allotted to Delhi Electric Supply Undertaking (DESU), (now Indraprastha Power Generation Co. Ltd (IPGCL) has been retrieved. Encroachments have been removed and land has been re possessed. 7.4 Ha land allotted to DTC on a temporary basis during Commonwealth Games 2010, is still in their possession.The proposal will be worked out once the Master plan 2041 is notified as this Project falls in Zone O2.

8. Other than the project plantation mentioned individually, DDA has already undertaken Compensatory Plantation of 5.647 lacs of trees.Further, private security and CCTV surveillance system is also put in place for protecting the

floodplains from illegal dumping of malba and other unauthorized activities.However, DDA has undertaken regular demolition and removed a lot encroachment in the form of Jhuggies and land under cultivation.

8.6 When asked by the Committee to furnish the reasons as to why efforts made by concerned agencies to improve water quality of the Yamuna have not produced desirable results, the DoWR, RD & GR, in its written replies stated as under:

"Reasons for poor quality of water in River Yamuna are as below-;

1. Gap in Sewage Generation and Treatment Capacity in Delhi

(i) Gap in Estimated Sewage Generation (3600 MLD) and installed Treatment Capacity of existing 35 STPs of DJB (2874 MLD).

(ii) Untreated sewage discharge from Unauthorised Colonies in Delhi

(iii) Untreated sewage discharge from JJ Clusters in Delhi

2. Discharge of waste water (untreated /partially treated sewage / industrial effluent) coming from Haryana & Uttar Pradesh through their drains finally discharging into river Yamuna in Delhi.

i. Waste water (untreated / partially treated sewage /industrial effluent) coming from Haryana through various drains [L III (Badshahpur Drain) from Gurugram, L II from Dharampurfrom Gurugram, L I from BajgeraPalamVihar from Gurugram, Drain No. 6 from Sonipat, Mungeshpur Drain & Bhupania Drain from Bahadur Garh & Bhupania region] and discharging into Najafgarh Drain which finally discharges effluent into river Yamuna in Delhi.

ii. Waste water (untreated / partially treated sewage / industrial effluent) coming from Uttar Pradesh through various drains [Shahibabad Drain, Indirapuri Drain & Banthala Drain] and discharging into Shahdara Outfall Drain which finally discharges effluent into river Yamuna in Delhi.

iii. Untreated /partially treated sewage / industrial effluent discharged through Hindon cut canal into river Yamuna at the Upstream of Okhla Barrage.

3. Non-Availability of Required Environmental Flow in the stretch of river Yamuna between Wazirabad Barrage to Asgarpur - Minimum Environmental Flow for the dilution of the polluted water in river Yamuna in Delhi is required to meet the desired water quality levels in river Yamuna for bathing purpose i.e. BOD < 3 mg/l & DO >5 mg/l.

It is pertinent to mention that for prevention & control of pollution and rejuvenation of River Yamuna in Delhi, Department wise detailed "Action Plan for Rejuvenation of River Yamuna" in Delhi has been prepared by the High Level Committee (HLC) constituted by the Hon'ble National Green Tribunal vide order dated 09.01.2023 in OA No.21/2023 in the matter of "Ashwani Yadav Vs Govt. of NCT of Delhi".

An order dated 27.01.2023 has also been issued by the Chief Secretary, Govt. of NCT of Delhi for implementation of the said action plan and directions mentioned in the said order of Hon'ble National Green Tribunal. Said Action Plan for Rejuvenation of River Yamuna and order dated 27.01.2023 of Chief Secretary have been submitted to the Hon'ble National Tribunal on 31.01.2023 and also sent to all concerned Departments/Authorities including Ministry of JalShakti, NMCG, MoEF&CC, Delhi Jal Board, DDA etc.

Following are the main eight action points of the "Action Plan for Rejuvenation of River Yamuna"

(i) 100% Treatment of Sewage

(ii) Trapping of Drains

(iii) Sewerage Network in 1799 Unauthorised Colonies and 639 JJ Clusters

(iv) Industrial Effluent Management

(v) Faecal Sludge (Septage) Management

(vi) Regulation of Floodplain (By DDA)

(vii) Utilization of Treated Wastewater from STPs

(viii) Other issues like deployment of Territorial Army, Dashboard for monitoring of the progress, Najafgarh Jheel (Environmental Management Plan) etc.

Meetings of the High Level Committee are held regularly and 6 meetings have been held so far. Status Reports were also filed in the aforementioned matter before the Hon'ble National GreenTribunal on 31.01.2023 and 05.07.2023.

It has been observed that BOD, COD and Faecal Coliform in Najafgarh Drain, ISBT (After meeting Najafgarh Drain) and Asgarpur (Downstream of Okhla Barrage after confluence of Shahdara & Tuglakabad Drains) has improved in the months of January, 2023 to August, 2023 in comparison to corresponding months of January, 2022 to Aug, 2022".

8.7 On the issue of challenges in cleaning the river Yamuna, the Secretary, Department of Water Resources, River Development and Ganga Rejuvenation during the course of oral evidence held on 27.7.2023, apprised the Committee as follows:-

"...सर, अगर मैं इसको कुछ शब्दों में कंक्लूड करना चाहूं तो हमारे सामने इस वक्त कुछ चैलेंजेज़ हैं। पहला चैलेंज यह है कि जो हमारा सीवेज का गैप रह गया है, उसे हमें जल्दी से जल्दी क्लोज करना है। हरियाणा में बताया गया है कि 240 *एमएलडी का गैप है, दिल्ली में* 618 *एमएलडी का गैप है और उत्तरप्रदेश में हिंडन के पोल्यूशन की जो समस्या है, उसका भी हमें समाधान करना है।*

दूसरा, सीवेज गैप क्लोज करने के साथ-साथ जितने नॉन कंप्लायंट एसटीपीज़ हैं, उन्हें हमें कंप्लायंट बनाना होगा। तीसरा है कि सुप्रीम कोर्ट के आर्डर के अनुसार 10 *क्यूमेक पानी यमुना के ईफ्लो के लिए निर्धारित है। इसको रिव्यू करने की जरूरत है। केंद्र सरकार ने लखुवार और रेणुकाजी, दो प्रोजेक्ट्स सैंक्शन किए हैं। इन पर काम चल रहा है और अगले* 5-6 *सालों में ये कमीशन होने की संभावना है। इनकी कमीशनिंग से लिंक कर के यमुना का ईफ्लो रिवाइज्ड करके उसे बढ़ाने की आवश्यकता है। ये सारे मेजर्स अगर हम समयबद्ध रूप से ले पाएं तो यमुना को हम स्वच्छ करने में सफल होंगे"।*

CHAPTER -IX
Namami Gange Programme

9.1 Government of India (GoI) has launched the Namami Gange Programme in 2014-15, to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga and its tributaries including Yamuna. GoI is supplementing the efforts of the State Governments in addressing the challenges of pollution of river Yamuna by providing financial assistance to States of Himachal Pradesh, Haryana, Delhi and Uttar Pradesh.

9.2 "Namami Gange" programme includes diverse set of interventions such as pollution abatement measures to tackle different sources of pollution such as municipal sewage, industrial effluents, municipal solid waste, non-point sources of pollution and interventions for improving ecological flows, biodiversity conservation, afforestation, improving amenities and sanitation at river banks, capacity building, research & monitoring, public awareness.

9.3 In order to speed up and scale up the interventions required for Ganga Rejuvenation through Namami Gange mission, Government decided to bring in a long term perspective with a proper institutional framework and National Mission for Clean Ganga (NMCG) was notified as an Authority under The Environment Protection Act on 7th October 2016 empowering it with regulatory powers along with administrative strengthening and delegating higher financial and administrative powers.

9.4 Namami Gange is not limited to cleaning or piecemeal selected city interventions but follows river centric, basin-based approach for comprehensive rejuvenation. The main components of the Namami Gange Programme can be categorised in following five building blocks-

1. **Nirmal Ganga-**
    - Sewerage Infrastructure
    - Industrial pollution
    - Wastewater reuse and recycle
    - Rural Sanitation
    - Solid waste management
2. **Aviral Ganga-**
    - Maintaining ecological flow
    - Wetland mapping and conservation
    - Floodplain management

- Sustainable agriculture
- Afforestation and biodiversity conservation
- Small river rejuvenation

3. Jan Ganga-

- Riverfront, ghats and crematoria
- Community engagement
- Ganga Run
- Ganga Utsav
- Ganga Quest
- Ganga AmartanAbhiyan

4. Gyan Ganga-

- Water quality monitoring
- High resolution mapping of ganga stretches
- Microbial diversity
- Aquifer mapping & spring rejuvenation
- Cultural mapping & spring rejuvenation
- Cultural mapping & climate scenario mapping
- River Cities Alliance

5. Arth Ganga-

- Zero budget natural farming
- Monetization of reuse of sludge & wastewater
- Livelihood Generation
- Public participation
- Institutional building

Interventions of Government of India to control pollution in Yamuna under Namami Gange Programme

9.5 The Government of India is supplementing the efforts of the States for checking the rising level of pollution of River Yamuna by providing financial assistance to different States of Haryana, Delhi and Uttar Pradesh in a phased manner since 1993 under the Yamuna Action Plan (YAP). Under the Yamuna Action Plan Phase – I & II, an expenditure of Rs. 1514.70 crore has been incurred for creation of sewage

treatment capacity of 483 MLD and rehabilitation of 328 MLD STP in States of Haryana, & Delhi for conservation of river Yamuna.

9.6 Presently, Government of India / NMCG has sanctioned 34 projects costing Rs. 5834.7 crore for one (01) project in Himachal Pradesh, two (02) projects in Haryana, 11 projects in Delhi and 20 projects in Uttar Pradesh under Namami Gange programme to abate pollution load to river Yamuna. With these projects, 2110.3 MLD STP capacity will be created. Out of these 34 projects, 15 projects have already been completed viz. one (1) project in Paonta Sahib, Himachal Pradesh: two (02) projects in Sonipat and Panipat, Haryana, Six (06) projects in Vrindavan, Itawah, Firozabad, Baghpat and Mathura (STP and CETP), UP and Six (6) projects in Delhi.

9.7 In Himachal Pradesh, Government of India / NMCG has sanctioned 01 project costing Rs 11.57 crore in Paonta Sahib, Himachal Pradesh for construction of new STP (1.72 MLD) and rehabilitation of existing STP (1.44 MLD) in Paonta Sahib.

9.8 In Haryana, NMCG has supplemented the efforts of Haryana Government by providing the financial assistance to complete the two projects in Sonipat and Panipat by creating STP capacity of total 70 MLD and rehabilitation of 75 MLD STPs under NamamiGange Programme.

9.9 Presently in Delhi, under Namami Gange programme, a total of 11 projects to create 1268 MLD sewage treatment plants (new & rehabilitation) have been taken up at a cost of Rs. 2009.12 crore by NMCG to conserve the River Yamuna. Major projects are for the sewerage infrastructure projects. Out of 11, Six (6) projects are completed and balance are at various stages of implementation.

9.10 In Uttar Pradesh under Namami Gange Programme, a total of 20 projects have been taken up at a cost of Rs. 3596.2 crore by NMCG to conserve River Yamuna. Out of these 20 project, Six (6) projects are completed and balance are at various stages of implementation.

9.11 On being asked to furnish State-wise status of the Sewage Treatment Plants for cleaning of river Yamuna (STPs) under Namami Gange programme, the DoWR, RD & GR, in its written reply, stated as under:

> *"As on 31st August 2023, a total of 34 STP capacities have been sanctioned under the Namami Gange programme for river Yamuna and its tributaries. The total number of STPs installed and its utilized capacity (MLD) in regard to cleaning of river Yamuna can be seen in the table below:*

Sl. No.	*State*	*Projects Sanctioned*	*Projects Completed*	*STP Sanctioned (In MLD)*	*STP Created (In MLD)*
1	*Delhi*	*11*	*6*	*1268*	*704*
2	*Himachal Pradesh*	*1*	*1*	*1.72*	*1.72*
3	*Haryana*	*2*	*2*	*145*	*145*
4	*Uttar Pradesh*	*20*	*6*	*694.09*	*130.25*
	Total	*34*	*15*	*2108.81*	*980.97"*

9.12 Further asked to state the details of the funds allocated and spent on the Yamuna rejuvenation, the DoWR, RD & GR, in its written reply, stated as under:

> *"The funds allocated under Namami Gange Programme and expenditure incurred by Yamuna basin States on sewerage infrastructure projects till date are as follows:*

Sl. No.	***State***	***Projects***	***Sanctioned Cost(Rs. in crore)***	***Expenditure Cost (Rs. in crore)***
1	*Delhi*	*11*	*2009.08*	*1683.53*
2	*Himachal Pradesh*	*1*	*11.57*	*3.75*
3	*Haryana*	*2*	*217.87*	*217.94*
4	*Uttar Pradesh*	*20*	*3596.2*	*692.06*
	Total	*34*	*5834.7*	*2597.28*

9.13 On being asked about the target year set for completion of the projects/works relating to abatement of pollution and rejuvenation of Yamuna and its tributaries, the DoWR, RD & GR, in its written reply, stated as under:

> *"Target year set for completion of project/works is 2025-26 and total estimated project cost of the program of rejuventaon of River Yamuna in creation of sewage treatment capacity is Rs. 5834.7 crore."*

9.14 In response to a query as to whether the actual expenditure incurred under the programme lag behind the allocations made/funds released under the Namami Gange for Yamuna rejuvenation, the DoWR, RD & GR, in its written reply, stated as under:

> *"Under Namami Gange Programme, National Mission for Clean Ganga (NMCG) has sanctioned 34 projects costing Rs. 5834.7 crore with an expenditure of Rs. 2597.28 crore. The delay in the projects due to various reason the actual expenditure incurred under the programme lag behind the allocations made/funds released. Some of the reasons for the same are as following:*
>
> *(i) Delay in road/railway crossing permissions by conducting high level inter-Ministerial meeting with competent authority.*
>
> *(ii) Delay in coordination at the State level specifically the State Ganga Committees constituted for coordinating the Ganga rejuvenation projects between various State agencies and a lack of coordination between the District Ganga*

Committees (DGC) headed by the District Magistrates to ensure speedy implementation of interventions and projects and for carrying out various activities pertaining to Ganga and its tributaries.

In order to expedite implementation of the sewerage infrastructure projects by overcoming the bottlenecks and ensure timely completion of projects, the following measures are being taken by National Mission for Clean Ganga (NMCG):

(i) Regular interaction / discussions / site visits and coordination meetings with state agencies by NMCG.

(ii) For effective grounding and implementation of projects, a multi-level monitoring mechanism is already existing, both at Central and State level. At the Central level, NMCG holds regular review meetings with all the concerned State Governments and their Authorities including implementing agencies like Jal Nigam, Jal Sansthan etc. to oversee the pace of implementation of infrastructure projects.

(iii) Resolving delay in road/railway crossing permissions by conducting high level inter-Ministerial meeting with Railways and NHAI.

(iv) Regular review meetings are also carried out by the Hon'ble Jal Shakti Minister as well as Secretary, D/o Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti, not only with various officers of NMCG and the State Governments but also with the respective Hon'ble Chief Ministers or Chief Secretary of States to remove bottlenecks and also for expediting the pace of projects being executed at various levels.

(v) At State level, State Ganga Committees headed by the Chief Secretaries have been constituted for coordinating the Ganga rejuvenation projects between various State agencies and for the first time ever a district level mechanism has been set up in the form of District Ganga Committees (DGC) headed by the District Magistrate to ensure speedy implementation of interventions and projects and for carrying out various activities pertaining to Ganga and its tributaries".

9.15 When asked whether State Yamuna Committees/District Yamuna Committees have been set up on the lines of State Ganga Committees/District Ganga Committees, the DoWR, RD & GR, in its written reply, stated as under:

"As on date a total of 139 District Ganga Committees (DGCs) have been formed. The DGCs are conducting regular interviews including local authorities on various parameters of river cleaning and other factors provided by NMCG. The details of States on which SGCs have been formed are as follows:

Sl.No	***State***	***Number of DGCs***
1	*Uttarakhand*	*13*
2	*Uttar-Pradesh*	*75*
3	*Bihar*	*38*
4	*Jharkhand*	*4*
5	*West Bengal*	*9*
Total		*139*

Till date no State Yamuna Committees/District Yamuna Committees have been set up on the lines of District Ganga Committees".

9.16 In response to a query as to whether there is any proposal for setting up Clean Yamuna Fund (CYF) on the lines of Clean Ganga Fund (CGF), the DoWR, RD & GR, in its written reply, stated as under:

> *"No, there is no proposal for setting up Clean Yamuna Fund (CYF) on the lines of Clean Ganga Fund (CGF)".*

Chapter X
Role of Barrages on River Yamuna and Flood Management in Delhi

10.1 In view of huge flooding in Delhi in the month of July 2023, the Committee on 23.08.2023 undertook a field visit to the ITO Barrange for an inspection of role and working of ITO Barrage in Flood Management in Delhi.

10.2 When the Committee enquired about the role and working of ITO Barrage in Flood Management in Delhi, the Committee were apprised as follows:

> *"The Yamuna Barrage near ITO, Delhi, across River Yamuna was constructed by the Haryana Irrigation Department during the year 1966-67 for the then Delhi Electric Supply Undertaking (DESU) for meeting cooling water requirement of Indraprastha Power Station and Rajghat Power House of Delhi Thermal Power Control Board (DTPCB). After construction of ITO barrage, its operation & maintenance was assigned to Haryana Irrigation Department.*
>
> *Indraprastha Power Station was decommissioned on 31.12.2009 and Rajghat Power House was also made non-operational in May 2015. Since, this Barrage was constructed to supply cooling water for abovementioned thermal power houses therefore, this Barrage has no role in flood management in Delhi.*
>
> *Barrage is water diversion structure with limited pondage and is not designed as storage reservoir. The function of ITO Barrage is not for regulation of flood water. All the gates should be kept opened during the flood for passing of flood water in the river".*

10.3 In reply to a specific question to state the reasons for non functioning of some of the gates of ITO barrage during the recent heavy inflow of water as a result of discharge of water from Hathnikund Barrage, giving rise to heavily inundated condition in the national capital, the DoWR, RD & GR, in its written reply, stated as under:

> *"Team of Experts from CWC visited the ITO Barrage on 27.07.2023. During the visit, it was observed that on that day some of the gates were in fully closed position / partially opened position. The main cause of non-functioning of these gates is heavy silting in and around the gates and poor maintenance of hydro-mechanical equipment. Rope connection to the gate or counter in some bays was detached.*
>
> *In this regard, the Government of Haryana stated the following:*
>
> *ITO Barrage consists of total 32 No. gates out of which Gate No. 1 to 10 are under sluices gates (Crest Level@653.60ft.,Height of each gate@ 10.50 ft.) and Gate No. 11 to 32 are spillway gates (Crest Level @ 656.60ft., Height of each gate from Gate no. 11 to 21 @ 7.50 ft. and Gate no. 22to 32 @ 9.50 ft.). There is a direct hit of river flow at gate No. 1 to 27 and there is no direct flow at gate No. 28 to 32.There is heavy jungle and sandybela (shoal) in front of Gate No. 28 to 32 and these gates hardly get floodwater flow. Presently a DDA nursery exists on this sandy bela (shoal) for which requests are being made since 2015 to DDA for*

removing this nursery as ownership of this land does not belong to Haryana Irrigation Department and onus lies with DDA and NCT of Delhi to keep the riverbed free from encroachment including desilting in its territory. The riverbed level at gate No.28 to 32 is approx. 668.50 ft.on upstreamside and approx. 669.10 ft. on downstream side.Thus, riverbed in front of Gate no. 28 to 32 is atleast 2.4 ft.above the top level of gates {668.50ft (silted up river bed) -656.60 ft (crestlevel) -9.50 ft (heightofgate)=2.4 ft.} i.e.when gates rest on crest or are in complete closed position. Hence silted bed level both upstream and downstream are higher than top of gate no. 28 to 32. Therefore, even when gate no. 28 to 32 were in closed position, still 8.40 ft. [676.90 (HFL achieved at ITO in July 2023) – 668.50 (silted up riverbed) was available for passing of high flood discharge in July 2023. If these five gates i.e. 28 to 32 would have been in complete open position, then bottom level of gate would have been 670.50 ft.[680 ft.(maximum top level upto which gate can be raised) – 9.5 (height of gate)] thereby leaving only 2 ft.(670.50–668.50) height available for passage of flood discharge.

Therefore, more discharge passed through gate no. 28 to 32 when in closed position.

Further Indraprastha Power Generation Company Limited (IPGCL) has refused to pay for capital expenditure w.e.f. 2015 and for O&M w.e.f.2018 which hampered O&M of ITO Barrage and functioning of gates.

Flooding at Rajghat and other areas was exclusively due to backflow of Drain No. 11 (S.N. Home Drain) and Drain No. 10 (Delhi Gate Drain) as riverbed of Yamuna in Delhi Territory has risen due to non-dredging which caused backflow into these drains resulting into flooding at Rajghat and ring road area. Further the flooding at ITO chowk and adjoining areas including WHO building, Hon'ble Supreme Court of India was due to damage of gates of outfall Head Regulator of drain no 12, d/s of ITO barrage leading to huge backflow of flood water. It is pertinent to mention here that outfall of drain no 12 has been extended into Yamuna River bed which obstructs river flow resulting into backflow thereby leading to pressure on head regulator which led to its failure and consequent flooding of the adjoining areas.

In addition to the above said facts, non-opening of five gates (No.28 to 32) has no impact or role in it, which can be seen from below mentioned facts.

(1) Discharge passed through Hathni Kund Barrage (HKB), Wazirabad Barrage (WZB) and Okhla Barrage (OKHLA) from 09.07.2023 to 16.07.2023 **(<u>Annexure-V</u>)** may kindly be perused from which it can be seen that:

(i) Peak discharge received:

Barrage	***Date***	***Time***	***Discharge (In Cs.)***
HKB	*11.07.2023*	*11:00AM*	*359760*
WZB	*13.07.2023*	*01:00PM*	*1137020*
Okhla	*13.07.2023*	*05:00PM*	*372225*

(ii) Gauge of Okhla remain static for 20 hours from 13.07.2023 (05:00PM) to 14.07.2023 (01:00PM) and Peak discharge at Okhla lasted for 20 hours.

(iii) Before receipt of peak discharge of HKB at WZB, availability at WZB was 737260 (1137020 @ peak discharge released below WZB -399760 @ peak

discharge released before HKB + River Somb releases). Thus, WZB has already received high discharge from local catchment before receipt of peak discharge of HKB.

(iv) Design discharge of Wazirabad, ITO Yamuna Barrage and Okhla Barrage is 3.00 lac Cusecs.

(v) Highest Flood Level (HFL) of ITO Yamuna Barrage is 676.80 ft. (after 1978 floods) and during design upstream HFL was considered as 676.75 ft. with downstream HFL considered as 676.50 ft. Maximum upstream flood level achieved on 13.07.2023 at ITO Yamuna Barrage is 676.90 ft.and downstream flood level of 676.80 ft. Hence the afflux created after the floods of July 2023 was only 0.1ft which is less than initial design afflux of 0.25 ft. Nowhere in the vicinity of ITO Barrage the river has breached its embankments and no spillover took place at ITO Barrage and flooding at ITO took place due to backflow from drain no 12 just downstream of ITO Barrage.

(2) Highest Flood Level observed downstream ITO Yamuna Barrage = 676.80 ft.Corresponding discharge = 336200 cusecs.

Above facts are indicators which shows that no backflow of water at ITO Barrage occurred during floods ofJuly 2023:-

a. Flood Level achieved at Wazirabad Barrage, Old Delhi Railway Bridge, ITO Yamuna Barrage & Okhla Barrage of the year 2023 are in sync with previous flood discharge data from1978 to 2022.

b. High Flood discharge of 3.72 lac cusecs passed through Okhla Barrage for 20 hours and thus it could be inferred that the same discharge passed through Yamuna Barrage safely. The same can be inferred from the discharge table of Yamuna Barrage wherein at Flood Level at 676.80' was observed d/s ITO Yamuna Barrage and 336200 cusecs of water passed smoothly.

c. Main issue regarding flooding in Delhi is due to release of discharge of 11.37 lacs cusecs downstream Wazirabad by Delhi (though this figure does not sync with releases made its upstream at HKB and its downstream at Okhla). HFL attained at Old Delhi Railway Bridge is above road level of ring road from low lying areas of Tibetan market near ISBT to Red Fort and Flood water spilled/overflowed along ring road and flooded adjoining low-lying areas which is around 8 to 10 km upstream of ITO barrage.

d. There is heavy jungle and sandy bela (shoal) in front of Gate No. 28 to 32 and these gates hardly get flood water flow. Even after opening of Gate No.32, water was almost stagnant there and practically very less water flowed through it. The silted bed level both upstream and downstream are higher than top of these gates".

10.4 When asked to furnish the steps taken by the Ministry for prevention of reoccurrence of such flood situation in Delhi, the DoWR, RD & GR, in its written submission stated as under:

"Govt. of Haryana is responsible for maintaining the ITO barrage. CWC renders technical advice on the request of State Government. No such request was received from Govt. of Haryana for advice on upkeep of Yamuna barrage at ITO inrecent years.

The views of Government of Haryana in this regard is given below:

The only reason of non-maintenance/over hauling of gates is attributed to failure of IPGCL authorities to provide maintenance and operation cost apart from capital investment as per requirement. Annual Maintenance and Repair (AM&R) of

Barrage was forced to be closed. Even tender floated for replacement of 4 gates in 2015 had to be cancelled due to non-availability of funds.The IPGCL authorities were requested number of times for providing the O&M cost and requisite capital investment and were even informed that they cannot undertake unilateral action without the concurrence of two state Governments but still IPGCL authorities preferred to stop all payments including disconnection of electricity.

10.5 On being asked as to whether there is any lack of coordination or disagreement between the State Governments of Haryana and Delhi over the maintenance of ITO Barrage, the DoWR, RD & GR, in its written replies, stated as under:

"The divergent views of State Govt. of Haryana & Govt. of NCT of Delhi are as follows:

Government of Haryana

ITO Barrage was constructed and being maintained by Haryana as per interstate agreement between Delhi and Haryana. After 2015, IPGCL (Delhi Govt.) refused to pay Capital expenditure required on Barrage for replacement of gates and subsequently stopped operation and maintenance costs also after year 2018. Haryana requested IPGCL to take up the matter at Govt. level. But Delhi failed to discharge its obligations in terms of said agreement. Therefore, there is no dispute and existing agreement between Haryana and Delhi needs to be honored in letter and spirit.

Govt. of NCT of Delhi

Request has been made with Govt. of Haryana and their authorities to handover the ITO barrage. Response is awaited".

10.6 When being further asked as to why Upper Yamuna River Board (UYRB) has not taken *suo moto* cognizance of the disagreements, such as maintenance and ownership of ITO Barrage between the two States, the Department stated as under:

"The matter related to maintenance and ownership of ITO Barrage does not have any direct bearing on the function of UYRB. As per functions of UYRB, the intervention from UYRB in operation of any control structure in Upper Yamuna Basin is needed only when there is any dispute in regulation of flow from the structure. It is mentioned that, at present, no water is diverted from ITO Barrage for use by any State. In view of above, UYRB did not take suo-moto cognizance of the matter.

Furthermore, regarding the issue of transfer of ITO Barrage from Haryana to Delhi, the opinions of States Governments of Haryana and Delhi are diametrically opposite. While the Delhi Government contend that they have technical capability to operate and maintain ITO Barrage at present and can operate it in a better way as per requirement during the flood in Delhi territory, the State Government of Haryana is referring to a decision taken in the meeting between Chief Secretary, Haryana and Principal Secretary Irrigation Department, Uttar Pradesh held on 02.04.2015, wherein it was decided that supplies available at Barrage at ITO, Delhi be considered for further distribution amongst U.P. Haryana and Rajasthan at Okhla. Hence, it is not feasible for Haryana to transfer the control of Barrage to Delhi.

10.7 When the Committee enquired about the participation of the State Government of NCT of Delhi during the above-mentioned 2015 meeting, the DoWR, RD & GR, in its written replies, stated as under:

"In this regard, Govt. of Haryana has informed the following:

"Delhi was not invited to attend the said meeting because the issue pertains to the delivery of allocated share of Haryana & UP at Okhla barrage as per allocation made by UYRB in 42nd meeting of UYRB in 2012. As there are frequent disagreements between Haryana & Uttar Pradesh regarding availability of water in river Yamuna at Okhla, this meeting was conducted for resolving bilateral issues of Haryana and Uttar Pradesh. Delhi was not invited as it has no role in this issue".

10.8 Asked to furnish the opinion of the Ministry regarding the transfer of ownership of ITO Barrage, the DoWR, RD & GR, in its written replies, stated as under:

"DoWR, RD & GR, Ministry of Jal Shakti constituted a committee under the Chairmanship of Central water Commission vide OM No. Z-15011/1/2020-FM Section-MOWR dated: 06 August 2023, for joint flood management study of river Yamuna for its reach between Hathnikund and Okhla Barrage. One of the scope of the study is to review the utility of ITO barrage in present context".

10.9 Further, asked to furnish any other information germane to the subject, which the Ministry /State Governments / other Agencies would like to submit before the ParliamentaryCommittee, the DoWR, RD & GR, in its written replies, stated as as under:

"The Government of Haryana submitted the following:

1. *The Gauge discharge Curves needs to be recalibrated at all three Barrages in NCT of Delhi so that the discharges from these Barrages downstream are in sync with each other.*
2. *C.M.Haryana holds a high-profile meeting annually for Flood preparedness with all stakeholders for framing flood control schemes. On similar lines Delhi government should also hold a meeting mandatorily of their Apex Committee by the end of May for identifying all vulnerable areas and forensuring subsequent timely action and Flood Control Order should be issued by ensuring seamless coordination between various agencies.*
3. *The flow in Yamuna is being impeded by excessive and unplanned construction in around the river leading to large scale encroachments on flood plains. The encroachment of flood plains which exclusively belongs to River Yamuna needs to be removed and proper flood zoning policy be prepared with strict enforcement of such policy.*
4. *The danger level considered presently at old Railway bridge in NCT of Delhi needs to be re-ascertained as presently even a discharge of less than one lac cusecs (low flood) touches this level thereby causing panic to citizensofNCT of Delhi.*

5. *Bathymetric survey of RiverYamuna should be carried out once in 5 years or after fix time so that concern of silting of river bed could be addressed and clinical dredging could be done to accommodate the probable flood coming in River Yamuna.*
6. *Delhi Government should be requested to remove sandy shoal (bela) infront of gate 28 to 32 at the earliest so that these gates get flood water flows without any obstruction".*

Chapter XI

Upper Yamuna River Board (UYRB)

11.1 Upper Yamuna River Board is a subordinate office under the Department of Water Resources, River Development & Ganga Rejuvenation, Ministry of Jal Shakti, Government of India. A memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 12th May, 1994 regarding allocation of utilizable surface flow of River Yamuna upto Okhla Barrage (Upper Yamuna) among the co-basin States. In order to implement the said MoU, Upper Yamuna River Board (UYRB) was constituted by Resolution No. 10(66)/71-IT dated 11th March 1995 of MoWR, RD & GR, Govt. of India in accordance with the provision of the MoU. After the creation of Uttaranchal State in 2000, the resolution was modified to include Uttaranchal (now Uttarakhand) also in the Board in 2001.

11.2 The main function of the Upper Yamuna River Board is to regulate the allocation of available flows amongst the beneficiary States and also maintenance of minimum flow, maintaining hydro-meteorological data for the basin; overviewing plans for watershed management; monitoring and reviewing the progress of all projects upto and including Okhla barrage.

11.3 Cleaning of drains and sewer system meeting the river Yamuna are undertaken by the respective States. However, the interstate disputes regarding sharing / allocation of Yamuna water in general and some times issues related to ammonial level and other pollutants as raised by Delhi are deliberated in the UYRB Board meetings time to time to resolve the same amicably.

11.4 In response to a query as to whether there is sufficient manpower (both technical and non-technical) to carry out the activities relating to Upper Yamuna River Board (UYRB), the Department replied as under:

> *"In the 8th meeting of the Board held on 05.07.1996, it was decided that all the posts of Board Secretariat would be filled in by transfer on deputation basis from staff/officers of Central/Basin States Governments. Accordingly, 58 posts were created with the approval of the Board members from the Basin States and funded by these States. MoWR therefore approved the creation of 58 permanent posts in UYRB vide its letter No. 26(4)/99-11/1587-1603 dated 27.12.1999.*
>
> *Subsequently, total 36 no of Posts, which were vacant for more than five years, have been abolished vide Ministry OM no. A11011/1/2014-E-III (UYRB) dated 19.03.2015 & A-11011/7/2017 E-III Section dated 03.11.2017. Department of Water Resource, River Development and Ganga Rejuvenation vide its letter*

A-50013/9/2019-E-III Section dated 27.10.2020 conveyed that as on date only 22 different posts are live and as such at present the sanctioned strength of UYRB is 22.

In spite of vigorous efforts to fill up the vacant posts, the same could not be filled and therefore out of sanctioned 22 posts, 17 posts have gone under deemed abolished category. Presently only 2 posts (Member Secretary & Specialist Environment) are filled and 3 officials (Deputy Director, Assistant Engineer-II and Junior Engineer) have been posted informally from Central Water Commission.

Further, a proposal for revival of these posts has been submitted and is under consideration in DoWR, RD & GR. Simultaneously, considering difficulties and to overcome the problem of filling up of posts in UYRB through deputation a proposal for encadrement of various posts has also been submitted and is under consideration in DoWR, RD & GR. Advertisement for inviting application for filling up of three vacant live posts (01 no. Executive Engineer, 01 no. Assistant Executive Engineer and 01 no. draftsman) has already been published in December, 2021 and response is awaited.

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PART II

OBSERVATIONS/RECOMMENDATIONS

Floodplain/Wetland of River Yamuna

2.1 The Committee observe that Floodplains are an integral part of the riverine ecosystem that comprises of wetlands, floodplain forests and grasslands with the river. They not only function together to recharge the aquifers but also prevent the threat of floods during monsoons by capturing excess water in the floodplain wetlands. Floodplains allow the river to spread its waters obstruction-free and encourage native flora and fauna to sustain in the ecosystem. In this regard, the Committee have been informed that on the issue of encroachment of floodplain/wetland area along the course of Yamuna only two States namely Delhi and Haryana have furnished the information. As apprised by the Department of Water Resources, River Development & Ganga Rejuvenation, Uttarakhand, Himachal Pradesh, Uttar Pradesh and Rajasthan have not furnished the information on this issue so far. From the submissions of the State of Haryana, the Committee find that total Flood Plain Area of river Yamuna in Haryana is 24,406 acre (Karnal - 10960 acre, Panipat – 5100 acre and HKB Jagadhari – 8346 acre) and there is no wetland and no encroachment along the river Yamuna. As per the State Government of Delhi, total area of the Zone 'O' (River Zone/ floodplains) is 9,700 Ha. as per the MPD-2021. Out of this area, land available with DDA (inclusive of UP Irrigation Department land) for the restoration and rejuvenation works being carried out as per the directions of Hon'ble National Green Tribunal is 1675.10 Ha. Further, encroached Flood Plain area of river Yamuna is 161.95 Ha. (appx.) The total wetland area of river Yamuna in Delhi is 59.82 Ha. (appx.), however, there is no encroached wetland area of river Yamuna in Delhi.

The Committee observe that despite challenges like litigation of lands and consistent resistance from Jhuggis/clusters located in Flood Plain Area, Delhi Development Authority (DDA) has retrieved 477.79 Hectares area from the encroachments in the flood plains of river Yamuna. However, they note that some parts of Yamuna Floodplains are still encroached as the removal of encroachment in these areas is under litigation. While appreciating the steps taken for removing the encroachment from the floodplains of river Yamuna, the Committee urge the Department of Water Resources, River Development and

Ganga Rejuvenation to act in coordination with DDA in expediting the litigations to free the flood plains of river Yamuna from encroachment and restore its original ecosystem. Further, in view of the fact that Uttarakhand, Himachal Pradesh, Uttar Pradesh and Rajasthan are yet to provide the information regarding encroachment of floodplains along the river Yamuna, the Committee recommend to the Department to persuade the above Yamuna basin States to furnish the relevant information as well as the measures taken by them for removing those encroachments in their respective States. The Committee would like to be apprised of the details of measures taken within three months of the presentation of this Report.

(Recommendation 1)

<u>Groundwater extraction in floodplains of river Yamuna</u>

2.2 The Committee further notice that Delhi Jal Board has installed 130 production wells in floodplains of Yamuna river which are presently yielding 196 MLD (45MGD) water. There is still scope for withdrawal of additional 190 MLD (40 MGD) water. The Committee observe that the water available in river Yamuna at Hathnikund barrage is being utilized for irrigation and supply of water for domestic/ industrial use. As a result, demands at Hathnikund barrage and Wazirabad barrage is invariably more than the availability during non-monsoon seasons causing usually negligible or insignificant flows downstream of Wazirabad vis-à-vis requirements of river. Furthermore, pumping of ground water by borewells in flood plains is also one of the reasons because of which river course also often gets dry during lean season. Taking cognizance of the above facts, the Committee recommend that in the agriculture sector which is one of the significant users of water, the process to use water judiciously may be adopted by extensively applying micro and drip irrigation techniques, suitable pattern of cropping, practice of water budgeting at micro-levels and water-shed management in the command area of river Yamuna. They would also like to underline the urgent need for storage of monsoon water as well as rain water harvesting to meet the increasing water needs in the Yamuna basin. In addition to this, they also urge the Department to take necessary action in collaboration with the concerned States to prevent the pumping of groundwater by borewells in floodplains of Yamuna.

(Recommendation 2)

Sand Mining

2.3 The Committee observe that on the issue of sand mining in the floodplains of Yamuna (State-wise), the Department has furnished information only of two States i.e. Haryana and Uttar Pradesh. The Department has stated the steps taken by these two States for prevention of sand mining. Further, the Committee note that as per the Mining and Geology Department Haryana, total 3,792 cases in five districts of Haryana namely Yamuna Nagar (2599), Panipat (151), Karnal (202), Sonipat (281), Faridabad/Palwal (559) have been recorded and total Rs. 33,63,98,069 have been recovered in the form of Fine/Penalty. In view of the fact that excessive sand mining leads *to riverbed alteration*, affecting the course of the river and causing bank erosion, the Committee desire that the Department may take necessary steps to collate the information regarding sand mining from all the Yamuna basin States and with their coordination make concerted efforts to prevent illegal sand mining in the floodplains of river Yamuna. In this regard, the Committee would also like to suggest setting up of a portal where all the relevant information like river sand mining, floodplain/wetland encroachment, dumping of waste into the rivers may be furnished by the concerned States in a time-bound manner on periodic basis. They are of the opinion that such information may play an important role in checking the illegal environmental activities in the floodplains of our rivers by having such information in public domain.

(Recommendation 3)

Dumping of Debris in River

2.4 The Committee find that no study has been conducted to assess the impact of construction and demolition debris; as well as bio-medical waste dumping on the health of river Yamuna which has been noticed in the riverbed of Yamuna as informed in the DDA's submission. The Committee further notice from DDA's reply that a number of steps have been taken such as deployment of Security Guards, installation of surveillance and issuing challans to prevent dumping. However, they note that number of Challans issued has increased from 1 in the year 2018 to 610 in the year 2021, Indicating the rise in instances of dumping of debris into the river Yamuna. The Committee are of the opinion that dumping of waste, construction material, and bio-medical waste have the potential to obstruct the natural flow of water during intense precipitation and water may accumulate where it is not required and thus may result in flash flood.

Further, due to presence of waste in water, the ecology of river suffers immensely and deposition of waste material may also disfigure the beautiful landscapes around the river sites. The Committee, therefore, recommend to the Department to prepare guidelines/ rules in this regard. Violation of these rules should attract penal provisions in order to avoid waste dumping in the rivers including Yamuna.

(Recommendation 4)

River Bed Management in Delhi

2.5 The Committee observe that Delhi Irrigation & Flood Control department in collaboration with CSIR NEERI carried out sampling of river bed along the length of the river within Delhi to assess whether legacy sludge is getting deposited year after year in the river bed and if so, the extent thereof. The team jointly collected sludge/ sediment samples from 8 different locations in the Yamuna River Bed during pre-monsoon (June 2019) and post monsoon (October 2019) periods. Water samples were also collected from the middle of the river stream. All the sludge/sediment samples were analysed for different physico-chemical parameters (bulk density, porosity, water holding capacity & organic carbon) and metal contents (Cr, Fe, Cu, Pb, Mn, Ni, Zn, Co & Cd). The findings revealed that levels of metals viz. Cr, Fe, Cu, Pb, Ni, Zn were exceptionally high in the sludge samples collected from mid-stream of Yamuna river at Old Iron Bridge, Geeta Colony and Up-stream of DND Bridge in pre-monsoon. In the upstream of Old Iron Bridge (about 6 km), Najafgarh drain mixes, however, no such trend was observed in post-monsoon season, which indicates scouring during monsoon flows. Further, sediment in the Yamuna River stretch from Kudesia Ghat onwards till the Okhla Barrage is found to be heavily polluted with metal content (i.e. Cr, Cu, Pb, Ni, Zn, Fe, & Mn) when compared with United States Environment Protection Agency (USEPA) Sediment Quality Guideline Values, particularly during the pre-monsoon period. However, the levels decreased considerably during post-monsoon period. Furthermore, the study did not rule out the possibility of legacy sludge in deeper section of the River Bed as the samples were either collected from surface or 1 ft below the surface. Therefore, deep digging of sludge/sediment up to 5-6 ft at few select locations was recommended to further support any conclusion/decision regarding legacy sludge.

The Committee, taking into account the excessive presence of heavy metals like lead, copper, zink, nickel, cadmium and chromium in the riverbed of Yamuna in Delhi which constitute a severe health hazard, recommend to the Department to actively explore the possibility of controlled dredging in the riverbed of *Yamuna for* removal of debris and heavy metals from the bottom of riverbed of Yamuna as their flushing out cannot be left to the vagaries of Monsoon. Besides, the Committee also desire that Department may work in close coordination with other Ministries and Departments for framing a proper system for disposal of such extracted sludge containing heavy metals so that they may not pose danger at and around the neighbouring sites where they are proposed to be disposed off. The Committee would like to be apprised of the steps taken by the Department in this regard.

(Recommendation 5)

Environmental Flow (E-Flow)

2.6 The Committee observe that as per MoU signed among the basin States of Upper Yamuna basin in 1994, a minimum flow in proportion to completion of upstream storages going upto 10 cumec shall be maintained downstream of Tajewala and downstream of Okhla Headworks throughout the year from ecological considerations, as upstream storages are built up progressively in a phased manner. However, the said storages are yet to be built. The Committee notice that Hon'ble NGT Principle Bench, New Delhi vide order dated 11-06-2015 directed that "State of Haryana shall release 10 Cumec water directly into main stream of river Yamuna from Hathnikund Barrage and maintain e-flow of river till Wazirabad". As per the water released data from Hathnikund Barrage and Okhla Barrage the minimum 10 Cumec (352 cucec) as stipulated in the MoU is being released downstream of Hathnikund Barrage and downstream of Okhla Barrage throughout the year".

The Committee are of the opinion that 10 cumecs of flow being released by the State of Haryana at Hathnikund during lean season is inadequate, most of which evaporates or percolates before it reaches Wazirabad during the lean season. In fact, there is almost NIL environmental flow available at downstream of Wazirabad Barrage during most of the period i.e. 9 out of 12 months in a year. Environmental flow is only available during monsoon period of 03 months i.e., July- September. Further, E-flow of 23 cumecs in the lean season has been

recommended by the National Institute of Hydrology (NIH) in its study report submitted to NMCG/ Ministry of Jal Shakti. However, the recommendations of the report could not be accepted as there are differences among Yamuna basin States on e-flow assessment recommended by NIH. Besides, the Committee also note the written submission of the Department which clearly states that even if Delhi Jal Board (DJB) treats the entire sewage generated in Delhi upto BOD of 10 mg/l desired water quality of BOD less than 3 mg/l & DO more than 5 mg/l may not be achieved in river Yamuna due to unavailability of fresh water in the river downstream of Wazirabad.

In this regard, the Committee take cognizance of the definition of International Union for Conservation of Nature (IUCN) (2003) which defines "E-flows as the water regime provided within a river, wetland or coastal zone to maintain ecosystems and their benefits where there are competing water uses and where flows are regulated". Keeping in view the importance of minimum flow for sustenance of river ecosystem, the Committee recommend to the Department to make concerted efforts to evolve consensus among the Yamuna basin States to maintain E-flow of 23 cumecs in the lean season as recommended by the NIH. They would also like to be apprised of the reasons for disagreement among States regarding stipulation of a minimum E flow, so necessary for maintaining health of the river.

(Recommendation 6)

<u>Water Quality of river Yamuna</u>

2.7 The Committee learn from the deposition of the representative of the National Mission for Clean Ganga (NMCG) that the river Yamuna has been categorized into three parts *viz.* the part from Yamunotri to HathniKund Barriage may be considered as unpolluted stretch, the part from HathniKund Barriage to Palla is moderately polluted, however, the part from Palla to Okhla, basically the Delhi stretch is severely polluted. Further, as per the Primary Water Quality Criteria for organized outdoor bathing, the Dissolved Oxygen (DO) is specified as 5 mg/l or more, the Biochemical Oxygen Demand (BOD) is specified as 3 mg/l or less and Fecal Coliform (FC) is specified as less than 2500 MPN/100 ml.

The Committee note that river Yamuna enters in Delhi at Palla from Haryana and exits Delhi to enter Uttar Pradesh at Asgarpur which approximately is a 40 km stretch. Water quality assessment of river Yamuna is carried out by CPCB at 33 locations, under NWMP in association with SPCBs of Uttarakhand (04

locations), Himachal Pradesh (04 locations), Haryana (06 locations), Delhi (07 locations) and Uttar Pradesh (12 locations). The water quality data of monitored 33 locations during January, 2021 – May, 2023 was analyzed for 4 parameters viz., Dissolved Oxygen (DO), pH, Biochemical Oxygen Demand (BOD) and Fecal Coliform (FC). The results were compared with the Primary Water Quality Criteria for Outdoor Bathing (PWQC) notified by Ministry of Environment, Forest & Climate Change under the Environment (Protection) Rules, 1986. The analysis revealed that:

a. **All the 04 monitored locations each in Uttarakhand and Himachal Pradesh are complying while all the 06 monitored locations are non-complying with the criteria in Haryana.**

b. **All the 07 monitored locations in Delhi were non-complying with the criteria during 2021. 06 locations were non-complying except at Palla (entry point of Delhi) which is observed complying during 2022 & 2023.**

c. **Out of 12 monitored locations in Uttar Pradesh, 11 are observed non-complying during 2021- 2023. One location at Prayagraj D/s (BaluaGhat) was observed complying with the criteria during the years.**

d. **Overall, out of 33 locations on river Yamuna, 10 locations (04 in Uttarakhand, 04 in Himachal Pradesh, 01 in Delhi & 01 in Uttar Pradesh) are complying during 2021- 2023. Remaining 23 locations are non-complying (06 in Haryana, 06 in Delhi and 11 in Uttar Pradesh).**

e. **Highest concentration of BOD & maximum FC observed in Haryana is 30 mg/L and 16000000 MPN/ 100 ml respectively during 2021 at Rahimpurka Nagla, Near Flyover Bridge (Mazawali).**

f. **Highest concentration of BOD observed in Delhi is 83 mg/L at Asgarpur after meeting of Shahdara drain and Tughlakabad drain during both 2021 & 2022. Maximum FC observed is 22000000 MPN/ 100 ml during 2021 at Asgarpur after meeting of Shahdara drain and Tughlakabad drain.**

g. **Highest concentration of BOD & maximum FC observed in Uttar Pradesh is 36 mg/L and 920000 MPN/ 100 ml respectively during 2021 at Mathura d/s near ShamshanGhat.**

Further, the Committee find from the submission of the Department that the

water of river Yamuna in Delhi is not fit for bathing. Besides, the Committee also take cognizance of the deposition of the representative of the NMCG who apprised them that the Dissolved Oxygen (DO), which indicates whether the river is alive or not, is virtually non-existent in Delhi. The Dissolved Oxygen (DO) recovers only after confluence with river Chambal at Etawah. Water quality of river Yamuna meets the criteria at location Prayagraj d/s BaluaGhat w.r.t the PWQC in terms of all parameters. The Committee while observing the critical situation of river Yamuna due to deteriorating water quality parameters call for urgent, lucid and coordinated response from all the stakeholders in order to abate pollution and conserve it for posterity.

(Recommendation 7)

Impact of Pollution on the ecology of Yamuna

2.8 The Committee note that though no study has been conducted to assess the damage to ecology of Yamuna and the fish environment, however, river Yamuna in Delhi is not meeting the prescribed parameters regarding healthy fish environment in the stretch between downstream of Wazirabad Barrage after meeting Najafgarh Drain to Asgarpur Village. The Committee note that for healthy sustenance of life, minimum DO requirement is >4 mg/l (Designated Best Use Water Quality Criteria- Class D: Propagation of Wild life and Fisheries) is generally observed NIL in Delhi stretch of river Yamuna except at Palla. Further, incidents of dead fishes and shoals of dead fish washed ashore on the banks of river Yamuna in Agra have been reported a few times. The Committee desire that the Department of Water Resources, River Development and Ganga Rejuvenation in coordination with the Ministry of Environment, Forest and Climate Change undertake a study to assess the damage done to the ecology of river Yamuna and the fish environment. The Committee feel that such a study will present a true picture before the policy makers and will be of great significance in formulating the appropriate steps required to be taken to conserve ecology of the river.

(Recommendation 8)

Industrial Pollution

2.9 The Committee note that annual inspection of GPIs operating in river Yamuna main stem States namely Uttarakhand, Haryana, Delhi-NCT and Uttar Pradesh is being carried out since 2020. A total of 1660 GPIs during 2020-21, 1655 GPIs during 2021-22 and 1957 GPIs during 2022-23 were inspected. During 2020-21, out of total 1660 GPI, freshwater consumption of 268.16 MLD and

discharge of 103.05 MLD wastewater was estimated from 1219 operational GPIs. While, during 2021-22, out of total 1655 GPIs, freshwater consumption of 261.02 MLD and discharge of 144.4 MLD waste water was estimated from 1319 operational GPIs. However, data relating to the year 2022-23 have not been furnished by the Department. The Committee find that though 'Freshwater Consumption' by Grossly Polluting Industries (GPIs) which was 268.16 MLD in the year 2020 has slightly reduced to 261.02 MLD in the year 2021, however, 'Effluent Discharge' which was 103.05 MLD in the 2020 has increased substantially to 144.4 MLD in the year 2021.

Further, the Committee find that there are 50 industrial clusters of GPIs on Yamuna main stem States (Uttar Pradesh, Haryana and Delhi) and 34 CETPs. However, out of 50 only 29 clusters are connected to CETPs which treat their wastewater, while wastewater from remaining clusters is discharged through drains to river Yamuna and its tributaries. Besides, the Committee note that during annual inspections 2021-22, out of total 34 CETPs located on Yamuna main stem, 33 were found operational and 01 non-operational. Further, out of 33 operational CETPs, only 19 were found complying and 14 were non-complying w.r.t standards prescribed by concerned SPCB/PCC. As far as Delhi stretch of Yamuna main stem is concerned, the Committee find that there are 28 approved industrial areas in Delhi out of which 17 are connected with the 13 CETPs, as per the Delhi Pollution Control Committee (DPCC). The total capacity of these 13 CETPs is 212.3 MLD, however, capacity utilization of these 13 CETPs is only 67.5 MLD (just 31.8 % of capacity).

Taking into account issues like connectivity of only few industrial clusters with CETPs and huge underutilization of the CETPs capacity which are one of the main reasons for the dilapidated condition of river Yamuna especially in Delhi, the Committee recommend the Department to nudge all the Yamuna main stem States, especially Delhi to identify the reasons for very low utilization capacity of CETPs so as to take necessary steps to overcome the identified lacunas in their working. Further, they should make all efforts on war-footing within a fixed timeframe to enhance the capacity utilization of the existing CETPs by upgrading their technology and also connect all the industrial clusters with the CETPs so that the effluence generated from the industry is treated before they enter the river. The Committee would like to be apprised of the specific steps taken by the Department in this regard within three months from the presentation of this

Report. They would also like to be apprised of the total number of GPIs currently functioning, Freshwater Consumption and Effluent Discharge by GPIs.

(Recommendation 9)

2.10 Further, the Committee also note that as per the information of DPCC, there is no data available on total number of unauthorized industries operating in Delhi. Considering the role of industrial effluents in polluting the river, the Committee desire that the Department may persuade the State of Delhi to carry out a study to assess the number of unauthorized industries operating in Delhi so that necessary arrangements may be made for regulating these industries and treating the industrial effluents generated from these industries.

(Recommendation 10)

Real Time Effluent Monitoring systems

2.11 The Committee note that CPCB issued directions dated 11-03-2021 to State Pollution Control Boards of Uttarakhand, Haryana, Delhi and Uttar Pradesh to further direct GPIs to install Online Continuous Effluent Monitoring System (OCEMS). However, till date, only 540 GPIs out of 1957 GPIs in Yamuna main stem have installed OCEMS and connected with SPCB and CPCB server. Taking cognizance of the importance of OCEMS in improving the control on the flow of effluents, increased management responsibility for regulatory compliance, as well as increased public access to data, the Committee desire that the Department in coordination with CPCB prepare a schedule for installing the OCEMS in all the GPIs on Yamuna main stem States and make sure that all the GPIs comply with this schedule.

(Recommendation 11)

Pollution from Municipalities / Non-Point Sources, etc.

Discharge of Drains

2.12 The Committee note that untreated sewage from municipalities constitute an important source for polluting the river as they contribute approx. 80% of pollution load into the river. They further note the submission of the UP Pollution Control Board (UPPCB) that discharge of sewage contributes approximately 80 percent of total pollution load in River Yamuna in the State of U.P. Further, according to UPPCB, there are total 137 drains discharging in river Yamuna in the

State of U.P. Though, details regarding flow estimation for all the drains has not been worked by UPPCB, however, out of 35 major drains,18 drains are carrying mixed wastewater and 17 are carrying purely domestic sewage. Regarding Haryana, the Committee take cognizance of the deposition of the representative of the NMCG, that drains no. 2 and 8 in Haryana bring a huge amount of organic and industrial pollution and thus hugely pollute the river in the State. As far as Himachal Pradesh is concerned, as per the information furnished by Himachal State authorities, there is no direct municipal sewage discharge into River Yamuna in Paonta Sahib area of District Sirmaur. However, there are 4 number of drains in municipal limits identified carrying grey water and ultimate discharge in River Yamuna. Further, as informed by HPPCB, concerned Municipal Committee and Jal Shakti Vibhag have not taken corrective measures as per the Yamuna Action Plan such as carrying out survey, preparation of DPR for STP at Pujarighat, 100% household connectivity to existing STP, etc.

Regarding Delhi, the Committee note that as per DPCC, there are 22 drains which are emptying out into river Yamuna. Out of 22 Drains, while 09 drains have been trapped, 02 drains are partially trapped and flow is yet to be trapped / diverted to sewer / STPs in case of 09 drains. Two Drains i.e. Najafgarh and Shahdara are large drains and technically not feasible to trap whole drain however these drains are included in the Interceptor Sewer Project where substantial flow of sub-drains under their command areas will be trapped and treated after trapping of their sub drains. Besides, the Committee also observe that waste water coming through various drains from Haryana [L III (Badshahpur Drain) from Gurugram, L II from Dharampur from Gurugram, L I from Bajgera Palam Vihar from Gurugram, Drain No. 6 from Sonipat, Mungeshpur Drain & Bhupania Drain from Bahadur Garh& Bhupania region] and drains from Uttar Pradesh (Shahibabad Drain, Indirapuri Drain &Banthala Drain) discharge into Najafgarh drain and Shahdara Outfall drain respectively which finally discharge effluent into river Yamuna in Delhi.

From the above-mentioned submissions of the main Yamuna stem States, the Committee are given to understand that at the moment, the river not only gets substantial amounts of industrial and domestic garbage, but it also lacks the bare minimum of fresh water because practically all of the water in the river is diverted for various consumptive activities. The situation is particularly grave in the State of Delhi where the 22-km stretch of river Yamuna between Palla to Okhla which is

less than 2 per cent of the entire length of the river from Yamunotri to Allahabad which is 1376 km. accounts for about 75-80 per cent of the total pollution in the river. They, therefore, urge upon the Department to proactively act with all the main stem Yamuna States to overcome the loopholes mentioned above in a time-bound manner in order to plug the untreated sewage flowing into the drains. Further, the Committee feel that fixing accountability for those overseeing these work is necessary to strengthen the monitoring. The Committee would like to be apprised of the steps taken in this regard within three months of presentation of this Report.

(Recommendation 12)

Sewage discharge from unauthorised colonies

2.13 The Committee also observe that there are 1799 number of unauthorized colonies in Delhi. However, till Dec 2021, sewer lines are laid and commissioned in 685 unauthorized colonies. Sewer line works are under progress in 469 nos. of unauthorized colonies and in 161 colonies, the NOC from the forest department is awaited. In 484 no of colonies, sewerage system is to be laid and will be connected with Decentralized STPs after possessions of land by DDA & Revenue Departments. Being of the opinion that one of the important reasons for poor quality of water in River Yamuna is due to untreated sewage discharge from unauthorized Colonies in Delhi, the Committee urge the Department to work in tandem with the Delhi Jal Board (DJB) so as to provide sewerage network to each and every household including all the 1799 unauthorized colonies in Delhi in a time-bound manner.

(Recommendation 13)

Sewage Intervention

2.14 The Committee note that out of 35 STPs in Delhi, 22 are non-complying; in Haryana, out of 156 STPs, 64 are non-complying; in Uttar Pradesh, out of 130, only 27 are non-complying, while in Uttarakhand and Himachal Pradesh, out of 69 and 75, non-complying STPs are 30 and 22 respectively. Further the Committee note that there is huge gap between the sewage generation and existing treatment capacity particularly in the States of Delhi, Haryana and Uttar Pradesh. While sewage generation in Delhi is 3600 MLD in Delhi, existing treatment capacity of STPs is 2874 MLD resulting in gap of 726 MLD (appx.). Similarly, in Uttar Pradesh, against the sewage generation of 5500 MLD, the treatment

capacity is 4074.5 MLD resulting in a gap of 1425.5 MLD. However, in Haryana, though, treatment capacity of 1835.2 MLD is in excess of sewage generation of 1506.9 MLD, but due to under-utilization of existing capacity, there is a gap of 41 MLD (appx.) Not only this, the Committee also observe that the STPs in all the Yamuna main stem States are functioning below their optimum utilization capacity which also significantly aggravates the problem of discharging untreated waste into the river.

The Committee are of the view that contamination of river Yamuna caused by both human and industrial waste transform it into a carrier of untreated industrial waste, garbage, agricultural run-off and municipal waste. These pollutants make it more of a toxic waterway than a river. This has a profound effect on the well-being of the people living along the course of the river. The Committee, therefore, urge upon the Department to take up the issue of underutilized capacity of STPs with concerned States and also with their coordination prepare a time-bound Action Plan on urgent basis to not only enhance the capacity of the existing STPs but also bridge the gap between the capacity generation and the utilization capacity. The Committee would like to be apprised of the specific steps taken in this regard by the Department within three months from the presentation of this Report.

(Recommendation 14)

<u>Use of fertilizer and pollution of river Yamuna</u>

2.15 The Committee note that the assessment regarding the extent and magnitude of pollution caused in river Yamuna due to application / use of fertilizer in agriculture during last five years has not been carried out by CPCB. However, in compliance to the directions of Monitoring Committee on river Yamuna (MC) constituted by Hon'ble NGT in O.A No 06/2012 in the matter of Manoj Mishra Vs Uol, CPCB conducted a onetime study and tested vegetables grown on the bank of river Yamuna through laboratories identified by FSSAI in Delhi during 2019 in flood plains of Delhi stretch of river Yamuna. The study concluded that the contamination of soil was observed at most of the monitoring sites which may be due to excessive use of fertilizer. However, water quality of River Yamuna depicts trace amount of metals at some locations, which is primarily due to industrial wastewater discharge. In view of the potential health hazards due to use of fertilizers and pesticides in floodplains of river Yamuna, the Committee urge the Department to work with the Ministry of

Agriculture and Farmers' Welfare to explore the ways to promote organic farming along the course of river Yamuna by providing incentives to the farmers so that usage of chemical fertilizers and pesticides may be minimized.

(Recommendation 15)

Solid Waste

2.16 The Committee have been apprised by the Department that only three States namely Himachal Pradesh, Uttar Pradesh and Delhi have furnished information regarding the extent and magnitude of pollution caused by the discharge of solid wastes into the river Yamuna and its tributaries. As per the information furnished, current level of waste generation in Himachal Pradesh is 11 Tonnes Per Day (TPD), while processed capacity is 8.65 TPD resulting in a gap of 2.35 TPD. Similarly, in Uttar Pradesh against the current waste generation of 1832 TPD, the processing capacity is 1335 TPD, while the actual processing is 1201 TPD resulting in gap of 497 TPD. On the other hand, in Delhi, current waste generation is 11376 TPD, while processing capacity is 8219 TPD and actual capacity utilization is 7529 TPD, thus causing the huge gap of 3157 TPD. Further, the Committee also learn that as far as the State of Delhi is concerned, in order to fill the Gap in capacity, additional Municipal Solid Waste (MSW) facilities with total capacity of 6470 TPD are proposed to be installed by December, 2027. Besides, they also observe that only the State of Himachal Pradesh has furnished information regarding the installation of screens on the drains to prevent solid waste entering into stream of river Yamuna.

Taking cognizance of the fact that there is a huge gap between the solid waste generation and processing capacity especially in Delhi which adversely impacts the quality of water in the Yamuna as well as endanger the aquatic species, the Committee recommend the Department to take up this issue with the concerned States and persuade them to make necessary efforts to bridge this gap on priority basis. Besides, they also urge upon the Department to develop some kind of monitoring mechanism in coordination with the State of Delhi to ensure that the proposed additional MSW facilities in Delhi may be installed within the fixed timeframe. The Committee would also like to be apprised of the information regarding the extent and magnitude of pollution caused by the discharge of solid wastes into the river Yamuna and its tributaries

as well as the steps taken by all the Yamuna basin States to install screens on the drains.

(Recommendation 16)

2.17 The Committee observe that there is no study available to show as to what extent the existing cremation process is responsible for pollution in Yamuna river. However, they note that only Nigam Bodh crematorium is situated on the bank of Yamuna in the area of North Delhi Municipal Corporation, in which 6 CNG furnaces, 6 Moksha Dah furnaces and about 90 open platform facilities are available for the rites. In order to reduce pollution in river Yamuna, the Committee urge the Department to explore ways including providing financial assistance to the States to establish electric/CNG furnaces. Besides, the Department with the concerned Yamuna basin States need to find ways to discourage rituals on the pyres built on the banks of Yamuna and if possible shift the cremation sites away from the immediate periphery of the banks of Yamuna in order to prevent contamination of river water.

(Recommendation 17)

<u>Formation of Foam in River Yamuna</u>

2.18 The Committee observe that incidences of foaming in river Yamuna have been observed at locations such as at ITO Bridge, Okhla and Kalindi Kunj in Delhi, especially during onset of winter. The Committee are given to understand that Froth/Foam formation at the downside of Okhla Barrage is more due to turbulence caused by fall of water from the Okhla Barrage which is being maintained by the UP Irrigation Department. At Okhla barrage, all treated and untreated wastewater of Delhi is impounded and only excess wastewater is released downstream. Release of wastewater from barrage agitate surfactants present and foam formation takes place; foam quantities increase with discharge quantity of wastewater from the barrage. Besides, large amount of water hyacinth growth on the pondage of Okhla Barrage release surfactants on decomposition. The presence of phosphates and surfactants in untreated sewage is a major reason behind frothing in the river.

The Committee note that the foam contain in polluted river water can cause skin irritation and infections. Besides, Phosphates in water cause eutrophication of algae which creates conditions favorable to formation of harmful algal blooms.

These blooms prevent light and oxygen from getting into the water, leading to the death of organisms in the ecosystem. The Committee note that Department has cited number of efforts made for prevention of froth formation in Yamuna. These *inter alia* include constitution of a Joint Committee comprising of NMCG, UYRB, UP Irrigation Department, Delhi Jal Board, Irrigation & Flood Control Department of Delhi & DPCC to oversee and coordinate the efforts being made by all concerned agencies to control/minimize froth formation downstream of Okhla barrage in River Yamuna during the Chhath Puja, issue of directions in respect of Prohibition of Sale, Storage, Transportation and Marketing of Soaps & Detergents not conforming to the revised BIS Standards in NCT of Delhi etc.

The Committee are of the opinion that long lasting solution for prevention of Froth/Foam formation in river Yamuna is complete treatment of sewage by Delhi, Haryana and Uttar Pradesh which is being discharged through various drains into river Yamuna. In this regard, the Committee in earlier paragraphs have made recommendations for enhancing the sewage treatment capacity of STPs by upgrading their technologies and connecting all the industrial clusters to CETPs. The Committee once again hope that the Department will make all the endeavours to improve the functioning of the STPs. In addition to this, the Committee believe that efforts also need to be made to introduce alternatives such as sodium aluminum silicate, sodium citrate, polyacry latest and tetra sodium etidronate for phosphates in detergents. Further, Surfactants released from households or commercial establishments need to get biodegraded in sewage treatment plants. They desire that Department will take up this matter with concerned agencies including BIS so as to reduce the foam formation in river Yamuna to negligible levels.

(Recommendation 18)

2.19 Further, the Committee observe that Froth / Foam formation in river Yamuna in Delhi particularly at the downstream of Okhla Barrage near Kalindi Kunj occurs particularly when the gates/ under sluices of Okhla barrage are opened and water is released through energy dissipating arrangements which creates churning and formation of froth. The Committee learn from the written submission of the Department that providing gentle slope at the Okhla barrage for smooth flow may help in avoiding turbulence at the downstream. Moreover, opening and closing of Gates of the barrage may be regulated in such a manner that free fall of discharge may be prevented. The Committee are of the view that though upgrading the sewage treatment capacity of the main Yamuna basin

States may take some time, however the above two steps may be relatively carried out in a short span of time. Thus, the Committee urge the Department to take up this matter with the Departments of Govt. of NCT of Delhi (Irrigation and Flood Control Department and Delhi Jal board) and persuade them to take necessary remedial action in this regard on priority basis. The Committee would like to be apprised of the specific steps taken by the Department within three months from presentation of this Report.

(Recommendation 19)

Namami Gange Programme

2.20 The Committee note that the Government of India (GoI) has launched the Namami Gange Programme in 2014-15, to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga and its tributaries including Yamuna. The Union Government is supplementing the efforts of the State Governments in addressing the challenges of pollution of river Yamuna by providing financial assistance to States of Himachal Pradesh, Haryana, Delhi and Uttar Pradesh. Further, as on 31st August 2023, a total of 34 STPs Projects have been sanctioned under the Namami Gange programme for river Yamuna and its tributaries. Out of these 34 projects, 1 Project is in Himachal Pradesh and 2 are in Haryana. These projects have been completed in both the States. However, in Delhi, out of 11 sanctioned projects for creation of 1268 MLD capacity, only 6 have been completed resulting in creating of 704 MLD capacity. Similarly, in Uttar Pradesh, out of 20 Projects sanctioned for creation of 694.09 MLD capacity, only 6 Projects have been completed resulting in creation of 130.25 MLD.

The Committee note that delay in completion of Projects have been attributed to various reasons such as delay in road/railway crossing permissions, delay in coordination at the State level specifically the State Ganga Committees constituted for coordinating the Ganga rejuvenation projects between various State agencies and a lack of coordination between the District Ganga Committees (DGC) headed by the District Magistrates to ensure speedy implementation of interventions and projects and for carrying out various activities pertaining to Ganga and its tributaries. While appreciating the ambitious Programme of Namami Gange, which aimed at cleaning and rejuvenating river Ganga and its tributaries, the Committee are of the view that the projects particularly in the State of Delhi and UP need to be executed in a fast

track manner so as to avoid cost and time overrun. The Committee hope that the Department will make concerted endeavours to overcome all the above-mentioned issues/obstacles for speedy completion of these projects.

(Recommendation 20)

2.21 The Committee further note that as on date a total of 139 District Ganga Committees (DGCs) have been formed. However, so far no State Yamuna Committees/District Yamuna Committees have been set up on the lines of District Ganga Committees. Considering the significant role played by the DGCs by monitoring the work of local authorities on various parameters of river cleaning, the Committee urge upon the Department to take necessary measures for setting up of Yamuna Committees/District Yamuna Committees. Further, the Committee observe that there is no proposal for setting up Clean Yamuna Fund (CYF) on the lines of Clean Ganga Fund (CGF). The Committee whole heartedly appreciate the concept of CGF and desire that the Department should explore the possibility of establishing the same fund for the river Yamuna which is the important tributary of river Ganga so that the work relating to cleaning the river may not be halted for want of funds. Further, they also recommend that the Department should take appropriate steps to encourage the corporate sector to contribute both financially and technically for conserving this important river. The Committee would like to be apprised of the steps taken by the Department in this regard within three months from presentation of this Report.

(Recommendation 21)

<u>ITO Barrage and Flood Management in Delhi</u>

2.22 In view of huge flooding in Delhi in the month of July 2023, the Committee on 23.08.2023 undertook a field visit to the ITO Barrange for an inspection of role and working of ITO Barrage in Flood Management in Delhi. The Committee have been apprised that the Yamuna Barrage near ITO, Delhi across River Yamuna was constructed by the Haryana Irrigation Department during the year 1966-67 for the then Delhi Electric Supply Undertaking (DESU) for meeting cooling water requirement of Indraprastha Power Station and Rajghat Power House of Delhi Thermal Power Control Board (DTPCB). After construction of ITO barrage, its operation & maintenance was assigned to Haryana Irrigation Department. Indraprastha Power Station was decommissioned on 31.12.2009 and Rajghat Power House was also made non-operational in May 2015. Since, this Barrage

was constructed to supply cooling water for abovementioned thermal power houses therefore, this Barrage has no role in flood management in Delhi. The function of ITO Barrage is not for regulation of flood water.

Further, the Committee note that the team of Experts from CWC visited the ITO Barrage on 27.07.2023. During the visit, it was observed that on that day some of the gates were in fully closed position / partially opened position. The main cause of non-functioning of these gates is heavy silting in and around the gates and poor maintenance of hydro-mechanical equipment. Rope connection to the gate or counter in some bays was detached. In this regard, the Committee note the submission of the State of Haryana, as per which, the only reason of non-maintenance/over hauling of gates is attributed to failure of IPGCL authorities to provide maintenance and operation cost apart from capital investment as per requirement. On the other hand, Delhi Government believe that they have technical capability to operate and maintain ITO Barrage at present and can operate it in a better way as per requirement during the flood in Delhi territory. However, in this regard, the State Government of Haryana is referring to a decision taken in the meeting between Chief Secretary, Haryana and Principal Secretary Irrigation Department, Uttar Pradesh held on 02.04.2015, wherein it was decided that supplies available at Barrage at ITO, Delhi be considered for further distribution amongst U.P. Haryana and Rajasthan at Okhla. Hence, it is not feasible for Haryana to transfer the control of Barrage to Delhi.

They further note that a Committee under the Chairmanship of Central Water Commission has been constituted by the Department of Water Resources, River Development and Ganga Rejuvenation for joint flood management study of river Yamuna, for its stretch between Hathnikund and Okhla Barrage. One of the scope of the study is to review the utility of ITO barrage in present context. The Committee feel that this issue needs to be sorted out as early as possible for ensuring the safe operation of the barrage so that the State of Delhi does not again become victim of floodings as witnessed in the month of July 2023. The Committee urge upon the Department of Water Resources, River Development & Ganga Rejuvenation to mediate in the matter and play the role of an honest broker in resolving this contentious issue between the concerned State Governments by pro-actively engaging all stakeholders. The Committee would

also like to be apprised of the findings of the Committee constituted by the Department under the Chairmanship of Central Water Commission.

(Recommendation 22)

2.23 Further, the Committee also urge upon the Department to make necessary steps in coordination with the States Governments of Haryana, Uttar Pradesh and Delhi to recalibrate the Gause discharge Curves of all the three Barrages in NCT of Delhi in order to ensure that the discharges from these Barrages downstream are in sync with each other. They also desire that Bathymetric survey of River Yamuna should be carried out once in 5 years or within a specified time period so that concern of silting of river bed could be addressed and clinical dredging could be done to accommodate the probable flood coming in River Yamuna.

(Recommendation 23)

Upper Yamuna River Board (UYRB)

2.24 The Committee note that a Memorandum of Understanding (MoU) was signed by the Chief Ministers of Himachal Pradesh, Haryana, Uttar Pradesh, Rajasthan, and National Capital Territory of Delhi on 12th May, 1994 regarding allocation of utilizable surface flow of River Yamuna upto Okhla Barrage (Upper Yamuna) among the co-basin States. In order to implement the said MoU, Upper Yamuna River Board (UYRB) was constituted. The main function of the Upper Yamuna River Board is to regulate the allocation of available flows amongst the beneficiary States and also maintenance of minimum flow, maintaining hydro-meteorological data for the basin; over viewing plans for watershed management; monitoring and reviewing the progress of all projects upto and including Okhla barrage.

However, the Committee observe that UYRB is suffering shortage of manpower. They note that 58 posts were created for UYRB with the approval of the Board members from the Basin States and funded by these States. However, subsequently, total 36 no of Posts, which were vacant for more than five years, have been abolished vide Ministry OM no. A11011/1/2014-E-III (UYRB) dated 19.03.2015 & A-11011/7/2017 E-III Section dated 03.11.2017. There were 22 posts live, however, in spite of vigorous efforts to fill up the vacant posts, the same could not be filled and therefore out of sanctioned 22 posts, 17 posts have gone under deemed abolished category. Though, a proposal for revival of these posts has been submitted and is under consideration in DoWR, RD & GR. Presently

only 2 posts (Member Secretary & Specialist Environment) are filled and 3 officials (Deputy Director, Assistant Engineer-II and Junior Engineer) have been posted informally from Central Water Commission. The Committee feel that such a huge shortage of manpower adversely impacts the functioning of the UYRB. They, therefore, recommend the Department to take urgent measures to fill up the vacancies which are essential for smooth running of UYRB at the earliest and also take urgent steps on the proposal submitted to it for the revival of the posts which have gone under deemed abolished category.

(Recommendation 24)

PUBLIC AWARENESS PROGRAMME

2.25 The Committee note that various institutional, legislative and executive efforts have been made from time to time for prevention and control of pollution. In recent times, an ambitious Scheme 'Namami Gange' programme has been launched with the aim of integrating previous and currently ongoing initiatives in holistic manner with a basin approach. The Committee welcome this step as it reflects the seriousness on the part of the Government to rejuvenate river Ganga and its tributaries. However, at the same time, the Committee are of the view that it is public participation and social awareness which make any programme a success in true spirit. The Committee feel that it is high time that all the stakeholders including the common people seriously understand their duties and also participate in the mission to clean the rivers. The Department should organize regular people participation programme on large scales to make them aware and responsible for having a clean environment including the rivers which are considered sacred and worshipped in our country.

(Recommendation 25)

NEW DELHI;
02 February, 2024
13 Magha,1945 (Saka)

Parbatbhai Savabhai Patel
Chairperson,
Standing Committee on Water Resources

Annexure-I

Water Quality of River Yamuna Under NWMP 2021- May, 2023

Station code	Station Name	State Name	Year	DissolvedO2 (mg/L)		pH		BOD (mg/L)		Fecal Coliform (MPN/100ML)		Compliance Status
Primary Water Quality Criteria for Outdoor Bathing				Min	Max	Min	Max	Min	Max	Min	Max	
				>5 mg/l		6.5-8.5		< 3 mg/l		< 2500 MPN/100 ml		
1492	RIVER YAMUNA AT YAMUNOTRI	UTTARAKHAND	2021	10.6	10.6	7.2	7.2	1.0	1.0	2	2	Complying
			2022	10.4	10.4	7.2	7.2	1.0	1.0	2	2	Complying
1493	RIVER YAMUNA AT HANUMANCHATTI		2021	10.4	10.4	7.2	7.2	1.0	1.0	2	2	Complying
			2022	10.2	10.2	7.3	7.3	1.0	1.0	2	2	Complying
1494	RIVER YAMUNA AT U/S OF LAKHWAR DAM		2021	9.2	10.2	7.5	8.0	1.0	1.2	2	22	Complying
			2022	9.6	10.8	7.2	8.2	1.0	1.0	2	2	Complying
			2023	10.4	10.8	7.9	8.4	1.0	1.0	1.8	1.8	Complying
1490	RIVER YAMUNA AT U/S DAK PATHER,		2021	8.0	9.8	7.4	8.1	1.0	1.6	17	40	Complying
			2022	9.4	10.4	7.2	8.1	1.0	1.0	22	49	Complying
			2023	10.2	10.6	7.9	8.1	1.0	1.0	41	70	Complying
1553	RIVER YAMUNA U/S PAONTA SAHIB	HIMACHAL PRADESH	2021	7.3	8.7	7.5	8.0	1.0	1.9	11	22	Complying
			2022	7.4	8.4	7.6	8.3	1.0	2.0	17	70	Complying
			2023	7.8	8.4	7.4	8.1	1.6	2.0	1.8	94	Complying
1554	RIVER YAMUNA D/S PAONTA SAHIB		2021	7.2	8.8	7.4	7.8	1.0	2.2	21	33	Complying
			2022	7.4	8.3	7.7	8.3	1.2	2.8	25	170	Complying
			2023	7.9	8.2	8.0	8.3	2.5	2.8	1.8	220	Complying
4439	RIVER YAMUNA U/S SUN PHARMACEUTICALS		2021	5.6	8.9	7.1	8.0	1.0	2.0	17	40	Complying
			2022	7.4	8.4	7.8	8.3	1.0	2.5	20	46	Complying
			2023	7.9	8.5	7.9	8.3	2.1	2.6	40	170	Complying
4440	RIVER YAMUNA D/S SUN PHARMACEUTICALS		2021	7.3	8.8	7.5	8.0	1.0	1.8	17	39	Complying
			2022	7.3	8.2	7.6	8.4	1.4	2.7	22	170	Complying
			2023	8.0	8.4	7.9	8.3	2.5	2.8	46	280	Complying
1497	RIVER YAMUNA AT RAHIMPUR KA NAGLA, NEAR FLYOVER BRIDGE (MAZAWALI) HARYANA	HARYANA	2021	0.3	1.8	7.0	7.7	14.0	30.0	33	16000000	Non-Complying
			2022	9.4	9.4	7.1	7.1	19.0	19.0	2100	2100	Non-Complying
1117	RIVER YAMUNA AT HATHNIKUND, YAMUNANAGAR		2021	5.9	8.8	7.6	8.1	2.5	5.8	110	4900	Non-Complying
			2022	5.2	7.1	7.1	8.0	1.6	4.6	1300	5800	Non-Complying
1496	RIVER YAMUNA AT KALANAUR, YAMUNA NAGAR		2021	5.6	9.7	7.6	8.1	2.4	4.2	100	6300	Non-Complying
			2022	5.9	7.1	7.1	7.8	2.4	5.8	400	6300	Non-Complying
4914	RIVER YAMUNA AT MANGLAURA, KARNAL		2021	6.2	10.6	7.1	8.2	1.2	7.9	17	13000	Non-Complying
			2022	6.0	8.5	6.9	8.1	2.4	5.2	200	7600	Non-Complying
10004	RIVER YAMUNA AT KHOJKIPUR PANIPAT		2021	0.3	8.3	7.2	8.2	2.0	21.0	200	280000	Non-Complying
			2022	6.7	7.8	7.2	7.7	1.8	16.0	100	3900	Non-Complying

Station code	Station Name	State Name	Year	DissolvedO2 (mg/L)		pH		BOD (mg/L)		Fecal Coliform (MPN/100ML)		Compliance Status
Primary Water Quality Criteria for Outdoor Bathing				Min	Max	Min	Max	Min	Max	Min	Max	
				>5 mg/l		6.5-8.5		< 3 mg/l		< 2500	MPN/100 ml	
1119	RIVER YAMUNA AT SONEPAT		2021	5.1	7.0	7.6	7.8	1.8	4.2	900	10900	Non-Complying
			2022	7.0	7.0	7.8	7.8	3.2	3.2	100	100	Non-Complying
1120	RIVER YAMUNA AT PALLA, DELHI	DELHI	2021	4.6	14.0	7.3	8.5	2.5	11.0	68	22000	Non-Complying
			2022	8.0	10.0	6.6	7.6	1.5	2.8	1000	1400	Complying
			2023	8.0	10.0	7.2	7.3	1.5	2.5	180	560	Complying
5098	RIVER YAMUNA AT WAZIRABAD		2021	1.9	8.3	6.6	7.4	8.0	10.0	680	11000	Non-Complying
			2022	5.0	6.8	7.2	7.7	7.0	10.0	2600	27000	Non-Complying
			2023	5.0	7.1	7.2	7.4	6.5	8.5	560	5500	Non-Complying
1121	RIVER YAMUNA AT NIZAMUDDIN, DELHI		2021	0.3	3.2	7.3	8.0	22.0	48.0	47000	4900000	Non-Complying
			2022	0.3	0.3	7.1	7.6	40.0	66.0	38000	400000	Non-Complying
			2023	0.3	0.3	7.2	7.5	40.0	48.0	9300	31000	Non-Complying
5099	RIVER YAMUNA AT ISBT BRIDGE		2021	0.3	1.6	7.2	7.5	34.0	38.0	17000	350000	Non-Complying
			2022	0.3	0.3	6.9	7.5	42.0	60.0	63000	310000	Non-Complying
			2023	0.3	0.3	7.1	7.4	38.0	46.0	11000	100000	Non-Complying
5100	RIVER YAMUNA AT ITO BRIDGE		2021	0.3	1.8	7.4	7.6	26.0	62.0	22000	110000	Non-Complying
			2022	0.3	0.8	6.7	7.3	42.0	62.0	200000	340000	Non-Complying
			2023	0.4	1.0	7.3	7.5	30.0	38.0	8300	81000	Non-Complying
1375	RIVER YAMUNA AT OKHLA BRIDGE (INLET OF AGRA CANAL), DELHI		2021	0.3	2.9	7.4	7.9	22.0	56.0	49000	11000000	Non-Complying
			2022	0.3	0.3	6.8	7.5	52.0	76.0	550000	840000	Non-Complying
			2023	0.3	0.3	7.2	7.4	42.0	50.0	140000	380000	Non-Complying
1812	RIVER YAMUNA AT ASGARPUR (AFTER MEETING OF SHAHDARA DRAIN AND TUGHLAKABAD DRAIN)		2021	0.3	2.2	7.4	8.0	38.0	83.0	70000	22000000	Non-Complying
			2022	0.3	0.3	6.4	7.5	60.0	83.0	600000	840000	Non-Complying
			2023	0.3	0.3	6.8	7.5	48.0	56.0	200000	470000	Non-Complying
2493	RIVER YAMUNA AT SHAHPUR	UTTAR PRADESH	2021	3.6	7.8	7.1	7.5	6.6	12.2	17000	79000	Non-Complying
			2022	3.6	6.8	7.1	8.2	8.6	15.4	21000	70000	Non-Complying
			2023	4.2	5.4	7.6	7.9	13.6	15.6	43000	49000	Non-Complying
2495	RIVER YAMUNA AT KESIGHAT, VRINDAVAN		2021	4.8	7.2	7.1	7.6	6.2	9.6	22000	44000	Non-Complying
			2022	4.4	7.4	7.2	8.1	7.2	12.8	22000	39000	Non-Complying
			2023	4.2	5.6	7.6	8.0	10.4	11.6	27000	33000	Non-Complying
1123	RIVER YAMUNA AT MATHURA U/S , U.P.		2021	0.3	6.8	6.9	8.0	6.1	18.0	110	49000	Non-Complying
			2022	4.4	7.2	7.1	8.0	8.0	14.4	13000	49000	Non-Complying
			2023	4.6	6.0	7.6	7.9	9.8	11.4	23000	31000	Non-Complying
2494	RIVER YAMUNA AT VISHRAMGHAT, MATHURA		2021	4.4	6.6	7.2	7.5	8.0	11.6	31000	79000	Non-Complying
			2022	4.2	6.8	7.3	8.1	8.2	15.6	17000	63000	Non-Complying
			2023	4.2	5.8	7.8	8.2	10.8	13.2	21000	33000	Non-Complying
1124	RIVER YAMUNA AT MATHURA D/S , NEAR SHAMSHAN GHAT		2021	2.5	8.9	7.1	8.3	8.6	36.0	170	920000	Non-Complying
			2022	4.2	6.6	7.2	8.2	8.6	16.0	22000	58000	Non-Complying
			2023	4.0	5.6	7.8	8.2	11.6	14.0	32000	38000	Non-Complying

Station code	Station Name	State Name	Year	DissolvedO2 (mg/L)		pH		BOD (mg/L)		Fecal Coliform (MPN/100ML)		Compliance Status
Primary Water Quality Criteria for Outdoor Bathing				Min	Max	Min	Max	Min	Max	Min	Max	
				>5 mg/l		6.5-8.5		< 3 mg/l		< 2500	MPN/100 ml	
1125	RIVER YAMUNA AT AGRA U/S, (KAILASH GHAT)		2021	3.1	10.6	6.6	8.0	8.4	16.0	400	35000	Non-Complying
			2022	6.0	8.6	7.0	7.7	7.2	10.4	6800	14000	Non-Complying
			2023	7.4	7.4	7.8	7.8	8.8	8.8	6800	6800	Non-Complying
1126	RIVER YAMUNA AT D/S OF AGRA, U.P.		2021	1.0	6.8	7.2	8.7	7.2	34.0	4500	240000	Non-Complying
			2022	5.3	7.3	6.7	7.9	8.0	12.8	14000	50000	Non-Complying
			2023	6.9	6.9	6.7	6.7	9.0	9.0	14000	14000	Non-Complying
1498	RIVER YAMUNA AT BATESWAR, U.P		2021	6.1	7.4	7.6	7.9	8.0	17.6	9000	16000	Non-Complying
			2022	6.0	8.6	7.2	7.8	7.6	9.6	8000	22000	Non-Complying
			2023	7.2	7.2	7.4	7.4	8.8	8.8	9300	9300	Non-Complying
1127	RIVER YAMUNA AT ETAWAH, U.P.		2021	5.4	5.8	7.3	7.8	9.2	23.2	13000	32000	Non-Complying
			2022	5.2	6.2	7.6	7.9	5.7	18.0	11000	28000	Non-Complying
			2023	5.2	5.9	7.5	8.0	11.6	17.6	14000	43000	Non-Complying
1499	RIVER YAMUNA AT JUHIKA B/C WITH CHANBAL, ETAWAH, U.P		2021	6.4	8.1	7.5	8.0	7.6	12.4	9000	15000	Non-Complying
			2022	5.8	7.5	7.3	8.2	4.6	12.4	940	11000	Non-Complying
			2023	6.2	7.4	7.6	7.8	9.2	16.0	11000	27000	Non-Complying
2283	RIVER YAMUNA AT HAMIRPUR		2021	6.5	6.7	7.3	7.7	3.6	4.0			Non-Complying
			2022	6.1	6.8	7.1	7.9	3.4	5.8			Non-Complying
			2023	6.5	6.6	7.4	7.6	4.0	4.2			Non-Complying
1069	RIVER YAMUNA AT ALLAHABAD D/S (BALUA GHAT), U.P		2021	7.2	8.5	7.3	8.3	1.9	2.7	450	930	Complying
			2022	6.5	8.8	7.5	8.3	2.5	2.8	400	680	Complying
			2023	8.0	8.4	8.2	8.3	2.5	2.6	400	680	Complying

Annexure -II

WATER QUALITY STATUS OF RIVER YAMUNA (ANNUAL AVERAGE YEAR 2021-23)

PALLA

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml(Rounded of to nearest No)
2021	8	30	3	8	1119
2022	7	33	2	9	1183
2023 (till June)	7.3	25	2	9	1222

WAZIRABAD

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	8	49	6	5	7500
2022	7	64	9	6	20967
2023 (till June)	7.4	46	8	6	1587

ISBT BRIDGE

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	7.2	123	33	1	323364
2022	7.1	184	50	0	1180000
2023 (till June)	7.3	147	41	0	263333

ITO BRIDGE

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	7.4	157	40	2	1902000
2022	7.1	168	54	1	249167
2023 (till June)	7.4	102	34	1	24383

NIZAMUDIN BRIDGE

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	7.3	126	32	0	118273
2022	7.3	197	58	1	74333
2023 (till June)	7.4	154	44	0.3	21717

AGRA CANAL AT OKHLA BARRAGE

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	7.3	153	44	0	153000
2022	7.3	198	63	0	1450000
2023 (till June)	7.2	166	44	0	236667

OKHLA BARRAGE

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	7.3	156	50	0	323364
2022	7.3	229	70	0	1180000
2023 (till June)	7.5	171	47	0	263333

RIVER YAMUNA AT ASGARPUR

Year	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
2021	7.3	231	51	0	6016364
2022	7.2	254	73	0	742500
2023 (till June)	7.2	184	53	0	363333

Annexure -III

Information about Out Falling Drains into River Yamuna in Delhi and their Water Quality (June,2023)

S. No.	Drain Owning Agency	Name of Drain	Flow in MLD (As per DJB)	Water Quality of Discharge into River Yamuna (Parameters)(June , 2023)				Point of Sampling (Before Outfall into river) (Latitude , Longitude*)	Status
				pH	TSS (mg/l)	COD (mg/l)	BOD (mg/l)		
1.	Municipal Corporation of Delhi (MCD)	Metcalf House Drain		No Flow				28.6803991, 77.2291258	Drain Tapped
2.		Khyber Pass Drain	1.7	No Flow				28.6953254, 77.2279064	Drain Tapped
3.		Sweeper Colony Drain	8.6	No Flow				28.6900959, 77.2282293	Drain Tapped
4.		Magazine Road Drain	7.8	No Flow				28.6977573, 77.2274876	Drain Tapped
5.		Tonga Stand Drain	7.8	No Flow				28.6629212, 77.2407143	Drain Tapped
6.		Moat Drain (Vijay Ghat)	-	Dry				-	Drain Tapped/ Dry
7.		Drain No. 14	25.87	No Flow				28.6115925, 77.2517744	Drain Tapped
8.		Tehkhand Drain	39.74	-					Drain Tapped

9.		Civil Mill Drain	14.68	No Flow	28.6507572, 77.2525033	Drain Tapped.

S.No.	Drain Owning Agency	Name of Drain	Flow in MLD (As per DJB)	Water Quality of Discharge into River Yamuna (Parameters) (June, 2023)				Point of Sampling (Before Outfall into river) (Latitude , Longitude*)	Status
				pH	TSS (mg/l)	COD (mg/l)	BOD (mg/l)		
10.	MCD	Sen Nursing Home Drain	43.20	7.3	104	266	46	28.6205472, 77.2516466	**Drain Partially Tapped.** There is one operational STP of 10 MLD (2.2 MGD) capacity for treatment of tapped waste water of this drain.Due to ongoing construction activity by CPWD around the WHO complex, subsoil water is also being pumped into the drain after the trapping. Complete trapping of the drain is only possible after stopping discharge from the construction activity of CPWD.
11		ISBT Drain (Qudsia Bagh/ Mori Gate Drain)	43.2	7.7	88	224	42	28.6694576, 77.2336664	**Drain to be tapped** Flow to be diverted and treated at the Coronation Pillar STP by November, 2023 (Earlier Timeline was Sept, 2023).
12		Delhi Gate Drain / Power House Drain	75.16	7.0	100	288	43	28.6350404, 77.255442	**Drain Partially Tapped.** There are 2 operational STPs of 68.2 MLD (15 MGD) capacity and 10 MLD (2.2 MGD) capacity for treatment of tapped waste water of this drain. Another STP of 45.46 MLD (10 MGD) is proposed for the treatment of remaining untapped waste water of this drain. Land requested by DJB

									for proposed STP is yet to be allotted by DDA / MoHUA.
13		Sonia Vihar Drain (On Eastern Bank of Yamuna)		7.6	112	304	53	28.7084002, 77.2360452	**Drain to be tapped** Work for construction of 31.8 MLD (7 MGD) STP for tapping and treating the waste water of Sonia Vihar Drain is under progress and timeline for completion is September, 2023.
14		Kailash Nagar Drain (On Eastern Bank of Yamuna)		7.5	80	184	40	28.6640877, 77.2494362	**Drain to be tapped**
15		Shastri Park Drain(On Eastern Bank of Yamuna)		7.3	56	152	30	28.6621096, 77.2546735	**Drain to be tapped**
16		Barapulla Drain	145.15	7.9	76	240	52	28.5831727, 77.2640264	**Drain to be tapped** Flow is proposed to be diverted to Okhla STP for treatment. Work is under progress (Cumulative Progress about 43 %), to be completed by December,2023 (Earlier Timeline was Sept, 2023).
17		Maharani Bagh Drain	30.24	7.4	92	272	45	28.5723966, 77.2686193	Work of tapping of9-10 MLD flow in C.V. Raman Marg Trunk sewer has been completed. The balance flow of about 20 MLD will be tapped in the proposed scheme of Barapullah Drain for treatment in Okhla STP. Work is under progress (Cumulative Progress - about 43 %) and to be completed by December, 2023 (Earlier Timeline was Sept, 2023).

18		Jaitpur Drain		7.1	84	208	48	28.5419379, 77.3083086	**Drain to be tapped**
19		Tuglakabad Drain (Kalka Ji Drain merged in this drain)	25.05	7.8	88	280	54	28.5419317, 77.3082674	**Drain to be tapped**
20		Abul Fazal Drain		7.1	100	304	46	28.5458359, 77.2982617	**Drain to be tapped**
S.No.	**Drain Owning Agency**	**Name of Drain**	**Flow in MLD (As per DJB)**	**Water Quality of Discharge into River Yamuna (Parameters) (June, 2023)**				**Point of Sampling (Before Outfall into river) (Latitude , Longitude*)**	**Status**
				pH	**TSS (mg/l)**	**COD (mg/l)**	**BOD (mg/l)**		
21	Irrigation & Flood Control Department (IFCD)	Najafgarh Drain	2097	7.5	92	213	50	28.7090142, 77.2286028	**Being a large drain not feasible to tap.** This is a large drain and technically not feasible to tap the whole drain. There is about 462 MGD flow in the Najafgarh drain. 252 MGD comprises of treated effluent from STPs of DJB. About 187 MGD is discharge from the drains of Haryana [Badshahpur Drain L III, L II from Dharampur & L I from Bajgera, Palam Vihar from Gurugram, Drain No. 6from Sonipat and Mungeshpur & Bhupania Drains from Bahadur

									Garh & Bhupania region]. There is Interceptor Sewer Project in which the waste water of most of the sub drains of Najafgarh Drain has been tapped for the treatment in nearest STPs. Remaining sub drains are also being tapped for diverting to nearest STPs for the treatment of waste water.
22		Shahdara Drain	475.2	7.9	116	346	58	28.5588984, 77.3207987	**Being a large drain not feasible to tap.** This is a large drain and technically not feasible to tap the whole drain. Total discharge in Shahdara drain is about 105 MGD. About 50 MGD is discharge from UP through Shahibabad, I ndirapuri and Banthala drains. There is Interceptor Sewer Project in which the waste water of sub drains of Shahdara Drain has been tapped for treatment in nearest STPs. Remaining 2 sub drains are also proposed to be tapped soon.

Annexure IV

Status of Sewerage Network in Unauthorized Colonies (As provided by DJB)

S.No.	Status	Cumulative Status as in December 2021 (No.)	Increase/Progress during month of January, 2022 (No.)	Cumulative Status as in January 2022 (No.)	Remarks
1	Sewer line laid and commissioned	685	21	706	-
2	Work of sewer network is in progress	469	-21	448	-
3	Colonies where NOC is awaited/ O Zone	161	Nil	161	The work shall be taken up after NOC from Forest Deptt./Ozone
4	Colonies where sewerage network is to be laid along with Decentralized STPs	484	Nil	484	The work shall be taken up after allotment and possession of land by DDA & Revenue Deptt.
	Total			**1799**	

Annexure-V

Comparative statement of discharge passed through HKB, Wazirabad Barrage and Okhla Headworks in Yamuna from 09.07.2023 onwards (Discharge in cusecs)

Date	Time	HKB	Wazirabad Barrage	Okhla Headworks
09.07.2023	10:00	45402	4000	5878
09.07.2023	11:00	56463	4000	2556
09.07.2023	12:00	67984	4000	2556
09.07.2023	13:00	77390	4400	2556
09.07.2023	14:00	85642	4400	2556
09.07.2023	15:00	85642	7600	2556
09.07.2023	16:00	105453	7600	5870
09.07.2023	17:00	190861	10000	10724
09.07.2023	18:00	135133	10000	15496
09.07.2023	19:00	165823	10000	15496
09.07.2023	20:00	194047	10000	15496
09.07.2023	21:00	200520	10000	15607
09.07.2023	22:00	223731	10000	16385
09.07.2023	23:00	237374	10000	14778
09.07.2023	24:00	251287	10000	14778
10.07.2023	01:00	258341	10000	10752
10.07.2023	02:00	272648	10000	10752
10.07.2023	03:00	309526	10000	10752
10.07.2023	04:00	309526	10000	10752
10.07.2023	05:00	305768	10000	8310
10.07.2023	06:00	294587	7600	6624
10.07.2023	07:00	287211	7600	6624
10.07.2023	08:00	279898	7600	9130
10.07.2023	09:00	258341	10000	9130
10.07.2023	10:00	254896	24000	9130
10.07.2023	11:00	247784	32000	9130
10.07.2023	12:00	217003	36000	9130
10.07.2023	13:00	190837	54890	16339
10.07.2023	14:00	213679	60790	31466
10.07.2023	15:00	215677	65700	31466
10.07.2023	16:00	218351	70790	31466
10.07.2023	17:00	218351	77390	45233

10.07.2023	18:00	227117	85370	45233
10.07.2023	19:00	240827	97440	45233
10.07.2023	20:00	244297	101460	45233
10.07.2023	21:00	237374	113900	80746
10.07.2023	22:00	230518	120130	80746
10.07.2023	23:00	220363	123240	80746
10.07.2023	24:00	220363	127490	80746
11.07.2023	01:00	213679	135550	70270
11.07.2023	02:00	210362	135550	77251
11.07.2023	03:00	210362	135550	77251
11.07.2023	04:00	218351	135550	77251
11.07.2023	05:00	230518	141520	77251
11.07.2023	06:00	251287	141520	77251
11.07.2023	07:00	272648	147480	77251
11.07.2023	08:00	320893	147480	77251
11.07.2023	09:00	320893	162390	77251
11.07.2023	10:00	344035	162390	77251
11.07.2023	11:00	359760	167130	77251
11.07.2023	12:00	359760	167130	96267
11.07.2023	13:00	302026	171870	94945
11.07.2023	14:00	256926	171870	94945
11.07.2023	15:00	256926	186080	94945
11.07.2023	16:00	249183	186080	94945
11.07.2023	17:00	249183	186080	101095
11.07.2023	18:00	244297	190820	101095
11.07.2023	19:00	242213	200300	108947
11.07.2023	20:00	237374	205040	140743
11.07.2023	21:00	237374	205040	140743
11.07.2023	22:00	231885	213790	140743
11.07.2023	23:00	227112	216600	140743
11.07.2023	24:00	227112	226830	148822
12.07.2023	01:00	223730	230240	161906
12.07.2023	02:00	217012	230240	161906
12.07.2023	03:00	213679	233650	161906
12.07.2023	04:00	213679	240270	161906
12.07.2023	05:00	207064	245920	175080
12.07.2023	06:00	202476	249990	175080
12.07.2023	07:00	190837	249990	175080
12.07.2023	08:00	178182	256100	175080

12.07.2023	09:00	153768	287210	175080
12.07.2023	10:00	142025	287210	175080
12.07.2023	11:00	136274	287210	175080
12.07.2023	12:00	136274	310190	175080
12.07.2023	13:00	133429	310190	179796
12.07.2023	14:00	130604	323190	179796
12.07.2023	15:00	130604	356050	184363
12.07.2023	16:00	127800	401980	184363
12.07.2023	17:00	127800	424950	184363
12.07.2023	18:00	130604	493860	238117
12.07.2023	19:00	142025	516830	238117
12.07.2023	20:00	147857	539800	238117
12.07.2023	21:00	147857	608710	252444
12.07.2023	22:00	153768	631680	293905
12.07.2023	23:00	156753	654650	293905
12.07.2023	24:00	156753	667620	312135
13.07.2023	01:00	153768	700590	312135
13.07.2023	02:00	153768	769500	312135
13.07.2023	03:00	147857	792470	312135
13.07.2023	04:00	147857	838410	322108
13.07.2023	05:00	144930	861380	322108
13.07.2023	06:00	150803	861380	322108
13.07.2023	07:00	156753	907320	337333
13.07.2023	08:00	159757	953260	337333
13.07.2023	09:00	162781	999200	337333
13.07.2023	10:00	162781	999200	337333
13.07.2023	11:00	151986	999200	348765
13.07.2023	12:00	143767	999200	348765
13.07.2023	13:00	119512	1137020	365487
13.07.2023	14:00	110352	1137020	365487
13.07.2023	15:00	103517	1137020	365487
13.07.2023	16:00	88329	1068110	365487
13.07.2023	17:00	61000	999200	372225
13.07.2023	18:00	50014	979002	372225
13.07.2023	19:00	81803	979002	372225
13.07.2023	20:00	71440	979002	372225
13.07.2023	21:00	74078	979002	372225
13.07.2023	22:00	72256	979002	372225
13.07.2023	23:00	72868	953260	372225

13.07.2023	24:00	62339	953260	372225
14.07.2023	01:00	62219	953260	372225
14.07.2023	02:00	61214	953260	372225
14.07.2023	03:00	54425	953260	372225
14.07.2023	04:00	50721	953260	372225
14.07.2023	05:00	57948	953260	372225
14.07.2023	06:00	57803	953260	372225
14.07.2023	07:00	54673	953260	372225
14.07.2023	08:00	53398	930290	372225
14.07.2023	09:00	59311	907320	372225
14.07.2023	10:00	52042	907320	372225
14.07.2023	11:00	54554	907320	372225
14.07.2023	12:00	57034	884350	372225
14.07.2023	13:00	43829	884350	372225
14.07.2023	14:00	50265	861380	365487
14.07.2023	15:00	47485	861380	365487
14.07.2023	16:00	46674	838410	365487
14.07.2023	17:00	44197	815440	365487
14.07.2023	18:00	40479	792470	365487
14.07.2023	19:00	44785	769500	365487
14.07.2023	20:00	57363	746530	365487
14.07.2023	21:00	50544	723560	365487
14.07.2023	22:00	47748	700590	365487
14.07.2023	23:00	33705	677620	346044
14.07.2023	24:00	37790	654650	346044
15.07.2023	01:00	36984	631680	346044
15.07.2023	02:00	43911	608710	346044
15.07.2023	03:00	37304	585740	346044
15.07.2023	04:00	35106	562770	336154
15.07.2023	05:00	71399	539800	336154
15.07.2023	06:00	50986	516830	336154
15.07.2023	07:00	37138	493860	319099
15.07.2023	08:00	42658	470890	319099
15.07.2023	09:00	44926	447920	319099
15.07.2023	10:00	41830	447920	319099
15.07.2023	11:00	41992	447920	309851
15.07.2023	12:00	41929	447920	292911
15.07.2023	13:00	39949	424950	292911
15.07.2023	14:00	41955	379010	292911

15.07.2023	15:00	42472	333100	283735
15.07.2023	16:00	43168	262200	283735
15.07.2023	17:00	42139	240470	266897
15.07.2023	18:00	40350	240470	257850
15.07.2023	19:00	38300	233650	257850
15.07.2023	20:00	39299	223420	257850
15.07.2023	21:00	44351	223420	241057
15.07.2023	22:00	42446	205040	241057
15.07.2023	23:00	35882	195560	233237
15.07.2023	24:00	37288	176600	216545
16.07.2023	01:00	38289	176600	216545
16.07.2023	02:00	37397	167630	208740
16.07.2023	03:00	38214	159410	208740
16.07.2023	04:00	39868	144500	208740
16.07.2023	05:00	39478	144500	192117
16.07.2023	06:00	40789	141520	184342
16.07.2023	07:00	40447	138530	167788
16.07.2023	08:00	39462	132570	160538
16.07.2023	09:00	42876	132570	160538
16.07.2023	10:00	63913	132570	145008
16.07.2023	11:00	59630	126350	145008
16.07.2023	12:00	67821	123640	126813

Annexure VI

MINUTES OF THE TENTH SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES HELD ON THURSDAY, 16 DECEMBER, 2021

The Committee sat from 1600 hours to 1730 hours in Committee Room '3', Parliament House Annexe Extension, Block 'A', First Floor, New Delhi.

PRESENT

Dr. Sanjay Jaiswal – Chairperson

MEMBERS

LOK SABHA

2. ShriBhagirathChaudhary
3. Shri Guman Singh Damor
4. Dr. Heena Vijaykumar Gavit
5. Shri M. Dhanush Kumar
6. Shri Sunil Kumar
7. Shri Kuruva Gorantla Madhav
8. Shri Sanjay(Kaka) Ramchandra Patil
9. Smt. Agatha K. Sangma
10. Shri Pratap Chandra Sarangi
11. Shri Shivkumar C. Udasi

RAJYA SABHA

12. Shri Harshvardhan Singh Dungarpur
13. Dr. Kirodi Lal Meena
14. Smt. Mausam Noor
15. Shri Arun Singh
16. Shri Subhash Chandra Singh

SECRETARIAT

1. Shri Shri M.K. Madhusudhan - JS (MK)
2. Shri R.C. Sharma - Additional Director

WITNESSES

Ministry of Jal Shakti - (Department of Water Resources, River Development & Ganga Rejuvenation)

1. Shri Pankaj Kumar Secretary

National Mission for Clean Ganga (NMCG)

1. Shri Rajiv Ranjan Mishra Director General
2. Shri Ashok Kumar Singh ED (Project)
3. Shri D.P. Mathuria ED (Technical)
4. Dr. Pravin Kumar Director(Technical)
5. Shri Binod Kumar Director

Central Water Commission (CWC)

Shri R. K. Sinha	Chairman

Upper Yamuna River Board (UYRB)

1.	Shri K. Vohra	Chairman
2.	Shri R.D. Deshpande	Member Secretary

Central Pollution Control Broad (CPCB)

1.	Dr. Prashant Gargava	Member
2.	Shri A. Sudhakar	Director

Govt. of Haryana

1.	Shri. S. Narayanan	Member Secretary-cum DG-cum Secretary to Environment and Climate Change, Chandigarh, Haryana
2.	Shri Asheim Khanna,	Engineer-in-Chief, PHE, Haryana
3.	Shri Janak Raj,	Chief Engineer, PHE, Haryana

Delhi Pollution Control Committee (DPCC)

1.	Shri Sanjeev Khirwar	Pr. Secretary, (Environment)/Chairman (DPCC)
2.	Dr. K.S. Jayachandran,	Special Secretary, (Environment)/ Member Secretary (DPCC)
3.	Shri D.K. Singh.	Sr. Environment Engineer

Delhi Development Authority (DDA)

1.	Shri Manish Kumar Gupta	Vice-Chairman
2.	Shri Ravi Kant	Chief Engineer

Delhi Jal Board (DJB)

1.	Shri Udit Prakash Rai,	Chief Executive Officer (CEO)
2.	Shri Ajay Gupta	Member (Drainage)

2. At the outset, the Hon'ble Chairperson welcomed the Members to the sitting of the Committee convened to have briefing by the representatives of the Ministry of Jal Shakti - Department of Water Resources, River Development and Ganga Rejuvenation on the subject "Review of Upper Yamuna River Cleaning Project upto Delhi and River bed management in Delhi".

[The representatives of the Department of Ministry of Jal Shakti and other Departments/Agencies were, then, ushered in]

3. After welcoming the representatives of the Ministry of Jal Shakti - Department of Water Resources, River Development and Ganga Rejuvenation and other Departments/Agencies, to the sitting, the Chairperson drew their attention to Direction 55(1) of the Directions by the Speaker regarding the confidentiality of the proceedings of the Committee. He then asked them to introduce themselves and make their submission/presentation on various aspects of the topic "Review of Upper Yamuna River Cleaning Project upto Delhi and River bed management in Delhi". Thereafter, the representative of the Department made a power point presentation highlighting the work done by different Ministries/Departments for abatement of pollution and rejuvenation of river Yamuna and issues faced in undertaking this work, etc.

4. Thereafter, the Members raised queries and sought clarifications on the following issues pertaining to the subject:-

(i) Water Quality of river Yamuna.

(ii) Status of Sewerage Interventions in the States of Haryana and Delhi.

(iii) Issue of compliance/non-compliance of norms by STPs.

(iv) Restoration and Rejuvenation of Yamuna Flood Plains in Delhi.

(v) Industrial and Domestic pollution and monitoring in Yamuna Basin under National Mission for Clean Ganga (NMCG).

(vi) Requirement of Environmental flows in river Yamuna.

(vii) Impact of pollution emanating from Illegal colonies on the health of river Yamuna.

(viii) Expenditure incurred on the abatement of pollution in river Yamuna under different Schemes/Programmes.

(ix) Reasons for formation of toxic froth in river Yamuna.

(x) Importance of conserving and restoring wetlands of river Yamuna and conservation of other water bodies.

(xi) Mandate and Activities of Upper Yamuna River Board.

(xii) Rain Water harvesting/Water harvesting for rejuvenation of river Yamuna.

(xiii) Need to change cropping pattern to minimize the use of river water for agricultural purposes and maintaining required flow in the river.

5. The Chairperson then thanked the representatives for the presentation made by them and expressing their views in a free and frank manner. He then directed the representatives of all the Ministries/Departments who attended the sitting to furnish a brief note separately spelling out the solutions to the various problems discussed during the sitting to the Secretariat within 10 days. He also asked the representatives of the respective Ministries/Departments to furnish their written replies to those queries raised by the Members, which could not be readily replied by them within two weeks.

[The witnesses, then, withdrew]

7. A copy of the verbatim record of the proceedings of the sitting of the Committee has been kept.

The Committee, then adjourned.

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Annexure VII

MINUTES OF THE NINTH SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES HELD ON THURSDAY, 27 JULY, 2023

The Committee sat from 1500 hours to 1645 hours in Committee Room '2', Parliament House Annexe Extension, Block 'A', First Floor, New Delhi.

PRESENT

Shri Parbatbhai Savabhai Patel – Chairperson

MEMBERS

LOK SABHA

2. Smt. Agatha K. Sangma
3. Shri Shivkumar C. Udasi
4. Shri D.K. Suresh
5. Dr. Heena Vijaykumar Gavit
6. Shri Pratap Chandra Sarangi
7. Shri Chandra Prakash Choudhary
8. Shri Hasmukhbhai Somabhai Patel
9. Dr. K. Jayakumar
10. ShriBhagirathChaudhary
11. Shri Vijay Baghel
12. Shri Guman Singh Damor
13. Shri M. Dhanush Kumar
14. Shri Sunil Kumar

RAJYA SABHA

15. Dr. Kirodi Lal Meena
16. Shri Pramod Tiwari
17. Smt. Mausam Noor
18. Shri Arun Singh
19. Shri Aneel Prasad Hegde
20. Sant Balbir Singh
21. Dr. Laxmikant Bajpayee

SECRETARIAT

1.	Smt. Suman Arora	-	Joint Secretary
2.	Shri Ajay Kumar Sood	-	Director
3.	Shri P. Ashok	-	Deputy Secretary

WITNESSES

Ministry of Jal Shakti - (Department of Water Resources, River Development & Ganga Rejuvenation)

1.	Sh. Pankaj Kumar	Secretary
2.	Shri Atul Jain	Commissioner (FM)
	Central Water Commission (CWC)	
3.	Shri Kushvinder Vohra	Chairman
4.	Shri Sharad Chandra	Director (FFM)
	National Mission for Clean Ganga (NMCG)	
5.	Shri G. Ashok Kumar	DG
6.	Shri D.P Mathuria	ED(Tech.)
7.	Shri Binod Kumar	Director
8.	Dr. Pravin Kumar	Director
9.	Shri K.L. Ahuja	Consultant
	Delhi Development Authority	
10.	Shri Subhasish Panda	Vice Chairman
11.	Shri Rajiv Tiwari	Principal Commissioner
	Central Pollution Control Board	
12.	Shri Tanmay Kumar	Chairman & AS (Mo EFCC)
13.	Dr. Prashant Gargava	Member Secretary
14.	Shri A.K Vidyarthi	Director
15.	Shri P.K. Mishra	Additional Director
	Government of Delhi	
16.	Shri Ashwini Kumar	Chairperson, Delhi Pollution Control Committee
17.	Dr. K.S. Jaya Chandran	Member Secretary, Delhi Pollution Control Committee
18.	Shri Deepak Kumar Singh	Sr. Environmental Engineer
	Delhi Jal Board	
19.	Shri Ajay Gupta	Member, Drainage

Irrigation and Flood Control

20.	Shri Ashish Kundra	Principal Secretary
21.	Shri Anil Kumar	Chief Engineer

Government of Uttar Pradesh

22.	Shri Ajay Kumar Sharma	Member secretary, UPCCB

Government of Haryana

23.	Sh. Anil Joshi	Member Secretary, H.P State Pollution Control Board
24.	Shri Ashwini	Environmental Engineer
25.	Shri Chandan Kumar	Environmental Engineer.

Upper Yamuna River Board

26.	Shri Ravi Bhushan Kumar	Member Secretary

Government of Uttarakhand

27.	Shri Sushant Kumar Pattnaik	Member Secretary, Uttarakhand State pollution control Board

2. At the outset, the Hon'ble Chairperson welcomed the Members of the Committee and representatives of the Ministry of Jal Shakti - Department of Water Resources, River Development & Ganga Rejuvenation, to the Sitting of the Committee, which was convened to have a briefing on the subject "Review of Upper Yamuna River Cleaning Project upto Delhi and River bed management in Delhi".

3. Thereafter, the Chairperson drew their attention to Direction 55(1) of the Directions by the Speaker regarding the confidentiality of the proceedings of the Committee. He then asked them to introduce themselves and make their submission/presentation on various aspects of the subject "Review of Upper Yamuna River Cleaning Project upto Delhi and River bed management in Delhi". Then, the representative of the Department made a power point presentation highlighting the work done by different Ministries/Departments for abatement of pollution and rejuvenation of river Yamuna and issues faced in undertaking this work, etc.

4. After the Power Point Presentation, the Chairperson and Members raised queries and sought clarifications on the following issues pertaining to the subject:-

(i) Water Quality of river Yamuna;

(ii) Dumping of waste in the flood plains;

(iii) Encroachment of flood plains;

(iv) Status of Sewerage Interventions in the States of Haryana and Delhi;

(v) Issue of compliance/non-compliance of norms by STPs;

(vi) Restoration and Rejuvenation of Yamuna Flood Plains in Delhi;

(vii) Number of Projects sanctioned under 'NAMAMI GANGE' for river Yamuna.

(viii) Industrial and Domestic pollution and monitoring in Yamuna Basin under National Mission for Clean Ganga (NMCG);

(ix) Pollution of river Hindon in Uttar Pradesh;

(x) Issue of Flood Situation in Delhi and Role of Dam/Barrage Gates in Flood Management;

(xi) Dam safety in India;

(xii) Expenditure incurred on the abatement of pollution in river Yamuna under different Schemes/Programmes;

(xiii) Importance of conserving and restoring wetlands of river Yamuna and conservation of other water bodies; and

(xiv) Mandate and Activities of Upper Yamuna River Board.

5. The Chairperson then thanked the representatives for the presentation made by them and expressing their views in a free and frank manner. He also asked the representatives of the respective Ministries/Departments to furnish their written replies to those queries raised by the Members, which could not be readily replied by them within two weeks.

[The witnesses, then, withdrew]

6. The Committee then decided to hold the next sitting on 8 August to discuss the issue of flood management in the country with special reference to the NCT of Delhi to review the role and working of Dam/Barrage gates.

7. A copy of the verbatim record of the proceedings of the sitting of the Committee has been kept.

The Committee, then adjourned.

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Annexure VIII

MINUTES OF THE FOURTH SITTING OF THE STANDING COMMITTEE ON WATER RESOURCES (2023-24) HELD ON FRIDAY, 02 FEBRUARY 2024

The Committee sat from 1500 hours to 1530 hours in Committee Room '1',-'A' Block, EPHA, New Delhi.

PRESENT

Shri Parbatbhai Savabhai Patel - Chairperson

MEMBERS

LOK SABHA

2. Shri Nihal Chand Chauhan
3. Smt. Agatha K. Sangma
4. Shri Shivkumar Chanabasappa Udasi
5. Shri D. K. Suresh
6. Dr. Heena Vijaykumar Gavit
7. Shri Pratap Chandra Sarangi
8. Shri Hasmukhbhai Somabhai Patel
9. Dr. K. Jayakumar
10. Shri Bhagirath Choudhary
11. Shri Vijay Baghel
12. Shri Guman Singh Damor
13. Shri P. Ravindhranath
14. Shri Dhanush M. Kumar
15. Shri Sunil Kumar
16. Shri Kuruva Gorantla Madhav

RAJYA SABHA

17. Shri H. D. Devegowda
18. Shri Pramod Tiwari
19. Shri Arun Singh
20. Shri Aneel Prasad Hegde

SECRETARIAT

1. Smt. Suman Arora - Additional Secretary
2. Shri Ajay Kumar Sood - Director

2. At the outset, the Chairperson welcomed the Members to the sitting of the Committee. Thereafter, the Committee took up for consideration (i) Draft Report on "Review of Upper Yamuna River Cleaning Project upto Delhi and River bed management in Delhi"; and (ii) Draft Report on "Action Taken by the Government on the observations/recommendations contained in the Twenty First Report of the Committee on the Demands for Grants (2023-24)". After due deliberation, the Committee adopted the aforesaid draft Reports, without any modification.

3. The Committee then authorized the Chairperson to present the Reports on their behalf to both the Houses of Parliament in the current Session.

The Committee then adjourned

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