05

STANDING COMMITTEE ON WATER RESOURCES

(2024-25)

EIGHTEENTH LOK SABHA

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

‘‘Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi”

[Action Taken by the Government on the Observations / Recommendations contained in the Twenty Seventh Report (Seventeenth Lok Sabha) of the Standing Committee on Water Resources]

FIFTH REPORT

LOK SABHA SECRETARIAT

NEW DELHI

March, 2025 / Phalguna,1946 (Saka)

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Presented to Lok Sabha on 11.03.2025

Laid on the Table of Rajya Sabha on 11 .03.2025

LOK SABHA SECRETARIAT
NEW DELHI

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INTRODUCTION

I, the Chairperson, Standing Committee on Water Resources (2024-25) having been authorized by the Committee to submit the Report on their behalf, present the Fifth Report on the Action Taken by the Government on the Observations/Recommendations contained in their Twenty Seventh Report (Seventeenth Lok Sabha) on 'Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi'.

2. The Twenty Seventh Report of the Committee was presented to Lok Sabha and laid in Rajya Sabha on 06 February 2024. The Action Taken replies of the Government to all the recommendations contained in the Report were received in this Secretariat on 24 June, 2024.

3. The replies of the Government were examined and the Report was considered and adopted by the Committee at their sitting held on 10.03.2025.

4. An analysis of the Action Taken by the Government on the Observations/Recommendations contained in the Twenty Seventh Report (Seventeenth Lok Sabha) of the Committee is given in Appendices-II.

NEW DELHI
10 March, 2025
19 Phalguna,1946 (Saka)

RAJIV PRATAP RUDY,
Chairperson,
Standing Committee on Water Resources

CHAPTER I

REPORT

This Report of the Standing Committee on Water Resources (2024-25) deals with the action taken by the Government on the Observations/Recommendations contained in the Twenty Seventh Report on 'Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi'.

2. The Twenty Seventh Report was presented to Lok Sabha on 06.02.2024 and was laid on the Table of Rajya Sabha on 06.02.2024. The Report contained 25 Observations/Recommendations.

3. Action Taken Notes in respect of all the 25 Observations/Recommendations of the Committee have been received from the Government. These have been examined and categorized as follows: -

(i) Observations/Recommendations which have been accepted by the Government (Chapter II):

Recommendation Nos. 1,2,3,4,7,9,11,12,13,14,15,16,18,19,20,21,22,23,24 and 25

(Total – 20)

(ii) Observations / Recommendations which the Committee do not desire to pursue in view of the Government's replies (Chapter III):

Recommendation Nos. NIL

(Total – NIL)

(iii) Observations / Recommendations in respect of which replies of the Government have not been accepted by the Committee (Chapter IV):

Recommendation Nos. 5,6,8,10 and 17

(Total – 05)

(iv) Observations / Recommendations in respect of which final replies of the Government are still awaited (Chapter V):

Para Nos. NIL

(Total – NIL)

4. The Committee desire that replies to recommendations made in the Chapter-I of this Report may be furnished to the Committee expeditiously.

5. The Committee will now deal with action taken by the Government on some of their Observations/Recommendations that require reiteration or merit comments.

A. <u>Floodplain/Wetland of River Yamuna</u>

(Recommendation Para No. 1) (Para No. 2.1)

6. The Committee observed 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 had 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 had not furnished the information on this issue so far. From the submissions of the State of Haryana, the Committee found 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 observed 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 70 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.

7. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 1 was sought from Irrigation & Water Resources Department, Haryana, Irrigation & Water Resources Department, Uttar Pradesh, Uttarakhand Irrigation Department, Jal Shakti Vibhag, Himachal Pradesh, Water Resources Department, Rajasthan, Delhi Pollution Control Committee (DPCC) & Delhi Development Authority (DDA) vide email dated 22.02.2024. Further, the follow-up was done through reminders and phone calls.

The reply did not receive from Jal Shakti Vibhag, Himachal Pradesh.

Reply received from Uttarakhand Irrigation Department, vide email dated 06.03.2024 is reproduced below:

Survey work related to the Flood Plain Zoning of Yamuna River is going on presently and is to be completed by 30th June, 2024. After completing the survey and other study works related to floodplain zoning, information regarding encroachments and the floodplain area of Yamuna River shall be intimated accordingly.

Reply received from Water Resources Department, Rajasthan vide email dated 15.04.2024 is reproduced below:

Chambal River is a tributary of the Yamuna River and there is no encroachment & wetland in the floodplain of Chambal River in the State.

Reply received from Irrigation & Water Resources Department, Uttar Pradesh, vide email dated 02.05.2024 is reproduced below:

The flood plain zone of Yamuna river in Uttar Pradesh has not been demarcated yet, though prima facía there is no encroachment on land owned by Irrigation and Water Resources Department, Uttar Pradesh.The total land owned by the Irrigation and Water Resources Department, Uttar Pradesh in the flood plain of Yamuna River in Delhi state

is 230 Ha, which is encroachment-free.The rejuvenation and wetland development work in the said land is being done by DDA.

Reply received fromDelhi Development Authority (DDA), vide email dated 29.05.2024 is reproduced below:

Data pertaining to O Zone, land available with DDA for restoration and rejuvenation work, encroached area and Area re-possessed by DDA 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& Water Resource Department land) for the restoration and rejuvenation works being carried out as per the directions of the Hon'ble National Green Tribunal is 1675.10 Ha and the total wetland area of river Yamuna 59.82 Ha. (appx.). Further for the area which is under litigation in Yamuna Flood Plain, DDA will take appropriate action to re-possess the land as and when required as per the directives of Hon'ble Courts.

Reply received from Irrigation & Water Resources Department, Haryana, vide email dated 31.05.2024 is reproduced below:

Flood plain area of River Yamuna under the jurisdiction of YWS Sonipat is 9367 Acres. There are 2 nos. Dhani's is also situated in river Yamuna having an approximate area of 9 acres. Ownership of these Dhani's is with inhabitants.

Input from the National Mission for Clean (NMCG)

A Committee vide Office memorandum dated 06.08.2023, with Chairman, Central Water Commission as its Chairman has been constituted for Joint Flood management study of river Yamuna for its reach between Hathnikund and Okhla barrage. The Scope of the study included;

i. *Detailed catchment representative rainfall analysis to compare the floods of the year 1978 and 2023 and other years as decided.*
ii. *Estimation of 5, 10, 25, 50, 100 and 500-year return period floods at Hathnikund Barrage, Wazirabad Barrage, Delhi old railway bridge and Okhla Barrage.*
iii. *Carrying capacity of the river between Hathnikund barrage and Okhla barrage.*
iv. *Maximum water level at salient locations of the study river reach for 5, 10, 25, 50, and 100-year return period floods.*
v. *Afflux of barrages, bridges, flood protection dykes and other structures in the study reach of the river*

vi. *2D modelling and submergence area estimation for the reach of river Yamuna from 10 km upstream of Wazirabad barrage and up to 10 km downstream of Okhla barrage.*
vii. *Identification of possible drainage congestion in Delhi in case of high spate of river Yamuna.*
viii. *To review the utility of ITO barrage in the present context.*
ix. *Examine the feasibility of some innovative measures like creating underground reservoirs for flood moderation in line with Tokyo model.*
x. *Examine the feasibility of creation of storages for surplus flood water in the flood plains of Yamuna and thereafter identification of such sites.*

The Committee submitted its interim report in Jan, 2024 recommending, inter-alia, that (a) to operate ITO barrage with all gates open during floods in coordination with operation of Wazirabad barrage and Okhla barrage. It is also recommended that regular maintenance of all hydro-mechanical equipment of barrage to be conducted as per the operation and maintenance manual of the barrage/codal provisions; (b) Any temporary structure made to facilitate construction within the right of way of river should be dismantled and muck should be properly disposed away from the river bed/bank as soon as possible; & (c) Prima facie there is a need to raise the left and right embankment at locations identified by model study. However, Govt. of NCT of Delhi may conduct ground verification in this regard to identify the exact such locations, etc.

Another Committee vide Office memorandum dated 05.09.2023 under the Chairmanship of Member (River Management), CWC for identification & delineation of Flood Plain Zones in River Yamuna for the stretches (i) from Asgarpur to Etawah and(ii) from Shahpur to Prayagraj has been formed. The Terms of Reference of the committee are:

a) *Identify the Floodplain zones of River Yamuna for the stretches (i) Asgarpur to Etawah and (ii) Shahpur to Prayagraj for return period 1 in 5 years, 1 in 25 years and 1 in 100 years respectively.*
b) *Delineate the FloodPlain Zones for no development/ construction zone, regulatory zone and warning zone.*
c) *The Committee may further form a technical core committee for data collection, floodplain delineation as per return period analysis and any other technical work required for the study.*

d) The Committee may co-opt any other members, if required.

e) Field visits may be undertaken as per requirement.

f) Demarcation of the Floodplain Zone on ground will be done by the State Government

The Committee, in its first meeting held on 11.12.2023, decided to delineate the FPZ for the entire reach from Asgarpur to Prayagraj. It was also decided to form a core group for the development of a model for this work with members from CWC, NRSC, NIH, and Irrigation Deptt, UP. The Group held its first meeting on 22.05.2024".

8. During the examination of the subject, 'Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi', the Committee had noted that only two Yamuna basin States namely Delhi and Haryana furnished the information regarding encroachment of floodplains/wetland area along the course of river Yamuna. However, the Department of Water Resources, River Development and Ganga Rejuvenation through their Action Taken Replies have apprised that the States of Uttarakhand, Uttar Pradesh, Delhi, Haryana and the National Mission for Clean Ganga (NMCG) have informed the status of encroachment along the course of river Yamuna and the steps having been/being taken in their respective States to remove that encroachment. Only, the reply from the Jal Shakti Vibhag of Himachal Pradesh is yet to be received. Further, the Irrigation and Water Resources Department, Uttar Pradesh has apprised that the floodplain zone of Yamuna river in Uttar Pradesh has not been demarcated. Considering the significant role played by the floodplains in the riverine ecosystem, the Committee once again urge the Department to persuade the State of Himachal Pradesh to furnish the relevant information regarding the encroachment of river in their State. Further, the State of Uttar Pradesh may also be requested by the Department to demarcate the flood plain zone of river Yamuna.

B. <u>River Bed Management in Delhi</u>

(Recommendation Para No. 5) (Para No. 2.5)

9. The Committee observed 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. 73 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, recommended 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 desired that Department might 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.

10. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 5 was sought from Delhi Jal Board, Delhi Pollution Control Committee (DPCC) & Delhi Irrigation & Flood Control (I&FCD) vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

The reply did not receive from Delhi Jal Board.

Reply received from Irrigation & Flood Control, Delhi vide email dated 15.04.2024 is reproduced below:

When flood water released from Hathni Kund Barrage more than 1 lakh cusec. It acts as a flushing/ carries away the sludge deposit from the river Yamuna in the stretch between the Wazirabad barrage to Okhla barrage.

Regarding deposition/ erosion of silt/ sand in the river bed is also covered in the scope of study given to CWPRS, Pune by this department, after the highest ever flood water level recorded at ORB i.e. 208.66 mtr on 11th July 2023.

Reply received from Delhi Pollution Control Committee vide email dated 30.05.2024 is reproduced below:

The matter of controlled dredging in the river bed of debris and heavy metals from the bottom of river bed pertains to DDA, IFCD, GNCTD & NMCG/ MOJ.

If the dredged material contains heavy metals and exceeds the Concentration limits given under schedule-ll of the Hazardous and Other Waste (Management & Transboundary Movement)Rules, 2016, then it is hazardous waste and requires to be disposed at the TSDF for Hazardous Waste at Bawana in Delhi.

Input from National Mission for Clean (NMCG)

A. *For de-silting and de-sludging of Yamuna River a committee headed by Dr M A Chitale in its report- For Preparation of Guidelines for Works on De-siltation from Bhimgauda to Farakka submitted Feb, 2017 has highlighted following observations:-*

1. *The large scale de-silting or dredging of rivers are not recommended;*
2. *A technical institute may be entrusted to conduct the sediment budget, morphological and flood routing studies that would examine and confirm the necessity of the delisting of the reach under consideration;*
3. *The dredging/ siltation/ mining activities may result into some adverse impacts, i.e – (a) river degradation; (b) bank erosion; (c) channel widening; (d) lowering of meter surface elevations in the river channel (e) lowering of water table elevation adjacent to the river (f) a reduction in the structural integrity of bridges*

pipelines jetties barrages weirs foundation supporting high tension lines, existing bank protection works and other manmade structures and (g) a loss of environmental values resulting from (a) through (e).

B. *Since similar concerns have also been underlined by Irrigation Deptt in its letter submitted to NMCG, it was suggested by NMCG that Department of Irrigation, Uttar Pradesh may first carry out detailed study in order to understand the necessity of de-silting/ de-sludging along with their disposal plan and its probable impact on environmental values. In this regard, if felt necessary, technical assistance may be taken from Central Water Commission (CWC).*

C. *NMCG has also requested the State Government to ensure proper Solid Waste Management in the cities, and screens/ bars may be installed on all drains to prevent the floating solid waste from entering the rivers".*

11. **Having taken note of the presence of heavy metals like lead, copper, zink, nickel, cadmium and chromium in the riverbed of Yamuna which pose a serious threat to the heath and ecosystem of the river, the Committee recommended that the Department explore the possibility of controlled dredging. The Department have through their Action Taken Replies furnished the submissions of various Departments of the Yamuna basin States. However, the Delhi Jal Board has not furnished its reply. Further, the NMCG in their reply has cited the observation of a Committee headed by Dr. MA Chitale which in their Report - *For Preparation of Guidelines for Works on De-siltation from Bhimgauda to Farakka* submitted in February 2017 did not recommend the large scale de-silting or dredging of rivers. Taking into account the replies of various Departments of Yamuna Basin States and deteriorating water quality of river Yamuna due to existence of heavy metals beyond permissible limits, the Committee reiterate that the Department may take pro-active steps at least for controlled dredging of the sludge which cannot be left to the vagaries of monsoon rains and whose continued presence may further decay the water quality of such an important river.**

C. <u>Environmental Flow (E-Flow)</u>

(Recommendation Para No. 6) (Para No. 2.6)

12. The Committee observed 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 noticed 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 were 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 74 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 noted 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 took 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 recommended to the Department to make concerted efforts to evolve consensus among the Yamuna basin States to maintain E-flow of 23 cusecs 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.

13. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 6 was sought from Upper Yamuna River Board (UYRB) and Central Water Commission (CWC) vide email dated 22.02.2024. Further, the follow-up was done through reminders and phone calls.

Reply received from Central Water Commission vide email dated 03.04.2024 is reproduced below:

No specific information is available in CWC. Further, CWC is presently doing the e-flow monitoring for 11 Hydro-Electric Projects situated in the Upper Ganga River Basin starting from originating glaciers and through respective confluences of its head tributaries finally meeting at Devprayag up to Haridwar and the main stem of Ganga up to Unnao district of Uttar Pradesh.

Reply received from Upper Yamuna River Board vide email dated 21.05.2024 is reproduced below:

As per the MoU of 1994 among the basin States, a minimum flow in proportion to completion of upstream storages going upto 10 cumec is to be maintained downstream of Tajewala and downstream of Okhla Head works throughout the year from ecological considerations. Later, Hon'ble NGT Principal Bench, New Delhi vide order dated 11-06-2015 directed that "State of Haryana shall release 10 Cumec water directly into the main stream of river Yamuna from Hathnikund Barrage and maintain e-flow of river till Wazirabad". As per the discharge data submitted by Government of Haryana, theflow of 10 cumecs is being maintained d/s of Hathnikund Barrage.The matter related to the E-flow study by NIH has not been dealt with in UYRB. However, the MoU of 1994 could be reviewed after the year 2025, if any of the Basin States so demand. The provision for e-flow as decided by the competent Authority over and above the current provision could be considered then.

Reply from Haryana Irrigation Department is yet to be received*:*

An e-mail dated 10.06.2024 has been sent to Haryana Irrigation Department and their reply is yet to be received.

Input from NMCG

As per MoU of 1994 on sharing of surface water flows among upper Yamuna basin States, a minimum flow of 10 cumecs will be maintained from ecological considerations downstream of Hathinikund and Okhla barrages. Further, this arrangement is open for review after 2025, if any of the Basin States demand. The Government of Haryana in Dec, 2020 (vide DO letter enclosed ***at Annexure-3****) expressed that before the revision*

of this MOU which is due only after 2025, it is absolutely unwarranted to reopen this issue of e-flow".

14. Having observed that there is almost nil environmental flow available at downstream of Wazirabad Barrage during 9 out of 12 months in a year, the Committee in its 27th Report (17th Lok Sabha) recommended that the Department make concerted efforts to evolve consensus among the Yamuna basin States to maintain E-flow of 23 cusecs in the lean season as recommended by the National Institute of Hydrology. The Department have now apprised the Committee that the reply from the Haryana Irrigation Department has not been received in this regard so far. However, the Government of Haryana in December 2020 vide its DO letter (Annexure 3) expressed that before the revision of MoU of 1994 which is due only after 2025, it is absolutely unwarranted to reopen this issue of e-flow. As per MoU of 1994 among the Yamuna Basin States on sharing of surface water flows among upper Yamuna basin States, a minimum flow of 10 cumecs will be maintained from ecological considerations downstream of Hathinikund and Okhla barrages. Further, this arrangement is open for review after 2025, if any of the Basin States demand. In view of the written submission of the Department during the examination of the subject 'Review Of Upper Yamuna River Cleaning Project Upto Delhi and River Bed Management In Delhi', which clearly stated that even if Delhi Jal Board (DJB) treats the entire sewage generated in Delhi upto Biochemical Oxygen Demand (BOD) of 10 mg/l desired water quality of BOD less than 3 mg/l & Dissolved Oxygen (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 and importance of minium flow for sustenance of river ecosystem, the Committee reiterate that the Department take all the necessary steps to persuade all Yamuna basin States to maintain sufficient amount of e-flow for the overall health of the river.

D. Water Quality of river Yamuna

(Recommendation Para No. 7) (Para No. 2.7)

15. The Committee learnt 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 noted 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 75 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 found from the submission of the Department that the 76 water of river Yamuna in Delhi is not fit for bathing. Besides, the Committee also took

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 called for urgent, lucid and coordinated response from all the stakeholders in order to abate pollution and conserve it for posterity.

16. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 7 was sought from Central Pollution Control Board (CPCB) & Delhi Pollution Control Committee (DPCC) vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

Implementation of Action plans for abatement of river Yamuna pollution and creation of infra-structure are being taken by the Delhi Jal Board and concerned State agencies. The review of implementation of action plans for abatement of river Yamuna pollution is being taken up on regular basis by the High Level Committee (HLC) constituted by Hon'ble NGT during January 2023 in OA No. 21 / 2023 entitled "Ashwani Yadav versus Government of NCT of Delhi" on 09.01.2023 under the Chairmanship of Chief Secretary, Government of Delhi.

Reply received from Delhi Pollution Control Committee vide email dated 30.05.2024 is reproduced below:

DPCC Laboratory carries out water quality monitoring of River Yamuna at 08 locations on monthly basis and Analysis Reports are placed on the website of DPCC. Copy of the Analysis Reports (Water Quality Status of River Yamuna) for the months of January, February, March & April, 2024 are collectively enclosed at ***Annexure -4****. Vide order dated 09.01.2023 in OA. No. 21/2023 in the matter of Ashwani Yadav Vs. Government of NCT of Delhi (Now being dealt in O.A, No, 06 of 2012 in the matter of Nizamuddin West Association Vs. Union of India and Ors"), Hon'ble NGT has constituted a High Level Committee (HLC) of concerned authorities in Delhi with the Chief Secretary, Delhi, Convener; and consisting of Secretaries / HODs of various Ministries/ Departments.*

"The HLC is to deal with all issues as set out in order dated 27.01.2021 of Hon'ble NGT in OA No. 06/2012 in the matter of Manoj Mishra Vs. Union of India & Ors and other ancillary matters. "

High Level Committee has prepared a Department wise detailed Action Plan for Rejuvenation of river Yamuna including Nodal Officers for each project after its first meeting on 20.01.2023 and submitted to Hon'ble NGT on 31.01.2023.

Nine meetings of High Level Committee have been held so far on 20.01.2023,14.02.2023, 14.03.2023, 21.04.2023, 09.06. 2023,10.08.2023, 10.10.2023, 10.01.2024 & 20.02.2024 and progress of various projects & action points were reviewed by HLC in the said meetings.

Status Reports were also filed in the aforementioned matter before the Hon'ble NGT on 31.01.2023,05.07.2023, 16.10. 2023, 21.12.2023 & 12.02.2024

Reply from National Mission for Clean (NMCG)

Yamuna is one of the sacred rivers of India and largest tributary of Ganga River. It originates from the Yamunotri glacier in Uttarakhand passing through Himachal Pradesh, Tajewala-Haryana, Wazirabad-Delhi, Okhla-Delhi, Okhla barrage to Confluence Point of Chambal River and finally merges into River Ganga at Prayagraj. The total length of the Yamuna up to its point of confluence with the Ganga at Prayagraj is 1376 km with catchment area spread over 3.67 lakh sq. km.

Yamuna River has no fresh water after Wajirabad barrage in Delhi. There is a critical path of 22 km where 22 major drains are discharging into River Yamuna. Only after confluence of River Chambal, the water quality of River Yamuna improves.

The Government of India is supplementing the efforts of the States for improvement of water quality parameters of River Yamuna by providing financial assistance to different States of India viz. Haryana, Delhi and Uttar Pradesh, in phased manner since 1993, under the Yamuna Action Plan (YAP I, II & III). Under the YAP Phase – I & II, an expenditure of Rs. 1514.70 crore has been incurred for creation of sewage treatment capacity of 942 MLD and rehabilitation of 328 MLD STP in States of Haryana, Delhi & Uttar Pradesh.

Presently, Government of India/NMCG has sanctioned Total 34 projects costing Rs. 5834.71 crore by which 2110.25 MLD STP capacity will be created. They comprise of (01) project in Himachal Pradesh, (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 & Hindon River. Out of these 34 projects, 15 are already

completed, viz. one (01) project in Paonta Sahib, Himachal Pradesh, two (02) projects in Sonipat and Panipat, Haryana, six (06) projects in Vrindavan, Etawah, Firozabad, Baghpat and Mathura (STP & CETP), UP and six (06) projects in Delhi. The State wise project details are enclosed at ***Annexure- 5*** *of Himachal Pradesh which makes a total of 34 projects costing Rs. 5834.71 crore by which 2110.25 MLD STP capacity will be created.*

In addition to the above there are certain sewage treatment projects which are in under-construction and certain more projects which are in tendering stage. Additionally, sewage treatment capacities are also being built by the State Governments. A wholesome picture of the sewage treatment capacities being built in States is reflected in the MPR submitted by the State Government to National Green Tribunal (NGT). Based on the sewage generation indicated in this MPR, the sewage treatment project capacities being built under NMCG (including competed, under-construction and under-tendering projects), sewage treatment capacities created by the State Government, a state-wise sewage treatment gap has been esimated and a cumulative effective sewage treatment gap of 1500 MLD has been assessed.

A Central Monitoring Committtee under the Chairmanship of Secrtary, DoWR, RD&GR has also been formed with representation from all State Governments to closely monitor the sewage treatment gap and enable co-ordinated efforts for closing this gap".

17. The Committee while examining the subject 'Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi' took cognizance of the submission of the representative of the NMCG that the Dissolved Oxygen (DO) which indicates whether the river is alive or not is virtually non-existent in Delhi. Hence, the Committee called for urgent, lucid and coordinated response from all the stakeholders in order to abate pollution. The Department now through Action Taken Replies have furnished the steps taken by different Agencies and Departments to improve the various water quality parameters. While welcoming the formation of a Central Monitoring Committee under the Chairmanship of Secretary, Department of Water Resources, River Development and Ganga Rejuvenation with representation from all State Governments to closely monitor the sewage treatment gap and enable co-ordinated efforts for closing this gap, the Committee hope that all the agencies and States will work in close coordination to enhance the water quality of river Yamuna which is the largest tributary of Ganga river.

E. Impact of Pollution on the ecology of Yamuna

(Recommendation Para No. 8) (Para No. 2.8)

18. The Committee noted that though no study had 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 noted 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 desired 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 felt that such a study would present a true picture before the policy makers and would be of great significance in formulating the appropriate steps required to be taken to conserve ecology of the river.

19. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 8 was sought from Haryana State Pollution Control Board, Delhi Pollution Control Committee (DPCC) & CPCB vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Pollution Control Board vide email dated 08.03.2024is reproduced below:

The status of restore and rejuvenate the floodplains of River Yamuna by DDA may be obtained from DDA.

CPCB issued directions on 02.01.2023 to State Pollution Control Boards (SPCBs) of Delhi-NCT and Haryana regarding augmentation and upgradation of CETPS and display of OCEMS data by CETPs located in Delhi and Haryana. The details of directions are:

- *To take necessary action against the non-complying CETPs in the state*
- *To prepare and submission of action plan for upgradation /augmentation of identified CETPs situated in the state.*

- *Mandatory to display of OCEMS data of each individual CETP in a conspicuous location.*

Reply received from Uttar Pradesh Pollution Control Board vide email dated 29.05.2024 is reproduced below:

Monitoring water quality of River Yamuna at 22 sampling Locations under Critically polluted river stretches in the State Uttar Pradesh. Out of 22, three sampling points are located in the Agra district which are U/s Kailash ghat, U/s water works & D/s Taj mahal. The water quality monitoring data obtained in the year 2021, 2022 & 2023 are attached as ***Annexure-6.***

Input from National Mission for Clean (NMCG)

The water quality monitoring of River Yamuna being carried out by Delhi Pollution Control Committee (DPCC), there is improvement in quality in terms of BOD when compared from monitoring data of 2022 and 2023:

TABLE 1: BOD MONITORING DATA OF 2022 AND 2023

	December 2022	December 2023
ISBT	46 mg/l	35 mg/l (24% reduction)
Asgarpur	73 mg/l	51 mg/l (30% reduction)

The Water Quality Trend of River Yamuna for 2022 and 2023 is enclosed at ***Annexure- 7.*** *So far, no such study on ecological assessment has been conducted on river Yamuna in the National Capital Territory (the stretch between downstream of Wazirabad Barrage after meeting Najafgarh Drain to Asgarpur Village) under the Namami Gange Programme (NGP), yet.*

The initiatives for pollution abatement through tapping of sewage drains, are being implemented under the Namami Gange Programme in Delhi region and on completion it may help in improvement of water quality vis a vis aquatic life.

Presence of biological organisms in river water is also considered as an indicator of river water quality/ecology and the assessment of these biological organisms is referred to as Bio-monitoring. Bio-monitoring of River Ganga and River Yamuna was carried out during FY 2023-24 in 2 phases: (i) Pre-monsoon period- April – June and (ii) Post-monsoon period- November – March. In this regard, in River Ganga, a total of 42 locations from Gangotri,Uttarakhand to Garden Reach, West Bengal and in River

Yamuna, a total of 26 locations from Yamunotri, Uttarakhand to Prayagraj, Uttar Pradesh have been identified.

Biomonitoring:

a) *River Yamuna originates from Yamunotri Glacier of Uttarkashi and traverses through states of Uttarakhand, Himachal Pradesh, Haryana, Delhi and Uttar Pradesh travelling to a total distance of 1376kms before confluencing with the river Ganges at Prayagraj, Allahabad. River Yamuna being the longest and the largest (by volume) tributary of river Ganga.*

b) *Biomonitoring is one of the tool for assessing the long term biological quality of water of river Ganga and Yamuna. Benthic macro-invertebrates are referred to assess the biological health of water bodies as these being ubiquitous, abundant in aquatic ecosystem, have wide range of pollution tolerance amongst various families and also these are good integrators of environmental conditions. These organisms are used to derive Saprobic Score for Biological water quality assessment which is based on Biological Monitoring Working Party (BMWP) scoring chart. Based on the saprobic values, the surface water bodies are classified in different Biological Water Quality Class (BWQC) that ranges from Very Good to Severe.*

c) *CPCB is assessing the biological health of river Yamuna since 2019 and To assess the seasonal variation in terms of water quality, monitoring is performed twice in a year viz. pre- and post – monsoon. Pre-monsoon phase of monitoring is carried out during April to June and post-monsoon from November to February.*

d) *Biomonitoring of river Yamuna has been carried out in the Haryana, Delhi, and Uttar Pradesh i.e., in the stretch from Panipat (Haryana) to Prayagraj (Uttar Pradesh) covering 13 locations (04 Location in Haryana; 02 Locations in Delhi; and 07 Locations in Uttar Pradesh) to assess the biological water quality using benthic macro-invertebrates.*

TABLE 2:BIOLOGICAL WATER QUALITY CRITERIA

Saprobic Score	Biological Water Quality Class	Saprobic Score
7.0 to 10.0	Very Good	7.0 to 10.0
5.0 to 6.9	Good	5.0 to 6.9
3.0 to 4.9	Moderate	3.0 to 4.9
1.1 to 2.9	Poor	1.1 to 2.9
1.0	Severe	1.0

Based on monitoring data, the major observations are as follows:

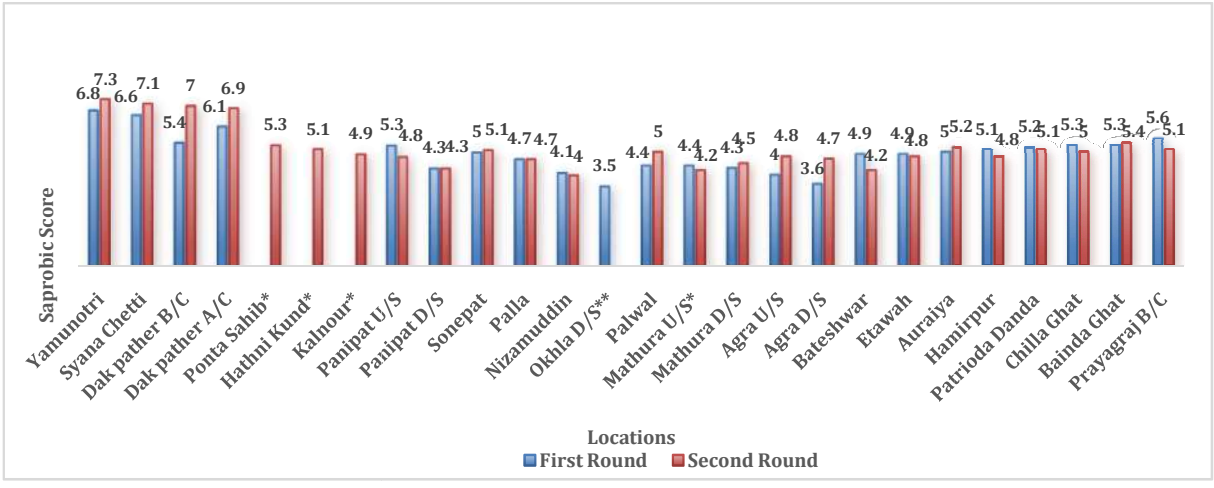
River Yamuna (First Round)

- *In Uttarakhand Stretch from Yamunotri to Dak Pathar the BWQ was found to be in 'Good' class.*
- *In Haryana stretch, Panipat U/S & Sonepat were in 'Good' class and Panipat D/S & Palwal were in 'Moderate' class.*
- *In Delhi stretch, the BWQ was found in 'Moderate class at all the three locations (Palla, Nizamuddin and Okhla D/S)*
- *In Uttar Pradesh stretch, from Mathura U/S till its confluence with River Ganga at Prayagraj, the BWQ of River Yamuna in the upper stretch till Etawah was in Moderate class and lower stretch (from Auraiya to Prayagraj D/S) was in 'Good' class.*

River Yamuna (Second Round)

- *In Uttarkhand, stretch from Yamunotri to Dak Pathar the BWQ was in 'Very Good' class.*
- *At Paonta Sahib, in Himachal Pradesh the BWQ was in 'Good' class.*
- *In the Haryana stretch, from Kalanour, Panipat U/S & D/S the BWQ was 'moderate' class and at Hathni kund, Sonepat and Palwal was in 'Good' class.*
- *In Delhi, the BWQ was in Moderate class (Palla and Nizamuddin).*
- *From Mathura U/S to confluence with River Ganga at Prayagraj, the BWQ from Mathura U/S to Etawah, was in Moderate class and from Auraiya to its confluence point the BWQ was in 'Good' class except at Hamirpur where it was in moderate class"*

FIGURE 1: SAPROBIC SCORE AT LOCATIONS OF RIVER YAMUNA



**Bio-monitoring could not be conducted due to early onset of monsoon*
***Sufficient number of Benthic macro-invertebrates were not collected*

20. Having taken note of the fact that no study has been conducted to assess the damage to ecology of river Yamuna and the fish environment, the Committee in its 27th Report (17th Lok Sabha) recommended to commission such a study. However, the Committee note from the Action Taken Replies of the Department that so far, no such study on ecological assessment has been conducted on river Yamuna in the National Capital Territory (the stretch between downstream of Wazirabad Barrage afer meeting Najafgarh Drain to Asgarpur Village) under the Namami Gange Programme (NGP), yet. In view of the fact that for healthy sustenance of life, minimum DO requirement is > 4mg/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 Palla, the Committee once again reiterate that the Department in coordination with the Ministry of Environment, Forest and Climate Change undertake such an ecological study which will be of great help in formulating the appropriate steps required to be taken to preserve ecology of river.

F. Need to assess the number of unauthorized industries operating in Delhi (Recommendation Para No. 10) (Para No. 2.10)

21. Further, the Committee also noted that as per the information of DPCC, there was no data available on total number of unauthorized industries operating in Delhi. Considering the role of industrial effluents in polluting the river, the Committee desired 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.

22. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 10 was sought from Municipal Corporation of Delhi, Delhi Pollution Control Committee (DPCC) & Delhi State Industrial and Infrastructure Development Corporation (DSIIDC) vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.
The reply did not receive from Municipal Corporation of Delhi.

Reply received from Delhi State Industrial and Infrastructure Development Corporation vide email dated 10.05.2024is reproduced below:

Industries Department/DSIIDC only looks after the issues related to 28 approved industrial areas in Delhi, out of which, 17 approved industrial areas are already connected to 13 Common Effluent Treatment Plants (CETPs). The remaining 11 approved industrial areas do not have CETPs as they are not water-polluting industrial areas.

Reply from National Mission for Clean (NMCG)

An Office Memorandum dated 03.06.2024 is sent to the Chief Secretary, Government of NCT of Delhi is sent to direct the DSIIDC department to take necessary action in this regard".

23. Considering the role of industrial effluents in polluting the river, the Committee in its 27th Report (17th Lok Sabha) urged upon the Department to 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. However, the Committee observe from the Action Taken Replies of the Department, that the response from the Municipal Corporation of Delhi has not been received. It is also observed that an Office Memorandum dated 03.06.2024 was sent to the Chief Secretary, Government of NCT of Delhi, to direct the Delhi State Industrial and Infrastructure Development Corporation (DSIIDC) to take necessary action in this regard. DSIIDC has furnished that it only looks after the issues related to 28 approved industrial areas in Delhi, out of which, 17 approved industrial areas are already connected to 13 Common Effluent Treatment Plants (CETPs). The remaining 11 approved industrial areas do not have CETPs as they are not water-polluting industrial areas. Having taken note of the fact that no data furnished on the total number of unauthorized industries operating in Delhi, the Committee once again desire that a study in this regard may be commissioned to assess the number of unauthorized industries functioning in Delhi so that comprehensive steps may be taken to combat the effluents discharged from these units and proactively decrease pollution of the river.

G. Need to check pollution arising from cremation process

(Recommendation Para No. 17) (Para No. 2.17)

24. The Committee observed that there was no study available to show as to what extent the existing cremation process is responsible for pollution in Yamuna river. However, they noted 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 urged 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 needed 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.

25. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 17 was sought from HP Pollution Control Board, UK Pollution Control Board, U.P Pollution Control Board, CPCB, and Municipal Corporation of Delhi vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

The reply did not receive from Municipal Corporation of Delhi.

Reply received from Himachal Pradesh Pollution Control Board vide email dated 11.03.2024 is reproduced below:

No electric/CNG furnace has been established till date. Existing cremation process in MC limits is carried out through pyres built on crematorium under a shed. No proposal regarding electric/CNG furnaces has been submitted till date by Municipal Committee Paonta Sahib.

Reply received from Uttarakhand Pollution Control Board vide email dated 02.05.2024 is reproduced below:

There is no pollution reported in the river Yamuna due to cremation in the State of Uttarakhand. Water quality of river Yamuna 07 locations is found under category- 'A' of the Designated Best Use Water Quality Criteria and water quality of following 04 locations fall under category 'B' of the DBU category.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

There is no specific study carried out with respect to Yamuna. The study carried out by CPCB i.e. Environmental Management of Crematorium of Bhopal city using cow dung wood as alternative fuel, recommended the following to manage the solid waste from crematoriums. The report is available in the following link:https://cpcb.nic.in/zobhopal/Project_Report_RDBhopal_3.pdf.

TABLE 3: ENVIRONMENTAL MANAGEMENT OF CREMATORIUM

Sl. No.	Materials	Management
1.	Cremated bones	Shall be handed over to relatives, if not collected by relatives on time stored in tinned box with full details in a designate room by the management and on yearly basis disposed of in river.
2.	Ash	Shall be handed over to relatives, if not collected by them or in case of non-claimed bodies disposed in low lying areas of crematorium
3.	Bamboo	Shall be used by crematorium management for making plant protective guard, taken by working people for their use making huts, fence etc.
4	Flower/ Straw	Shall be collected separately from other non-degradable wastes, shall be treated as wet waste and send to Municipal Solid Waste facility for wet waste, shall install a bio—digester / composter/ compost pit for large sized crematoriums.
5	Clothes	Shall be donated to needy ones
6	Utensils	Shall be donated to needy people
7	Mud pots	Shall be crushed and disposed in low lying areas
8	Metals/ Ornaments	Shall be occupied by the poor people or shall be donated to the needy ones
9	Plastic waste	Shall be collected separately and is to be collected by Nagar Nigam authority
10	Glass materials	Shall be collected separately and is to be collected by Nagar Nigam authority
11	Food materials	Shall be collected separately from other non- degradable wastes, shall be treated as wet waste and send to Municipal Solid Waste facility for wet waste, shall install a bio—digester/ composter/ compost pit for large sized crematoriums
12	Rope (Kalawa)	Shall be used to prepare and tie up the plant protective guards at crematorium
13	Hairs	Shall be collected separately and disposed off accordingly, shall be collected and can be used for amino acid preparation. More effective ways for utilizing human hairs shall be explored.

Reply received from Uttar Pradesh Pollution Control Board vide email dated 29.05.2024 is reproduced below:

The issue regarding construction of electric crematorium facilities, its commissioning and operation is related to the Urban Development Department. Hence, this information may be sought from the Urban Development Department".

26. The Committee during the examination of the subject 'Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi' observed that there was no study available to show as to what extent the existing cremation process is responsible for pollution in Yamuna river. Further, in order to reduce pollution in river Yamuna due to cremation process, the Committee recommended that 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. However, the Committee learn from the Action Taken Replies of the Department that there is no specific study carried out in this regard for the Yamuna. The Central Pollution Control Board (CPCB) has carried out a study i.e. Environmental Management of Crematorium of Bhopal city using cow dung wood as alternative fuel. Further, the Committee note that the no reply has been received from the Municipal Corporation of Delhi. Moreover, Himachal Pradesh Pollution Control Board has furnished that no electric/CNG furnace has been established till date. Existing cremation process in MC limits is carried out through pyres built on crematorium under a shed. No proposal regarding electric/CNG furnaces has been submitted till date by Municipal Committee Paonta Sahib. In view of the role played by the cremation process in contaminating the river Yamuna, the Committee reiterate that the Department not only commission a Yamuna specific study but also explore ways including providing financial assistance to the States to establish electric/CNG furnances.

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

(Recommendation Para No. 18) (Para No. 2.18)

27. The Committee observed 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 were 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 noted 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. 84 These blooms prevent light and oxygen from getting into the water, leading to the death of organisms in the ecosystem. The Committee noted 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 were 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 had 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 hoped that the Department would make all the endeavours to improve the functioning of the STPs. In addition to this, the Committee believed that efforts also needed 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 desired 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.

28. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 18 was sought from Delhi Jal Board, Delhi Pollution Control Committee (DPCC) & Uttar Pradesh Irrigation department vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls. The reply did not receive from Delhi Jal Board.

Reply received from Delhi Pollution Control Committee (DPCC) vide email dated 18.03.2024 is reproduced below:

DJB carried out dosing of anti-foaming agents in river Yamuna during Chhath Puja. Government of NCT of Delhi is primarily working on following Sectors for improving the functioning of STPs in Delhi and details are given in following Table:

i. *Rehabilitation of existing 3 STPs at Kondli Ph-II & Rithala Ph-I and Yamuna Vihar Ph -II.*
ii. *Upgradation and increasing capacity of remaining 18 existing STPs*
iii. *Construction of 3 New STPs at Okhla, Delhi Gate and Sonia Vihar*
iv. *Construction of 40 DSTPs 26 DSTPs at various locations of Delhi and 14 DSTPs in Najafgarh Drainage Zone]*

Total capacity of STPs after augmentation and up-gradation of existing STPs will be as follows:

- *Total Capacity of STPs by March, 2024 814 MGD |667 MGD + 147 MGD]*
- *Total Capacity of STPs by December, 2024 922 MGD [667 MGD + 255 MGD]*
- *Total Capacity of STPs by March, 2025 -964.5 MGD 667 MGD + 297.5 MGD]*

Will be sufficient to treat the sewage of 924.8 MGD (80% of 1156 MGD Water Supply) in future.

Delhi Pollution Control Committee issued following directions u/s 33 (A) of the Water (Prevention and Control of Pollution) Act, 1974 on 14.06.2021(enclosed at ***Annexure-17*** *).*

1. *Sale, Storage, Transportation and Marketing of Soaps & Detergents not conforming to the revised BIS Standards shall be completely prohibited in NCT of Delhi.*
2. *All the concerned Departments / Authorities including Municipal Corporation al/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 (1l) above through strict vigil and surprise checks on such establishments.*

Reply received from Uttar Pradesh Irrigation Department vide email dated 02.05.2024 is reproduced below:

Okhla barrage on Yamuna river is only a diversion head works which is built to divert the water into the canal for irrigation purposes.Minimum E-flow is maintained downstream Okhla barrage in compliance with MoU dated 11.03.1995 between Yamuna basin states and as per directions of NGT. After supplying water in the Agra canal for irrigation purposes as per demand, excess water is released downstream of the barrage.Barrage is operated through gates as per operation manual of barrage. The water only flows under the gates. There is no free fall in all of the water at the barrage.

The foam/froth that is being formed downstream of Okhla barrage on Yamuna river is not due to any activity by Irrigation and water resources department, U.P. but mainly untreated/polluted water being discharged into river Yamuna in Delhi region. Action in this regard should be taken by concerned departments/agencies. No action is required by the Irrigation and water resources Department, U.P. However, compliance of the directions - given by the committee to be formed of various departments will be ensured by Irrigation and water department U.P.

Reply from National Mission for Clean Ganga

564 MLD WWTP with targeted NGT parameters of 10/10 is being constructed at Okhla which is likely to be fully functional by Oct 2024. Presently about 200 MLD quantity of liquid line commissioning has been attained at this plant".

29. The Committee are pleased to take note of the Action Taken Replies of the Department whereby it has furnished the submissions of the various agencies like Delhi Pollution Control Committee (DPCC), Uttar Pradesh Irrigation Department and National Mission for Clean Ganga (NMCG) which state the several steps having been taken/being taken to remove the problem of foam/froth formation in the river Yamuna. The Committee however observe that the response from Delhi Jal Board has not been received. The Committee in its 27th Report (17th LS) desired that efforts needed 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 needed to get biodegraded in sewage treatment plants. The Committee further desired that Department would take up this matter with concerned agencies including BIS so as to reduce the foam formation in river Yamuna to negligible levels. However,

the Committee find no concrete response on these issues in the Action Taken Replies of the Department. They, therefore, once again urge upon the Department to take up these issues with the concerned Departments so as to reduce the foam/froth formation in river Yamuna to negligible level.

I. Need to constitute District Yamuna Committees

(Recommendation Para. No. 21) (Para No. 2.21)

30. The Committee further noted 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 had 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 urged upon the Department to take necessary measures for setting up of Yamuna Committees/District Yamuna Committees. Further, the Committee observed that there is no proposal for setting up Clean Yamuna Fund (CYF) on the lines of Clean Ganga Fund (CGF). The Committee wholeheartedly appreciated 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 recommended 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.

31. The Department in its action taken note has replied as follows:

- *National Mission for Clean Ganga vide its D.O. letter dated 1st December, 2023 addressed to Sh. Naresh Kumar, Chief Secretary, Government of NCT of Delhi has requested to put in place the State Ganga Committee (SGC), State Programme Management Group (SPMG) & District Ganga Committees (DGC) in the State of Delhi on an urgent basis in the larger interest pollution abatement of tributaries of river Ganga i.e. Yamuna. So far NMCG has approved a total of 08 projects of Rs. 1728.61 Cr. During the recent years in the State of Delhi. The response from the Government of Delhi is still awaited.*

- *As per the Authority Notification dated 7th October 2016, the State is required to constitute the State Ganga Rejuvenation, Protection and Management Committee as per the composition and powers specified in the Schedule to implement various programmes and projects of NMCG.*
- *The State is also required to put in place the State Programme Management Group (SPMG) for preparation, supervision and management of projects. The project funds will be routed through SPMG to the Executing Agencies. The institutional structures are in place in the Ganga main stem States, where the maximum number of projects under NMCG have been taken up so far.*
- *As per Paragraph 53 of the Authority Order, District Ganga Committees (DGCs) are required to be constituted for the prevention, control and abatement of pollution in the river Yamuna (a tributary of Ganga) as specified in the aforesaid notification.*
- *The Clean Ganga Fund (CGF) was established in 2015 as a trust under the Indian Trusts Act, 1882, to enable Resident Indians, Domestic and Overseas Corporates/ Trusts, and NRIs / PIOs to contribute towards the conservation efforts of River Ganga. The objective of the fund is to contribute to the national effort of improving the cleanliness of the River Ganga with contributions received from the residents of the country, NRIs/ PIO, and public and private companies. The specific purpose of CGF includes -*
    i. *To fund the work program of Ganga rejuvenation chosen from the Namami Gange program of the Government of India.*
    ii. *To coordinate and oversee the implementation of the projects sanctioned.*
    iii. *To accept donations/ contributions from individuals, institutions, and corporates.*
    iv. *To develop any suitable plan for achieving the main objective of improving the cleanliness of the river Ganga.*
- *Namami Gange Programme was launched in June 2014 for a period up to 31 March 2021 to rejuvenate River Ganga and its tributaries. The programme was subsequently extended up to 31March, 2026 to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga and its tributaries, which includes river Yamuna also.*
- *Therefore, contributions to the CGF can also be utilized for the rejuvenation efforts of river Yamuna.*

32. **The Committee during examination of the subject 'Review Of Upper Yamuna River Cleaning Project Upto Delhi And River Bed Management In Delhi' took cognizance of the fact that no State Yamuna Committees/District Yamuna Committees were set up on the lines of District Ganga Committees. The Committee, therefore, urged the Department to take up this issue with concerned States and persuade them to set up these Committees. In this regard, the Committee learn from the Action Taken Replies of the Department that the National Mission for Clean Ganga has requested to Chief Secretary, Government of NCT of Delhi to put in place the State Ganga Committee (SGC), State Programme Management Group (SPMG) & District Ganga Committees (DGC) in the State of Delhi on an urgent basis in the larger interest of abatement of pollution in the tributaries of river Ganga, including Yamuna. However, the response from the Government of Delhi is still awaited. In view of the significant role played by the DGCs by monitoring the work of local authorities on various parameters of river cleaning, the Committee once again urge upon the Department to vigorously pursue this matter with Yamuna basin States for setting up of Yamuna Committees/District Yamuna Committees on priority basis.**

J. ITO Barrage and Flood Management in Delhi

(Recommendation Para No. 22) (Para No. 2.22)

33. 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 Barrage for an inspection of the role and working of ITO Barrage in Flood Management in Delhi. The Committee had 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 87 was constructed to supply cooling water for above mentioned 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 noted 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 noted the submission of the State of Haryana, as per which, the only reason for non-maintenance/overhauling 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 believes 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 noted 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 the present context. The Committee felt that this issue needed 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 a victim of floodings as witnessed in the month of July 2023. The Committee urged 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 88 also like to be apprised of the findings of the Committee constituted by the Department under the Chairmanship of Central Water Commission.

34. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 22 was sought CWC vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Water Commission vide email dated 03.04.2024 is attached below:

Due to a combination of Western Disturbances and Southwest Monsoon, there was heavy rainfall in different places of Himachal Pradesh, Uttarakhand and Haryana during 09-13 July 2023, leading to extensive landslides and flooding in the hills and plains. The heavy rainfall in the catchment area of river Yamuna resulted in huge runoff in the river, due to which an earlier Highest Flood Level (HFL) of 207.49 m recorded at the CWC gauging site of old Delhi railway bridge on 6th September, 1978 got surpassed by a new HFL of 208.66 m observed on 13th July 2023. This necessitated a fresh look at the river's flood management in its reach from Hathnikund Barrage up to Okhla Barrage. In this regard, DoWR, RD&GR, Ministry of Jal Shakti, vide OM No. Z-15011 /1 /2020-FM Section-MOWR dated 6th August 2023, constituted a Committee for conducting a joint flood management study of river Yamuna for its reach between Hathnikund and Okhla barrage. The Committee headed by Chairman CWC has members from Haryana, Uttar Pradesh, NCT of Delhi and expert Organizations. It will inter-alia examine the meteorological aspects, return period of floods, discharging capacity of barrages, functional requirement of ITO barrage, etc. The Committee has been mandated to examine the meteorological aspects, return period of floods, discharging capacity of barrages, functional requirement of ITO barrage, etc. The Committee has submitted an Interim report in January 2024 to DoWR, RD & GR (FM Wing). It would be appropriate to consult the FM Wing of DoWR, RD & GR for including the information from the Interim report".

35. **The Committee are delighted to learn that in line with the recommendation of the Committee, a Committee has been constituted for conducting a joint flood management study of river Yamuna for its reach between Hathnikund and Okhla barrage. This Committee has been headed by Chairman CWC and has members from Haryana, Uttar Pradesh, NCT of Delhi and expert Organizations. It will inter-alia examine the meteorological aspects, return period of floods, discharging capacity of barrages, functional requirement of ITO barrage, etc. The Committee has been mandated to examine the meteorological aspects, return period of floods, discharging capacity of barrages, functional requirement of ITO barrage, etc. The Committee has submitted an Interim report in January 2024 to DoWR, RD & GR (FM Wing). The Committee would like to be apprised of the findings of this Interim Report.**

K. Need to recalibrate the Gause discharge Curves of all the three Barrages in NCT of Delhi

(Recommendation Para No. 23) (Para No. 2.23)

36. Further, the Committee also urged 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 desired 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.

37. The Department in its action taken note has replied as follows:

"Reply/Comments on recommendation no. 23 was sought from CWC vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Water Commission vide email dated 03.04.2024 is reproduced below:

TheRiver cross section survey of Yamuna is carried out every year during non-monsoon period for river morphological study purpose at approx. 10 km interval. There are four locations in Delhi region namely Burari (u/s of Wazirabad Barrage), Kalishnagar (near Old Delhi Railway Bridge), Bhogal (between Nizamuddin & DND bridge) and Jaitpur Extension (d/s of Okhla Barrage). A Morphological Study of Yamuna River has been got carried out by CWC through IIT Delhi. The final report of the same was submitted in Sept 2020 and a dissemination workshop on the findings of the report for all stakeholders was organized in Jan 2024. The objective of the study was: 1. To study morphological behaviour of the River Yamuna 2. To estimate erosion and deposition (areal retreat) on a decadal time scale 3. To analyse the dynamics of the river, course 4. To identify stable and critical reaches in the river. One of the findings of the study is "In the Delhi segment, very less braiding is observed, it is most likely due to the regulations of flows by Wazirabad, ITO and Okhla Barrage. Also, anthropogenic activities around the floodplains of Yamuna and river training works for flood control have restricted river activity to minimum level"(page 224). Channel bank Retreat due to erosion and deposition for the time frames of 1975-1990, 1990- 2000, 2000-2010 and 2010-2016 have been estimated on grid-scale (page 341- 44). The

results show that channel has experienced erosion for the period 1975 up to 2000 at the rate of 1.17 sq.km per year whereas from 2000 to 2016 channel experienced deposition of 7.12 sq.km in total from Ganaur to New Delhi whereas Noida and surrounding Delhi NCR region, channel has experienced deposition (11.25 sq.km) during 1975-1990, erosion (12.66 sq.km) during 1990-2000, deposition 7.46 sq.km during 2000-2010 and erosion 5.47 sq.km during 2010-2016. No specific trend or pattern has been noticed in erosion and deposition processes in the Yamuna River. Aggradation and degradation patterns analysed from observed cross-sections are in line with satellite-based captured erosion deposition maps. Suspended sediment load (SSL) varies spatially across Yamuna River. Delhi recorded the maximum value of SSL in 1995. The year 1999- 2000 can be considered as a breaking point after which SSL for all available stations reduced drastically. Ministry of Jal Shakti (MoJS) has come up with a National Framework for Sediment Management (NFSM) for managing the sediments in a holistic manner. This framework lays emphasis on sediment management through integrated river basin management plan. It provides reference to all existing guidelines/policies dealing with the various aspects of the sediment management. The framework will facilitate the concerned stakeholders such as the State Governments other Ministries, Departments, etc in planning strategies and implementation of projects giving due consideration to environment and ecology and will serve as a guidance document for management of sediment across the river basin. The framework provides specific provisions for sediment management vide para 2.2 and de-silting/dredging / mining restrictions details vide its ***Annexure-18****. A "National Workshop on Integrated Management of Sediments in River Basins and Reservoirs for Sustainable Development" was organized by CWC/MoJS on 19th June 2023 to share the contents of the framework with the State Government to follow for sediment management related sensitive issues including de-silting/dredging of rivers.* ***Annexure -19*** *of the framework provides details of de-silting/ dredging work in rivers to be followed by the executing agencies".*

38. **The Committee note that the River cross section survey of Yamuna is carried out every year during non-monsoon period for river morphological study purpose at approx., 10 km interval. Further, the Ministry of Jal Shakti (MoJS) has come up with a National Framework for Sediment Management (NFSM) for managing the sediments in a holistic manner. This framework lays emphasis on sediment management through integrated river basin management plan.**

However, the Committee find no response on the recommendations made by it in its 27th Report (17th LS) regarding the recalibration of 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, therefore, once again urge the Department to work in coordination with the Government of NCT of Delhi with regard to the recalibration of the Gauge discharge Curves.

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CHAPTER II

OBSERVATIONS/RECOMMENDATIONS WHICH HAVE BEEN ACCEPTED BY THE GOVERNMENT

(Recommendation No.1) (Para No. 2.1)

Floodplain/Wetland of River Yamuna

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 70 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.

Reply of the Government

Reply/Comments on recommendation no. 1 was sought from Irrigation & Water Resources Department, Haryana, Irrigation & Water Resources Department, Uttar Pradesh, Uttarakhand Irrigation Department, Jal Shakti Vibhag, Himachal Pradesh, Water Resources Department, Rajasthan, Delhi Pollution Control Committee (DPCC) & Delhi Development Authority (DDA) vide email dated 22.02.2024. Further, the follow-up was done through reminders and phone calls.

The reply did not receive from Jal Shakti Vibhag, Himachal Pradesh.

Reply received from Uttarakhand Irrigation Department, vide email dated 06.03.2024 is reproduced below:

Survey work related to the Flood Plain Zoning of Yamuna River is going on presently and is to be completed by 30th June, 2024. After completing the survey and other study works related to floodplain zoning, information regarding encroachments and the floodplain area of Yamuna River shall be intimated accordingly.

Reply received from Water Resources Department, Rajasthan vide email dated 15.04.2024 is reproduced below:

Chambal River is a tributary of the Yamuna River and there is no encroachment & wetland in the floodplain of Chambal River in the State.

Reply received from Irrigation & Water Resources Department, Uttar Pradesh, vide email dated 02.05.2024 is reproduced below:

The flood plain zone of Yamuna river in Uttar Pradesh has not been demarcated yet, though prima facía there is no encroachment on land owned by Irrigation and Water Resources Department, Uttar Pradesh.The total land owned by the Irrigation and Water Resources Department, Uttar Pradesh in the flood plain of Yamuna River in Delhi state

is 230 Ha, which is encroachment-free.The rejuvenation and wetland development work in the said land is being done by DDA.

Reply received fromDelhi Development Authority (DDA), vide email dated 29.05.2024 is reproduced below:

Data pertaining to O Zone, land available with DDA for restoration and rejuvenation work, encroached area and Area re-possessed by DDA 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& Water Resource Department land) for the restoration and rejuvenation works being carried out as per the directions of the Hon'ble National Green Tribunal is 1675.10 Ha and the total wetland area of river Yamuna 59.82 Ha. (appx.). Further for the area which is under litigation in Yamuna Flood Plain, DDA will take appropriate action to re-possess the land as and when required as per the directives of Hon'ble Courts.

Reply received from Irrigation & Water Resources Department, Haryana, vide email dated 31.05.2024 is reproduced below:

Flood plain area of River Yamuna under the jurisdiction of YWS Sonipat is 9367 Acres. There are 2 nos. Dhani's is also situated in river Yamuna having an approximate area of 9 acres. Ownership of these Dhani's is with inhabitants.

Input from the National Mission for Clean (NMCG)

A Committee vide Office memorandum dated 06.08.2023, with Chairman, Central Water Commission as its Chairman has been constituted for Joint Flood management study of river Yamuna for its reach between Hathnikund and Okhla barrage. The Scope of the study included;

xi. Detailed catchment representative rainfall analysis to compare the floods of the year 1978 and 2023 and other years as decided.
xii. Estimation of 5, 10, 25, 50, 100 and 500-year return period floods at Hathnikund Barrage, Wazirabad Barrage, Delhi old railway bridge and Okhla Barrage.
xiii. Carrying capacity of the river between Hathnikund barrage and Okhla barrage.
xiv. Maximum water level at salient locations of the study river reach for 5, 10, 25, 50, and 100-year return period floods.
xv. Afflux of barrages, bridges, flood protection dykes and other structures in the study reach of the river

xvi. 2D modelling and submergence area estimation for the reach of river Yamuna from 10 km upstream of Wazirabad barrage and up to 10 km downstream of Okhla barrage.

xvii. Identification of possible drainage congestion in Delhi in case of high spate of river Yamuna.

xviii. To review the utility of ITO barrage in the present context.

xix. Examine the feasibility of some innovative measures like creating underground reservoirs for flood moderation in line with Tokyo model.

xx. Examine the feasibility of creation of storages for surplus flood water in the flood plains of Yamuna and thereafter identification of such sites.

The Committee submitted its interim report in Jan, 2024 recommending, inter-alia, that (a) to operate ITO barrage with all gates open during floods in coordination with operation of Wazirabad barrage and Okhla barrage. It is also recommended that regular maintenance of all hydro-mechanical equipment of barrage to be conducted as per the operation and maintenance manual of the barrage/codal provisions; (b) Any temporary structure made to facilitate construction within the right of way of river should be dismantled and muck should be properly disposed away from the river bed/bank as soon as possible; & (c) Prima facie there is a need to raise the left and right embankment at locations identified by model study. However, Govt. of NCT of Delhi may conduct ground verification in this regard to identify the exact such locations, etc.

Another Committee vide Office memorandum dated 05.09.2023 under the Chairmanship of Member (River Management), CWC for identification & delineation of Flood Plain Zones in River Yamuna for the stretches (i) from Asgarpur to Etawah and(ii) from Shahpur to Prayagraj has been formed. The Terms of Reference of the committee are:

g) Identify the Floodplain zones of River Yamuna for the stretches (i) Asgarpur to Etawah and (ii) Shahpur to Prayagraj for return period 1 in 5 years, 1 in 25 years and 1 in 100 years respectively.

h) Delineate the FloodPlain Zones for no development/ construction zone, regulatory zone and warning zone.

i) The Committee may further form a technical core committee for data collection, floodplain delineation as per return period analysis and any other technical work required for the study.

j) The Committee may co-opt any other members, if required.

k) Field visits may be undertaken as per requirement.

l) Demarcation of the Floodplain Zone on ground will be done by the State Government

The Committee, in its first meeting held on 11.12.2023, decided to delineate the FPZ for the entire reach from Asgarpur to Prayagraj. It was also decided to form a core group for the development of a model for this work with members from CWC, NRSC, NIH, and Irrigation Deptt, UP. The Group held its first meeting on 22.05.2024.

Comment of the Committee

(Please see Para No. 8 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 2) (Para No. 2.2)

Groundwater extraction in floodplains of river Yamuna

The Committee further noticed that Delhi Jal Board has installed 130 production wells in floodplains of Yamuna river which are presently yielding 196 MLD (45 MGD) 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 groundwater by bore wells in flood plains is also one of the reasons because of which river course also often get 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.

Reply of the Government

Reply/Comments on recommendation no. 2 was sought from Central Ground Water Board (CGWB) vide email dated 22.02.2024.

Reply received from Central Ground Water Board (CGWB) vide email dated 7.03.2024 is reproduced below:

CGWB has proposed the development of groundwater resources in the Yamuna Flood Plain by dewatering aquifers up to 4-5 meters during the lean period. This allows for the replenishment of groundwater during the flood season. Following this recommendation, the Delhi Jal Board has already implemented 130 production wells in the Palla sectors, currently producing 196 MLD (45 MGD) of water.

Additional areas with high potential for constructing productive tube wells include the Akshardham Mandir-Mayur Vihar sector, DND Flyover sector, and Kalindi Kunj-Jaitpur Sector. It has been observed that during the lean period, groundwater flows are generally from the mainland to the River Yamuna. Additionally, the region experiences flooding during post-monsoon inundation by the River Yamuna, contributing to natural recharge of subsurface aquifers through surface spreading methods during peak post-monsoon floods. Therefore, the extraction of 45 MGD in the Palla sector has a minimal impact on the Yamuna River flows.

To further mitigate the impact on the river's flow, tube wells are strategically recommended to be placed away from the Yamuna River course. This staggered placement ensures that the extraction of groundwater has minimal interference with the natural flow of the Yamuna River.

To support the extraction scheme, Irrigation and Flood Control Department, Government of Delhi has undertaken a project to recharge groundwater by creating water bodies/reservoirs in the flood plains. This initiative is designed to establish water bodies/reservoirs between the main river course and the right marginal embankment, specifically between Palla and Wazirabad. Under this project, one pond has already been constructed.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 3) (Para No. 2.3)

Sand Mining

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.

Reply of the Government

Reply/Comments on recommendation no. 3 was sought from Mining and Geology Department, Haryana , Directorate of Geology & Mining, Uttar Pradesh, Geology and Mining Unit, Directorate of Industries, Uttarakhand, Geology Wing, Department of Industries,Himachal Pradesh, Department of Mines & Geology, Rajasthanvide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Department of Mining, Himachal Pradesh vide email dated 30.04.2024 is reproduced below:

The river Yamuna is the primary tributary of the river ganga, originates from the Yamunotri Glacier near Bander poonch peak (38°59'N 78°27'E) at an elevation about 6,387 mtrs.in district Uttrakashi. After crossing Garhwal and irrigating Jaunsar area, it

flows on the southern edge of the state for a distance of about 31 km. Entering in H.P. (i.e. only in Paonta Sahib, Division) It separates Kayarda Dun from the Dehradun and forms the boundary line between Himachal Pradesh and the Haryana/ Utter Pradesh. Within the boundary of this state the estimated maximum width of the river is about 91m and the depth is about 6m, but this limit is far exceeded during the rainy season. In the summer, due to melting of snow on the high mountains, the volume of water of the river Yamuna is often subject to inflation. The water of this river is generally cold and clear but during the summer, due to melting of snow, it becomes sandy. It is a sacred river having two temples on its bank within H.P. boundary i.e. at Rampur and at Paonta where a Gurudwara also exists. Since this river flows at a lower level than of the plateau of the Kayarda Dun, its water cannot be made use of for irrigating the area. It consists of tributaries in the district i.e. the Tons meeting it at Khodari Majri, the Giri Joining it near Rampur Ghat and the Bata mingling its water with it at Bata Mandi fall in Paonta Sahib Sub-Division of District Sirmour).

The Yamuna catchment drain:the Punjab-Kimaon Himalayas from Shimla in the northwest to Mussoorie in the southeast. After flowing in a southeasterly direction for about 120 km, it is joined by its principal tributary the Tons near Dakpathar. The Tons drain a large catchment area in H.P. and hence carries a large volume of water than the main river Yamuna. The river pierces the lower Shiwalik range and enlys the plains near Tajewala. From Tajewala onward it flows in a southerly direction for a distance of 240 km up to the Okhla headwater near Delhi. The Yamuna after receiving the water through other important tributaries joins the river Ganga and the underground Saraswati at Prayag (Allahabad) after traversing about 950 km.

The catchment of the Yamuna River system covers part of Uttar Pradesh, Uttarakhand, Himachal Pradesh, Haryana, Rajasthan, Madhya Pradesh, and Delhi states. The state-wise catchment area distribution is as below:

TABLE 4: STATE-WISE CATCHMENT AREA

Name of the State	Total catchment area in Yamuna(in Sq. Km)	Percentage contribution.
Uttar Pradesh (including Uttarakhand)	74,208	21.5
Himachal Pradesh	5,799	1.6
Haryana	21,265	6.5
Rajasthan	1,02,883	29.8
Madhya Pradesh	14,028	40.6
Delhi	1,485	0.4

The tributaries contribute 70.9% of the catchment area and the balance 29.1% accounted for the direct drainage into the Yamuna River or to the smaller tributaries.

On the basis of area, the catchment basin of the Yamuna account to 40.2% of the Ganga basin and 10.7% of the total land mass of the country.

The river marks its course through the boulder beds of Siwalik rocks and this formation is the prominent source of annual deposition in the river beds. During flood season, due to the high carrying capacity of river Yamuna, the water carries a heavy sediment load comprising boulders, gravels, sand, and silt intermixed with clay, which are deposited along the riverbed. Since the Yamuna riverbed in the boundary of Himachal Pradesh has heavy sedimentation/deposition after every monsoon season and resultantly bed or river has over deposited and as such there is a calamitous need to unearth the mineral in a scientific way to avoid further damage to the pvt. land/properties specifically existing on the right bank of the river which may be damaged due to bank erosion & over flooding. Thus, in order to evade any possibility of bank erosions and to ensure scientific and sustainable exploration of mineral wealth, the State Government has granted 16 no. of mineral concessions in the Yamuna riverbed after completing all requisite codal formalities. The details of mineral concessions granted in Yamuna River are as under.

TABLE 5: FOR OPEN SALE

Sl.No.	Name & Address of mining leaseholder	Area (in Hect.)
1.	Shri Manjeet Singh R/O House No. 171/11, Devi Nagar, 42 Tehsil Paonta Sahib, District Sirmour. H.P.	4.2
	Total area	**4.2 Hect.**

TABLE 6: AUCTIONED QUARRIES

Sl.No.	Name & Address of mining leaseholder	Area (in Hect.)
1.	Shri Randeep Singh, S/o Shri Gurbaksh, Village Masruwala, P.O. Dulmana, Tehsil & District Hanumangarh, Rajasthan	1-10-40 Hect. & 53-56-40 Hect.
2.	Shri Dev Raj Negi, S/o Shri Singha Singh, Village Gojjar, Tehsil Paonta Sahib, District Sirmour, H.P.	5-37-05 Hect.
	Total	**60-03-85 Hect**

TABLE 7: FOR STONE CRUSHING

Sl .No.	Name & Address of mining lease holder	Area (in Hect.)
1.	M/s Sab Giri Industries, Prop. Shri Madan Mohan Sharma, S/o Shri Natha Ram Sharma, H. No. 214, Ward No. 10, Devi Nagar, Tehsil Paonta Sahib, District Sirmour, H.P.	2.68
2.	M/s Mahender Singh & Company, Prop: Shri Mahender Singh, S/o Shri Sohan Singh, Devi Nagar, Tehsil Paonta Sahib, District Sirmour H.P.	10.2
3.	Smt. Meera Chandel, W/o Dr. Hakam Chand Chandel Devinagar Paonta Sahib distt. Sirmour H.P	4.7
4.	M/S Yamuna Mines and Minerals, C/o Sh. Sher Singh Negi Ho. No. 133/E Canal road Heerpur Paonta Sahib Distt. Sirmour H.P	3.75
5.	Sh. Anil Sharma Sirmour Industries, Vill. Bata Mandi Tehsil Paonta Sahib Distt. Sirmour H.P	3.52
6.	Sh. Vivek Gautam, Vill. Manpur Devra Tehsil Paonta Sahib Distt. Sirmour H.P	2.16
7.	Sh. Mahabir Singh, Vill. Gojar adain Tehsil Paonta Sahib Distt. Sirmour H.P	7.2
8.	Smt. Seema Devi, D/o Shri Ghunger Ram, Prop. M/s Krishna Stone Crusher, R/o Ward No. 8, Mohalla Nalagarh, Tehsil Nalagarh, District Solan, H.P	3.75
9.	M/s Bitta Stone Crusher, (Partnership Firm. Partners S/Shri Salinder Singh, Sarwan Singh, Amarjeet Singh & Smt. Babita Dubey) Village Kunja Matralion Jehsil Paonta Sahib, District Sirmour, H.P.	2.05
10.	M/s Akhilesh Enterprises, Partners Smt. Malini Jung &Kirnesh Jung. Village Ganguwala, PO Batamandi, Tehsil Paonta Sahib, District Sirmour, H.P.	2.0
11.	Shri Lakhwinder Singh, S/o Sh. Jagmel Singh, Falt No.824, Phase-2, Mohali, Punjab.	4.2
12.	Shri Amrik Singh, Prop. M/s Neelkanth Stone Crusher, Haripur Tohana, Tehsil Paonta Sahib, District Sirmour, H.P.	3.08
13.	M/s Hare Krishna Stone Crusher Prop. Shri Aachman Kapoor, House No. 180/46, Surya Colony, Ward No. 6, Paonta Sahib	3.51
	Total area	**52.8 Hect.**

It is important to mention here that River Yamuna majorly forms inter-state border with state of Uttarakhand and partially with Haryana and Uttar Pradesh also. The Northern half of river Yamuna falls under Himachal state and the Southern half falls under the state of Uttarakhand. Hence, because of the aforesaid reason, entire river Yamuna in term of illegal mining, is vulnerable at some stretches. The river Yamuna passes for approximately 31 km through border of Himachal Pradesh in Paonta Sahib Sub-Division adjoining to Uttarakhand. Incidences of illegal mining to some extent, in Yamuna river is being noticed from both sides, because it is not possible to outline the inter-state border line which is running almost along the center line of the riverbed. There are few area(s) of concerns in Yamuna river (border area) in Paonta Sahib Sub-division where apprehension of illegal mining cannot be ruled out, due to receding

water flow in Yamuna River specifically during winter season as the areas are located in proximity of interstate boundary. However, regular inspections are being carried out to check the incidences of illegal mining and transportation of mineral to adjoining State.

It is worth submitted that, there is no explicit sand mining in River Yamuna in the revenue boundary of Himachal Pradesh, as there is no individual deposition of sand in the river channel. However, in order to check the illegal mining of the river-borne material effectively and to take determinant action against offenders, the Mining Department. as well as the Police department. is continuously taking effective actions, either jointly or at their own level to stop this unlawful activity which is not only detrimental to Environment but also causing loss to Government Exchequer Surprise raids are being conducted to these areas even in odd hours too. Because of collective efforts put in by the Police & Mining Department, and thereto stern action taken against the offender Ie. impounding the vehicles and filing the cases in court, plugging the unauthorized passage for illegal extraction etc., the incidents of illegal mining have reduced appreciably.

The incidence of illegal mining in the Yamuna basin (only within the boundary in Himachal Pradesh) reported in preceding years is minuscule. However, the department still has taken action even against such activities and cases are filed in respective courts as per prevailing law.

Reply received from Geology and Mining Unit, Directorate of Industries, Uttarakhand vide email dated 12.04.2024 is reproduced below:

Few Mining leases for sand mining have been granted in the Yamuna River bed falls in Tahsil Badkot, district Uttarkashi, Uttarakhand. A list of mining leases executed in the river bed of the river Yamuna in the last five years are as under:

TABLE 8: LIST OF MINING LEASES EXECUTED IN RIVER BED OF THE RIVER YAMUNA IN LAST FIVE YEARS

S.No.	Name of Mining Lease area in River Yamuna	Area in hect.	Lease period
1	Bghasu	0.401	18-06-2020-16-05-2023
2	Ponti	0.860	08-11-2016-16-05-2023
List of the identified areas to be granting mining lease.			
1	Ponti (Indell Tok)-1	0.375	

S.No.	Name of Mining Lease area in River Yamuna	Area in hect.	Lease period
2	Ponti (IndeliTok)-il	0.390	
3	Kotiyal gawn	2.750	
4	Dakhyad gawn-1	0.450	
5	Dakhyat-II	0.444	
6	Than	0.345	
7	Palar-1	0.202	
8	Palar-Il	0.217	
9	Singuni	0.665	
10	Dhari Valli	0.345	

1. To channelize the river stream, short-term permits are being issued for removal of aggraded material accumulated at the centre part of the river, leaving one-fourtharea of the total width of the river at the point, from either side of the river. These venerable areas are identified by an expert committee, where, there is a possibility of a loss of life or property due to toe erosion by the river. For this Uttarakhand River dredging Policy had already been formulated by the government of Uttarakhand.
2. Tocurb/restrict illegal mining/ transportation/Storage "Uttarakhand Illegal mining/transportation/storage rules-2005 (amended 2021) had already been formulated. a six-member district level as well as six-member Tahsil level Task Force had already been constituted by district administration, Uttarkashi. For effective control of illegal mining, transportation, storage within the state, a ten-member Enforcement Team had also been constituted at Headquarter of the Directorate of Geology & Mining level. An Online public grievance redressal system has also been launched by the Directorate of Geology & Mining, Uttarakhand, Dehradun on which anyone from the public can report information about illegal mining activity, illegal transportation of minerals or illegal storage of minerals.
3. In addition, to regulate mining activities of the entire state, the transportation of minerals from one place to another Online e-transit pass (e- MM-11/ "MM-110S"/e-Form-J/ "J O/S" had been implemented in 2016.

4. Total 15 offenders were found guilty of illegal sand mining in riverbeds/floodplains of Yamuna, they were imposed penalties of Rs. 2,31,92,517 (Rs Two crore, Thirty-one lakh, ninety-two thousand, five hundred, seventeen only) as per the relevant rules of Uttarakhand Illegal Mining, Transportation, Storage rules -2005 (as amended 2021) in last five years (March-2019-Febuary- 2024).

Few Mining leases of sand mining have been granted in the Yamuna River bed falls in Tehsil Vikasnagar district Dehradun, Uttarakhand. The list of Mining leases executed in the river bed of the river Yamuna in the last five years are as under;

TABLE 9 : THE LIST OF MINING LEASES EXECUTED IN THE RIVER BED OF THE RIVER YAMUNA IN THE LAST FIVE YEARS

Sl. No.	Name of Mining lease area in River	Sanction area	Sanction area (in hectares)	Sanction GEO No & date	Lease Period
1.	Shri Janak Singh Rawat S/O Shri Sundar Singh Rawat	Nawabgarh	1.7676	653 date 28.07.2015	13.10.2020 To 12.10.2025
2.	Shri Vijay Thakur S/O Shri Surendra Singh Thakur	Dhakrani	2.5780	1625 date 18.12.2014 & 1656 date 24.12.2014	19.06.2023 To 18.04.2028
3.	Shri Jagvir Singh S/O Shri Jeet Singh & Shri Jitendra Dhawan S/O late Shri Bhagwan Das Dhawan	Nawabgarh Dakpathar	1.913	515 date 02.05.2015	08.06.2015 To 07.06.2020
4.	GMVN (Garhwal Mandal Vikas Nigam) lot no 23/3	Kulhal	10.50	1894 date 24.12.2020	24.12.2020 To 21.12.2025
5.	GMVN (Garhwal Mandal Vikas Nigam) lot no 21.1	Dakpathar Nawabgarh Mandiggabhewa	114.79	3170 date 05.02.2019	05.02.2019 To 04.02.2024
6.	GMVN (Garhwal Mandal Vikas Nigam) lot no 21.3	Dhakrani & Mandi Gayamewa	58.614	2042 date 03.01.2017	03.01.2017 To 02.01.2022

1. In addition, to regulate mining activities of the state, the transportation of minerals from one place to another place Online e-transit pass (e- MM-11. e-Form-J) had been implemented in the year 2016.
2. To curb/ restrict illegal mining/ transportation/ Storage Uttarakhand illegal mining/ transportation/ Storage rules-2021 had already been formulated. A six-member

district level as well as six-member Tahsil level Task Force had already been constituted by the district administration, Dehradun. For effective control on illegal mining, transportation, and storage within the state, a ten-member Enforcement Team had also been constituted at the headquarters of the Directorate of Geology & Mining level. An online public grievance redressal system has also been launched by the Directorate of Geology & Mining, Uttarakhand on which anyone from the public can report information about illegal Mining activity, illegal transportation of minerals or illegal storage of minerals.

Reply received from Mining and Petroleum Department, Rajasthan, vide email dated 18.04.2024is reproduced below:

Chambal River lies in the state of Rajasthan which is a tributary of Yamuna River. Due to the declaration of the Chambal river area as Chambal Gharial Sanctuary by the State Government notification dated 03.09.1983, mining work is prohibited due to non-forestry work being prevented in the river area. In the Chambal Gharial Sanctuary area Kota, Bundi, Forest, Police, Revenue and Mines Department conducted regular surprise checking and took action against illegal mining/release of mineral gravel from July, 2022 to January, 2024 and registered 64 cases and imposed penalty amount of Rs. 25.52. Lakhs were recovered. Dated 01.01.2022 in Dholpur area of Chambal River Gharial Sanctuary. From 2022 to 31.03.2024, action was taken against illegal mining/release of mineral gravel and 368 cases were registered, complaints were filed in courts in 295 cases and the remaining cases are under investigation.

Continuous monitoring is being maintained to prevent illegal mining/extraction in the Chambal River Gharial Sanctuary area by establishing a RAC checkpoint in Sagarwada, Dholpur district, by forming a joint checkpoint of the Transport, Police, Forest, and Mineral Departments in Baretha, Sagarwada, Housing Board, Pachgaon district Dholpur.

Reply received from Directorate of Geology & Mining, Uttar Pradesh, vide email dated 06.05.2024is reproduced below:

To control illegal mining/transport, an eight-member task force has been formed under the chairmanship of the District Magistrate in every district of the state by Government Order No. 1/435766/2023/86 /01099/136/2019, dated 29.11.2023, in which police Department, Revenue Department, Transport Department, Forest Department and Mining Department are included as members. Apart from this, withdrawals allowed for effective control on illegal mining/transportation, under the Intergrated Mining Surveillance System, the minerals can be transported only after installing cameras and

weigh-bridges at the geo-fencing extraction sites of the mining areas and integration with the IMSS Portal established at the command center located at the Directorate. Artificial Intelligence(AI) equipped check-gates have been installed at 54 places on important routes to monitor illegal transportation and overloading of minerals. All the above works are being monitored through the portal developed by the department at the command center located in the directorate. Apart from this, a team has been formed at the directorate level to investigate the complaints of illegal mining/transportation received from various districts, through which the investigation is being conducted. Effective control on illegal mining/transport also increases revenue.

Reply received from Mines and Geology Department, Haryana vide, email dated 20.04.2024 is reproduced below:

In the State of Haryana River Yamuna enters from Himachal side into Haryana in district Yamunanagar and flows from district Karnal, Panipat, Sonipat, Faridabad and finally exiting the state in Palwal. The state as per the provisions of Haryana Minor Mineral Concession, Stocking, Transportation of Minerals and Prevention of Illegal Mining Rule, 2012 grants mineral concession in the riverbed for extraction of sand. The mining operations are allowed to be commenced only after obtaining prior environmental clearance from the competent authority as required under EIA notification dated 14.09.2006 & as amended from time to time. Further, for the safeguard of river banks, mining operations which are being allowed are subject to following:

a) No mining would be permissible in a river-bed up to a distance of five times of the span of a bridge on up-stream side and ten times the span of such bridge on down-stream side, subject to a minimum of 250 metres on the upstream side and 500 metres on the down-stream side;
b) There shall be maintained an un-mined block of 50 meters width after every block of 1000 meters over which mining is undertaken or at such distance as may be directed by the Director or any officer authorised by him;
c) The maximum depth of mining in the river-bed shall not exceed three metres measured from the un-mined bed level at any point in time with proper bench formation;
d) Mining shall be restricted within the central 3/4th width of the river/ rivulet;
e) No mining shall be permissible in an area up to a width of 500 meters from the active edges of embankments in case of river Yamuna, 250 meters in case of

Tangri, Markanda and Ghaggar and 100 meters on either side of all other rivers/ rivulets;

f) Any other condition(s), as may be required by the Irrigation Department of the State from time to time for river-bed mining in consultation with the Mines & Geology Department, may be made applicable to the mining operations in river-beds.

g) The details of the sand mining contracts granted in river Yamuna can be perused district wise is enclosed at **Annexure-1.**

Efforts to prevent illegal sand mining in the floodplains of river Yamuna.

The State of Haryana had been taking concrete steps for the prevention of illegal mining and special committees have been constituted at the district level as well as the State level for curbing of illegal mining throughout the State. In this behalf it is mention here that 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. The State vide notification dated 30.06.2023 has also established special "Enforcement Bureau Police Stations" for investigating the offences under the Mines and Minerals (Development & Regulation) Act, 1957 so that speedy investigation in illegal mining cases could be done in cases where FIRs are being lodged.

The State is also imposing an environment compensation penalty on the vehicles being caught in illegal mining, as per the orders of Hon'ble NGT, New Delhi issued vide dated 19.02.2020 in OA No. 44 of 2016. The amount of compensation being levied is as under:

TABLE 10: THE AMOUNT OF COMPENSATION BEING LEVIED

Sr. No	Category of Vehicle	Penalty amount
1.	Vehicles/Equipments/Excavators with showroomvalue more than Rs. 25 lacs and less than 05 yearsold	Rs. 4 lacs
2.	Vehicles/Equipments/Excavators with showroomvalue more than Rs. 25 lacs and more than 5years but less than 10 years old	Rs. 3 lacs
3.	For the remaining Vehicles older than 10years/Equipments/Excavators which areotherwise legally permissible to be operated andnot covered by Serial No. 1 and 2	Rs. 2 lacs

In the light of above, the state is taking every step required to curb illegal mining in the State under the ambit of law and the same shall be continue in future also.

Setting-up of a portal

The information relating to mineral concession/river sand mining, even by the department is already available on the departmental portal, however, other details like floodplains/wetland encroachment, and dumping of the waste into the river can be put in the public domain by the Environment Department, for which concerned department shall give their suggestion on this aspect.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 4) (Para No. 2.4)

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.

Reply of the Government

Reply/Comments on recommendation no. 4 was sought from the Delhi Pollution Control Committee (DPCC) vide email dated 22.02.2024. Further, the recommendation was given to DDA by DPCC.

Reply received from Delhi Development Authority (DDA) vide email dated 10.05.2024is reproduced below:

DDA only issues notices and challans for dumping of Puja material & dumping of debris via polluter's pay principle as directed by the Hon'ble NGT and sends to different departments for final conclusive action to be taken by them under their respective laws.

An increase in a number of challans does not necessarily mean that more dumping is being done at the site. Earlier DDA was not issuing challans for the vehicles of the various Government agencies who are constructing innumerable rail and road networks cutting across the floodplains. They leave behind a huge amount of construction debris on the floodplains. Notices have been sent to these Government agencies, compensation amounts have been raised and their idle vehicles standing on the site are being challaned. Thus, the increase in nos. of challans. Additionally, DDA sent a demand of Rs. 320 Crores as the damage and restoration charges and security deposit for unauthorized occupation and use of DDA land payable by NCRTC. However, no response or payment has been received.

Water inside the active channel of River Yamuna is not essentially DDA's jurisdiction, we have no right over that channel. DDA's ownership is limited to the floodplains and DDA is carrying out the herculean task of its protection and restoration. Till date, about 591 Bollards and 375 Flag Posts, 134 Security Guards, 27 nos. of sign boards, 93 nos. CCTV cameras have also been installed at 27 locations for the protection of floodplains. Through 11 projects spread over both banks following an ecological approach, DDA has so far been able to successfully revive the ecosystem integrity and biodiversity in these Projects. Till date, about 0.7 million native trees, more than 10 million riverine grasses have been planted in these floodplains by DDA. Twenty-six wetlands have been restored covering an area of about 35 hectares with the capacity of augmenting about 1350 million litres of water during the monsoons. They not only act as habitats for birds, butterflies & insects, help in improving microclimate and mitigating pollution but also have become places of attraction for the general public.

However, the ownership of drains carrying the waste and passing through the flood plains, rests with DJB, I&FC, PWD, MCD and the responsibility of tapping them is primarily of DJB. DDA is setting up STP's for the treatment of water in a few drains in DDA's ownership in the south of Delhi. Thus, a concerted effort of all the agencies together will help deal with the issue of cleaning of Yamuna.

DDA does not have any legal powers to penalize for non-compliance, thus the guidelines can be framed only as an executive order. We can formulate the penalties

for various activities to stop the dumping of debris, however cannot ensure penalisation since there's no statutory provision in DDA Act to penalize. Further, if such an action of penalizing by the DDA is challenged in a Court of law, it is likely to be struck off in view of the absence of such power under the DDA Act.

Reply received from Delhi Pollution Control Committee vide email dated 30.05.2024 is reproduced below:

As Informed by DPCC" Hon'ble National Green Tribunal vide Judgment dated 13.01.2015 in OA No. 6 of 2012 and 300 of 2013 in the matter of Manoj Mishra Vs. Union of India and Ors. has directed that there shall be complete prohibition on dumping of any material in and around river Yamuna.

Whoever violates this direction relating to the dumping of debris, shall be liable to pay compensation of Rs. 50,000/ on the Polluter Pays' Principle and the Precautionary Principle. " DDA is the concerned Department which has already submitted its Action Taken Report to NMCG (copy enclosed in **Annexure-2).**

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 7) (Para No. 2.7)

Water Quality of river Yamuna

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 75 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 76 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.

Reply of the Government

Reply/Comments on recommendation no. 7 was sought from Central Pollution Control Board (CPCB) & Delhi Pollution Control Committee (DPCC) vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

Implementation of Action plans for abatement of river Yamuna pollution and creation of infra-structure are being taken by the Delhi Jal Board and concerned State agencies. The review of implementation of action plans for abatement of river Yamuna pollution is being taken up on regular basis by the High Level Committee (HLC) constituted by Hon'ble NGT during January 2023 in OA No. 21 / 2023 entitled "Ashwani Yadav versus Government of NCT of Delhi" on 09.01.2023 under the Chairmanship of Chief Secretary, Government of Delhi.

Reply received from Delhi Pollution Control Committee vide email dated 30.05.2024 is reproduced below:

DPCC Laboratory carries out water quality monitoring of River Yamuna at 08 locations on monthly basis and Analysis Reports are placed on the website of DPCC. Copy of the Analysis Reports (Water Quality Status of River Yamuna) for the months of January, February, March & April, 2024 are collectively enclosed at **Annexure -4**. Vide order dated 09.01.2023 in OA. No. 21/2023 in the matter of Ashwani Yadav Vs. Government of NCT of Delhi (Now being dealt in O.A, No, 06 of 2012 in the matter of Nizamuddin West Association Vs. Union of India and Ors"), Hon'ble NGT has constituted a High Level Committee (HLC) of concerned authorities in Delhi with the Chief Secretary, Delhi, Convener; and consisting of Secretaries / HODs of various Ministries/ Departments.

"The HLC is to deal with all issues as set out in order dated 27.01.2021 of Hon'ble NGT in OA No. 06/2012 in the matter of Manoj Mishra Vs. Union of India & Ors and other ancillary matters. "

High Level Committee has prepared a Department wise detailed Action Plan for Rejuvenation of river Yamuna including Nodal Officers for each project after its first meeting on 20.01.2023 and submitted to Hon'ble NGT on 31.01.2023.

Nine meetings of High Level Committee have been held so far on 20.01.2023,14.02.2023, 14.03.2023, 21.04.2023, 09.06. 2023,10.08.2023, 10.10.2023, 10.01.2024 & 20.02.2024 and progress of various projects & action points were reviewed by HLC in the said meetings.

Status Reports were also filed in the aforementioned matter before the Hon'ble NGT on 31.01.2023,05.07.2023, 16.10. 2023, 21.12.2023 & 12.02.2024

Reply from National Mission for Clean (NMCG)

Yamuna is one of the sacred rivers of India and largest tributary of Ganga River. It originates from the Yamunotri glacier in Uttarakhand passing through Himachal Pradesh, Tajewala-Haryana, Wazirabad-Delhi, Okhla-Delhi, Okhla barrage to Confluence Point of Chambal River and finally merges into River Ganga at Prayagraj. The total length of the Yamuna up to its point of confluence with the Ganga at Prayagraj is 1376 km with catchment area spread over 3.67 lakh sq. km.

Yamuna River has no fresh water after Wajirabad barrage in Delhi. There is a critical path of 22 km where 22 major drains are discharging into River Yamuna. Only after confluence of River Chambal, the water quality of River Yamuna improves.

The Government of India is supplementing the efforts of the States for improvement of water quality parameters of River Yamuna by providing financial assistance to different States of India viz. Haryana, Delhi and Uttar Pradesh, in phased manner since 1993, under the Yamuna Action Plan (YAP I, II & III). Under the YAP Phase – I & II, an expenditure of Rs. 1514.70 crore has been incurred for creation of sewage treatment capacity of 942 MLD and rehabilitation of 328 MLD STP in States of Haryana, Delhi & Uttar Pradesh.

Presently, Government of India/NMCG has sanctioned Total 34 projects costing Rs. 5834.71 crore by which 2110.25 MLD STP capacity will be created. They comprise of (01) project in Himachal Pradesh, (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 & Hindon River. Out of these 34 projects, 15 are already completed, viz. one (01) project in Paonta Sahib, Himachal Pradesh, two (02) projects in Sonipat and Panipat, Haryana, six (06) projects in Vrindavan, Etawah, Firozabad, Baghpat and Mathura (STP & CETP), UP and six (06) projects in Delhi. The State wise project details are enclosed at **Annexure- 5** of Himachal Pradesh which makes a total of 34 projects costing Rs. 5834.71 crore by which 2110.25 MLD STP capacity will be created.

In addition to the above there are certain sewage treatment projects which are in under-construction and certain more projects which are in tendering stage. Additionally, sewage treatment capacities are also being built by the State Governments. A wholesome picture of the sewage treatment capacities being built in States is reflected in the MPR submitted by the State Government to National Green Tribunal (NGT). Based on the sewage generation indicated in this MPR, the sewage treatment project capacities being built under NMCG (including competed, under-construction and under-tendering projects), sewage treatment capacities created by the State Government, a state-wise sewage treatment gap has been esimated and a cumulative effective sewage treatment gap of 1500 MLD has been assessed.

A Central Monitoring Committtee under the Chairmanship of Secrtary, DoWR, RD&GR has also been formed with representation from all State Governments to closely monitor the sewage treatment gap and enable co-ordinated efforts for closing this gap.

Comment of the Committee

(Please see Para No. 17 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 9) (Para No. 2.9)

Industrial Pollution

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 77 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 78 Report. They would also like to be apprised of the total number of GPIs currently functioning, Freshwater Consumption and Effluent Discharge by GPIs.

Reply of the Government

Reply/Comments on recommendation no. 9 was sought from CPCB, Delhi Pollution Control Committee (DPCC) & Haryana Pollution Control Board vide email dated 22.02.2024. Further, the follow-up was done through reminders and phone calls.

Reply received from Central Pollution Control Board (CPCB) vide email dated 08.03.2024 is reproduced below:

NMCG has been implementing the inspection of Grossly Polluting Industries (GPIs) through CPCB. The comments of CBCB are reproduced below.

Industrial Pollution: Freshwater consumption by Grossly Polluting Industries (GPIs) was 268.16 MLD in 2020 and 261.02 MLD in 2021, however effluent discharge was 103.05 MLD in 2020 and 144.4 MLD in 2021. This is due to installation of flowmeters at ETP outlet and proper maintenance of logbooks for effluent discharge. Regular monitoring of GPIs has resulted into improved metering system and better compliance. During 2022-23, 1957 GPIs having potential to discharge into river Yamuna and its tributaries were inspected. Out of total 1957 GPIs, the fresh water consumption of 296.77 MLD and the effluent discharge of 153.36 MLD were estimated from 1535 operational GPIs.

TABLE 11 :STATE-WISE STATUS

Sl. No	States	2022 - 2023		
		No. of GPIs	Freshwater Consumption (MLD)	Effluent Discharge (MLD)
1	Uttarakhand	11	2.25	1.16
2	Haryana	1,140	162.85	73.02
3	Delhi	196	2.01	1.12
4	Uttar Pradesh	610	129.66	78.06
Total Load		**1,957**	**296.77**	**153.36**

Further, out of a total of 34 CETPs located on the 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 the concerned SPCB/PCC. The designed capacity of these CETPs is 425.75 MLD, however,the utilization capacity is 219.85 MLD (51.63% capacity). Out of 33 operational CETPs, only 3 CETPs in Haryana are working at full capacity whereas the remaining 30 are working under capacity.

TABLE 12 :STATE-WISE DETAILS

State	Operational CETP (No.)	Installed capacity (MLD)	Utilized Capacity (MLD)	Complying
Haryana	18	201.25	142.5 (70.8 %)	10
Delhi-NCT	13	212.3	71.95 (33.8 %)	8
Uttar Pradesh	2	12.2	5.4 (44.26%)	1
Total	33	425.75	219.85 (51.63%)	19

Detailed information about the connectivity of clusters may be obtained from DPCC.

During annual inspections in 2022-23, a preliminary investigation was made for 27 industrial clusters for the feasibility of CETPs.

TABLE 13: LIST OF INDUSTRIAL CLUSTERS

Sl. No.	Region	Area
1	Mathura	Saraswati Kund, Shivaji Nagar, Gaur Kendra
2	Kanpur Dehat	Rania & Growth Centre Jainpur
3	Greater Noida	Surajpur and Chapraula
4	Noida	Hoisery Complex
5	Aligarh	Talanagri (Sec 1 & Sec2)
6	Ghaziabad	Sahibabad, Arya Nagar, Roop Nagar, Loni, Tronica City
7	Saharanpur	Janta Road & Dehradun Road
8	Muzaffarnagar	Bhopa Road
9	Delhi	Anand Parbat & Nazafgarh Industrial area
10	Panipat	Sector 29 & Old Industrial area
11	Sonipat	Industrial area
12	Faridabad	DLF, Gurukul Industrial area & Ballabhgarh
13	Yamunanagar	Industrial area
14	Karnal	Industrial area

CPCB issued directions on 02.01.2023 to State Pollution Control Boards (SPCBs) of Delhi-NCT and Haryana regarding augmentation and upgradation of CETPS and display of OCEMS data by CETPs located in Delhi and Haryana. The details of directions are:

- To take necessary action against the non-complying CETPs in the state
- To prepare and submit an action plan for upgradation /augmentation of identified CETPs situated in the state.
- Mandatory to display OCEMS data of each individual CETP in a conspicuous location.

Reply received from Industries Department GNCTD vide email dated 13.05.2024is reproduced below:

11 CETPs out of 13 CETPs in Delhi are being operated & maintained by the respective CETP Society. Since the CETP societies besides -operation & maintenance are also responsible to carry out further up- el gradation and technology of the installed Common Effluent Treatment Plant as per the future e requirements under the provision of Section 6 of the Delhi CETP Act, 2000 and Rule 3(v) of the Delhi CETP Rules, 2001. Accordingly, all CETP Societies have been asked to carry out the FUP-gradation of CETP after obtaining clearance from the concerned authorities.

With regard to the rest of the two CETPS at Narela & Bawana being operated & maintained by DSIIDC through concessionaire, their up- gradation is likely to be completed by 30th April, 2024.

Reply received from Delhi Pollution Control Committee vide email dated 30.05.2024 is reproduced below:

In Delhi

- There are 13 CETPs in Delhi with a total installed capacity of 212.3 MLD.
- 13 CETPs received about total 72 MLD of waste water (34 % of Installed Capacity) in the month of April, 2024 (Earlier about 3 years back these CETPs were receiving about 55 MLD of waste water
- All the 13 CETPs are meeting the prescribed standards.
- Out of 13 CETPs, 11 CETPs were designed by NEERI and constructed by DSIIDC in pursuance of the orders of the Hon'ble Supreme Court from time to time in WP (C) No. 4677/1985,based on the effluent quantum & characteristics of waste water in various industrial areas. These CETPs are more than 15 years old. Rest of the 2 CETPs at Narela & Bawana Industrial Areas were designed by consultants appointed by DSIIDC.
- Over the period Water Polluting Industries | Units in Industrial Areas | Estates connected with the CETPs have been closed due to various reasons including Supreme Court orders / provisions under the Master Plan of Delhi etc (e.g SS Pickling Units in Wazirpur Industrial Area).
- The units which are operational in Non-CETP Industrial Areas have individual waste water treatment facilities (ETP etc).
- As per the Order dated 27.01.2023 of Chief Secretary, GNCTD issued W.r.t NGT Order dated 09.01.2023 in OA No. 21 2023, Out of 13 CETPs, 02 CETPs at Narela and Bawana are to be upgraded by DSIIDC and rest of the 11 CETPs were to be upgraded by DJB after their handing over from CETP Societies.
- " Government, of NCT of Delhi vide Notification dated 01.01.2024 had given powers in respect of 11 CETPs presently being operated and maintained by CETPs Societies to DJB however the said Notification regarding taking over of these CETPs by DJB from the concerned CETPs Societies has been quashed by Hon'ble High Court of Delhi.
- Work of upgradation of CETPs at Narela & Bawana as recommended by NEERI has been completed.

- Grosly Polluting Industries (GPIs) (2023- 2024) in Delhi: " No. of GPIs Found Non-Complying Show Cause Notices Issued - 196 - 56 - 56 " Closure Directions issued – 13.

Reply received from UP-Pollution Control Board vide email dated 29.05.2024 is reproduced below:

As per the GPI inventory for the year 2022-23, a total no. of 610 GPI units were identified by U.P. Pollution Control Board situated in the catchment area of River Yamuna and its main tributaries. The freshwater consumption of these units has been assessed as 129.66 MLD and effluent discharge was assessed as 78.06 MLD. Most of these GPI units established in the catchment area of river Yamuna have installed their own effluent treatment plant (ETP). There are 02 main industrial cluster of the same type of units in the catchment area of River Yamuna one at Apparel Park Tronica City CETP, Phase-1 (for textile units), Ghaziabad and another CETP, Industrial Area, Site-A, Mathura. The CETPs for these 02 industrial clusters are established and operational In the year 2022-23, the cumulative treatment capacity of these 02 CETPs is 12.2 MLD and capacity utilization of these 02 CETPs was assessed as 5.4 MLD (44.26%). The latest inspection of these CETP was done by SPCB and as per the latest analysis reports both these CETPs are achieving norms as per the standard laid down by UP. Pollution Control Board. The copy these latest analysis reports are enclosed at **Annexure- 8.**

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.

(Recommendation No. 11) (Para No. 2.11)

Real-Time Effluent Monitoring systems

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.

Reply of the Government

Reply/Comments on recommendation no. 11 were sought from the Delhi Pollution Control Committee (DPCC), CPCB, Haryana Pollution Control Board and Uttar Pradesh Pollution Control Board vide email dated 22.02.2024. Further, the follow-up was done through reminders and phone calls.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

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). To date, 540 GPIs out of 1957 GPIs in Yamuna main stem have installed OCEMS and connected with SPCB and CPCB server.

In compliance with the CPCB letter dated 16.12.2022, all the GPIs have installed flow meters and Web cameras as the wastewater discharge is <2 KLD. All the 13 CETPs & other GPIs having wastewater discharge of more than 2 KLD in the NCT of Delhi have installed OCEMS.

Reply received from Uttar Pradesh Pollution Control Board vide email dated 29.05.2024 is reproduced below:

All the large and medium-scale GPI units situated in the catchment area of River Yamuna in Uttar Pradesh have been installed Online.

Continuous Effluent Monitoring System (OCEMS). The installation of OCEMS in small scale GPI units is in progress as per the guidelines of the Central Pollution Control Board.

Reply received from Haryana State Pollution Control Board, vide email dated 14.06.2024 is reproduced below:

There are 1568 GPIs in Haryana. As per existing policy of HSPCB, 597 GPI are required to install Online Monitoring Devices. Out of this, 349 GPIs have installed Online Monitoring Devices. There are connected to central software of HSPCB. The HSPCB is pursuing other industries to install OMD.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 12) (Para No. 2.12)

Pollution from Municipalities / Non-Point Sources, etc.Discharge of Drains

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 79 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 80 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 timebound 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.

Reply of the Government

Reply/Comments on recommendation no. 12 was sought from Haryana Pollution Control Board, Uttar Pradesh Pollution Control Board, Uttarakhand Pollution Control Board, Himachal Pradesh Pollution Control Board, Rajasthan Pollution Control Board, Delhi Pollution Control Committee (DPCC) & CPCB vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Delhi Pollution Control Committee (DPCC) vide email dated 18.03.2024is reproduced below:

Vide order dated 09.01.2023, Hon'ble NGT has constituted a High Level Committee (HLC) of concerned authorities in Delhi with the Chief Secretary, Delhi, as Convener; and consisting of Secretaries of Irrigation, Forest & Environment, Agriculture and Finance, GNCTD; CEO, DJB; Vice Chairman, DDA; Secy or his nominee (not below the rank of Addl. Secy), Ministry of Agriculture, GoI; DG Forest or his nominee (not below the rank of DDG), MoEF&CC, GoI; Secy, MoJS or his nominee not below the rank of Addl. Secy, Secy, MoEF&CC or his nominee not below the rank of Addl. Secy, DG NMCG and Chairman CPCB. The Committee is to deal with all issues as set out in order dated 27.01.2021 of Hon'ble NGT in OA No. 06/2012 in the matter of Manoj Mishra Vs. Union of India & Ors and other ancillary matters.

High Level Committee has prepared Department wise detailed Action Plan for Rejuvenation of river Yamuna including action plan for trapping of Drains out falling in

river Yamuna **(Annexure-9**) of the said Action Plan) after its first meeting on 20.01.2023 and submitted to Hon'ble NGT on 31.01.2023. Copy of the said Action Plan has already been submitted to the Secretary, Ministry of Jal Shakti and DG NMCG.1st, 2nd, 3rd, 4th, 5th, 6th, 7th, 8th and 9th meetings of the HLC were held on 20.01.2023, 14.02.2023, 14.03.2023, 21.04.2023, 09.06.2023, 10.08.2023, 10.10.2023, 10.01.2024 & 20.02.2024 respectively.

The progress of the Action Plan in respect of tapping of Drains out falling in river Yamuna has been discussed extensively in each of the meetings. A brief of 22 Drains out falling into River Yamuna in Delhi and Proposed Action for Tapping of Flow is enclosed at **Annexure-9**.

Reply received from Himachal Pradesh Pollution Control Board vide email dated 11.03.2024 is reproduced below:

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 as carrying grey water and ultimate discharge in River Yamuna. Further, as informed by HPPCB, the concerned Municipal Committee and Jal Shakti Vibhag have not taken corrective measures as per the Yamuna Action Plan such as carrying out the survey, preparation of DPR for STP at Pujari Ghat, 100% household connectivity to existing STP, etc.

There are 5 nos of drains identified in Municipal Area Paonta Sahib which are draining into River Yamuna:

i. MC Paonta Sahib Drain near Shri Deiji Sahiba Temple Devinagar, Paonta Sahib
ii. MC Paonta Sahib Drain, Kripal Shilla Gurudwara, Devinagar, Paonta Sahib
iii. MC Paonta Sahib Drain near Sabji Mandi.
iv. MC Paonta Sahib Drain, Jamniwala near Mankind Pharmaceutical Ltd. Unit 2
v. MC Paonta Sahib Drain near Old SBI, Paonta Sahib

All these drains carry only grey water from households and commercial shops. The sampling of these drains was carried out on 29.11.2023. The results of samples have been furnished below:

TABLE 14: SAMPLE RESULTS

Sr. No	Name and Location	Parameters					Remarks
		pH (6.5-9.0)	TSS (mg/l) (100)	COD (mg/L) (250)	BOD (mg/l) (30)	FC (MPN/100 ml)	
1	MC Paonta Sahib Drain near Shri Deiji Sahiba Temple Devinagar, Paonta Sahib	7.23	171	296	95	1,84,000	Action Plan for treatment required from MC Paonta Sahib
2	MC Paonta Sahib Drain, Kripal Shilla Gurudwara, Devinagar, Paonta Sahib	7.15	211	236	65	1,09,500	
3	MC Paonta Sahib Drain near Sabji Mandi. (collection date: 03.08.2023)	7.43	40	36	4	4,600	
4	MC Paonta Sahib drain Jamniwala near Mankind Pharmaceutical Ltd. Unit 2	7.12	19	92	20.5	15,750	MC Drain carrying grey water near Jamniwala has been tapped for treatment by JSV in STP Zone-III, Paonta Sahib.
5	MC Paonta Sahib Drain near Old SBI, Paonta Sahib	7.52	89	152	38	54,000	Action Plan for treatment required from MC Paonta Sahib

*Directions have been issued to MC Paonta Sahib enclosed at **Annexure-10.***

Reply received from Uttarakhand Pollution Control Board vide email dated 02.05.2024 is reproduced below:

Pollution Control Board is monitoring water quality of river Yamuna at 11 locations including one Wetland i.e. Asan Conservation Reserve. Out of these 11 locations,

water quality at 02 locations namely Yamunotri and Sayanachatti are monitored on annual basis and water quality at the remaining 09 locations is being monitored on monthly basis.

- Water quality of 07 locations is found under category 'A' of the Designated Best Use Water Quality Criteria and water quality of following 04 locations fall under category “B” of the DBU:
    1. River Yamuna D/S at Vikas Nagar, Dehradun
    2. River Yamuna Canal at Dakpatthar, Dehradun
    3. River Yamuna at Dakpatthar, Dehradun
    4. River Tons/Asan at Selaqui, Dehradun

Annual average data for the year 2023 is enclosed at **Annexure-11.**

Uttarakhand Pollution Control Board has also monitored 17 drains from Purola to Vikas Nagar discharging into river Yamuna during January 2021. Out of these 17 drains, 04 drains were found dry. Amongst the remaining 13 drains. Syphon Nala and Gandha Nala at Vikasnagar have relatively high BOD i.e. 88 mg/l and 26 mg/l respectively. BOD of Sarakhanda drain at Barkot was found to be 0.4 mg/l. Very less BOD (less than 3 mg/l) was observed in the remaining 10 drains.Drains monitoring results are enclosed at **Annexure 12:**

Reply received from Rajasthan State Pollution Control Board vide email dated 10.05.2024 is reproduced below:

Efforts are being made to tap all the drains discharging untreated domestic effluent to divert to STPs. Regular communications being done with LSG to ensure the same. Environmental compensation is also being imposed for discharging untreated domestic effluent to the water bodies on defaulters.

Reply received from Uttar Pradesh State Pollution Control Board vide email dated 29.05.2024 is reproduced below:

The issue regarding plugging of untreated sewage flow in drain is related to the concerned Local Bodies under Urban Development Department. Hence, this information may be sought from Urban Development Department.

Accordingly, a letter dated 10.06.2024 from NMCG has been sent to Honorable Principal Secretary, Urban Development, Uttar Pradesh for their necessary action.

Input from National Mission for Clean (NMCG)

Yamuna is one of the sacred rivers of India and largest tributary of Ganga River. It originates from the Yamunotri glacier in Uttarakhand passing through Himachal Pradesh, Tajewala-Haryana, Wazirabad-Delhi, Okhla-Delhi, Okhla barrage to Confluence Point of Chambal River and finally merges into River Ganga at Prayagraj. The total length of the Yamuna up to its point of confluence with the Ganga at Prayagraj is 1376 km with catchment area spread over 3.67 lakh sq. km.

Yamuna River has no fresh water after the Wazirabad barrage in Delhi. There is a critical path of 22 km where 22 major drains are discharged into River Yamuna. Only after the confluence of River Chambal, the water quality of River Yamuna improves.

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 India viz. Haryana, Delhi and Uttar Pradesh, in phased manner since 1993, under the Yamuna Action Plan (YAP I, II & III). Under the YAP Phase – I & II, an expenditure of Rs. 1,514.70 croreshave been incurred for creation of sewage treatment capacity of 942 MLD and rehabilitation of 328 MLD STP in States of Haryana, Delhi & Uttar Pradesh.

Presently, Government of India/NMCG has sanctioned Total 34 projects costing Rs. 5834.71 crore by which 2110.25 MLD STP capacity will be created. They comprise of (01) project in Himachal Pradesh, (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 & Hindon River. Out of these 34 projects, 15 are already completed, viz. one (01) project in Paonta Sahib, Himachal Pradesh, two (02) projects in Sonipat and Panipat, Haryana, four (06) projects in Vrindavan, Etawah, Firozabad, Baghpat and Mathura (STP & CETP), UP and six (06) projects in Delhi.

The support of MoHUA (Ministry of Housing & Urban Affairs) is sought for solid waste management projects in this basin as the removal & proper disposal of solid waste is a challenge for ultimate pollution abatement of the river.

Delhi: In Delhi, under Namami Gange Programme of NMCG, a total of 11 projects are at various stages of implementation, for treatment of 1268 MLD sewage capacity at a

total cost of Rs. 2009.12 Crore to conserve the River Yamuna. They include 9 major sewerage infrastructure projects as under:

I. Sewerage Infrastructure under EAP JICA assisted YAP III plan: There are a total of 8 sewerage infrastructure projects of Rs 1435.96 Crore in Delhi for:
   a. Creation of 564 MLD STP capacity at Okhla (O). After completion it will be counted as the largest STP plant in India.
   b. Two projects for Rehabilitation and upgradation of 386 MLD STP capacity at Rithala & Kondli (R2 & K3)
   c. Three projects for Rehabilitation of Trunk sewers (K1, K2 & R1a)
   d. Two projects for Rising Main of 35 Km length in Kondli & Rithala zones (K4 & R1b).

   Out of these 8 projects, 5 projects namely (K1, K2, R1a, K4 & R1b) have already been completed and the balance 3 STP projects (K3, R2 & O) are scheduled to be completed by March 24. Further it may be noted that out of these 3 projects, namely Rithala (R2), Kondli (K3) & Okhla (O), the Rithala STP is fully operational with 160 MLD presently being received at the plant against total 182 MLD and the Kondli STP is fully operational, in all its 3 phases I, II & III having 204 MLD sewage. The sewage treatment at Okhla STP has just started.

II. Sewerage Infrastructure under non EAP NGP: One project of 318 MLD WWTP at Coronation Pillar has been sanctioned at a cost Rs. 515.08 crore, which has already been completed in March 2022.

III. In addition, Delhi Government has taken up various projects of River surface cleaning, Internal & Peripheral sewerage works, Interceptor sewer projects, Sewage treatment plants and Public outreach activities in Delhi through their own funding/other Central Government funding like JNNURM etc.

IV. Uttar Pradesh (UP): In UP, under Namami Gange Programme of NMCG, a total of 20 projects are at various stages of implementation, for treatment of 694.09 MLD sewage capacity at a total cost of Rs. 3,596.15 crore to conserve the River Yamuna. They include:
   a. Interception & Diversion (I&D) and STP Works for Baghpat Town on DBOT basis
   b. Interception & Diversion (I&D) and STP Works for balance drains at Mathura on HAM basis

c. Rehabilitation/Renovation of Agra Sewerage Scheme (I&D Works Part 1 & 2) in Agra.
d. Three projects on Kosi Kalan town, Chhata town & Vrindavan city at District Mathura, UP.
e. I&D project at Kairana.
f. Upgradation of existing 6.25 MLD CETP at Mathura.
g. Mathura Sewerage project (New 30 MLD, Rehab – 14.5+16.5+6.8 MLD STP).
h. Firozabad Sewerage Scheme (I&D) works.
i. Etawah Sewerage Scheme (I&D) works) (New – 21 MLD, Rehab – 23.94 MLD STP)
j. Renovation and Upgradation of 4 MLD STP/SPS & appurtenance works at Vrindavan (Mathura), U.P.
k. Four I&D &STP works at Budhana, Mujjafarnagar, Saharanpur & Hathras Town
l. Four I&D & STP works at Shami Town, Thanabhawan, Banat & Babri-bantikhera for Krishani River (Tributory of Hindon) in Shamli Distt, UP

Out of these 20 projects, 6 projects have already been completed, 4 are under execution, 1 LOA issued, 4 under bid evaluation, 4 under tendering and 1 under retendering.In-addition to above 03 projects are in pipeline namely Deoband (Dist. Saharanpur), Aligarh city & Mathura City.

The detail list with status of projects on River Yamuna under Namami Gange (11 projects in the Delhi @ Rs. 2009.12 crore; 1 project in HP @ Rs. 11.57 crore; 2 projects in Haryana @ Rs. 217.87 crore; 20 Projects in UP @ Rs. 3596.15 crore) is enclosed at **Annexure-5.**

Reply received from Haryana State Pollution Control Board, vide email dated 14.06.2024 is reproduced below:

The Haryana Governmenthas laid sewer in all the approved areas. However, 11 KM length of sewer is under progress at Karnal and Faridabad. Besides, this is the sewage is being diverted from unapproved area. 155 such locations have been identified and work has been completed for 123 locations of approx. 100 MLD. The work is under progress for 32 locations of approx. 27 MLD sewage.The work is likely to be completed by December, 2025.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 13) (Para No. 2.13)

Sewage discharge from unauthorised colonies

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.

Reply of the Government

Reply/Comments on recommendation no. 13 was sought from DPCC & DDA vide email dated 22.02.2024.

Reply from Delhi Pollution Control Committee (DPCC) vide email dated 18.03.2024 is reproduced below:

As per Information available with DPCC, the present Status of the Sewerage network in un-sewered areas in all 1799 unauthorized colonies is as follows:

TABLE 15 : STATUS OF SEWERAGE

Sl.No.	Description	Cumulative Status (No.)	Timelines/Remarks
1.	Sewer line laid/ commissioned	1,064	Laid/commissioned
2.	Work of sewer network is in Progress	267	November, 2024
3.	Colonies where sewerage network is to be laid along with Decentralized STPs	307	The work shall be taken up after allotment & possession of land for DSTPs by DDA /Revenue Deptt.

Rest of the 161 Colonies where NOC is awaited / "O Zone", NOC was earlier awaited being forest area or "O Zone" or ASI land. Pr. Secretary (Env. & Forest) had taken a meeting on 13.12.2023 with Delhi Jal Board (DJB), Forest Deptt., Delhi Development

Authority (DDA), etc. to address various issues in respect of unauthorised colonies where NOC is awaited. It was informed that NOC has been issued by Forest Dept. in case of 05 unauthorised colonies and NOC is to be issued in case of 73 unauthorised colonies and DJB is to provide alignment with map to Forest Dept. in case of 36 unauthorised colonies. In the case of the remaining 47 Unauthorised Colonies, 04 unauthorised colonies are falling under "O Zone" in which responses is awaited from DDA, 05 unauthorised colonies was reported with ASI [wherein ASI gave permission to DJB for one Unauthorised Colony in Mehrauli and in case of one Unauthorised Colony (Tuglakabad Area) matter is pending before Hon'ble High Court and 3 Unauthorised Colonies reportedly don't fall under the jurisdiction of ASI], in case of 12 Unauthorised Colonies laying of sewerage network is not feasible. Further, 26 unauthorised colonies were not traceable earlier, out of which 22 unauthorised colonies have been traced by DJB with help of GSDL and plan is to be submitted by DJB in respect of these Unauthorised Colonies.

Reply received from Delhi Development Authority vide email dated 10.05.2024is reproduced below:

Out of a total of nine (09) cases for allotment of land to DJB for STP/SPS which are being monitored in High Level Committee, allotments have been done in five (05) cases and allotments in two (02) cases are under process. Another two cases are related to handing over of Water Body. The summary of the cases is as under:

TABLE 16: SUMMARY OF THE CASES

Sl. No	District	Village/ Capacity	Status as on 15.04.2024
1.		**Rangpuri 5 MGD STP SPS/Lift Station**	Allotment for STP done vide letter dated 15.01.2024. Allotment of SPS done vide letter dated 18.03.2024 payment awaited from DJB.
2.		**Chattarpur Extension 1.75 MLD for DSTP**	Allotment done vide letter dated 05.03.2024. Payment awaited from DJB.
3.		**Maidangarhi 4.30 MLD for DSTP**	TSS is being carried out to ascertain the exact status, location, demarcation of land under reference. Upon receiving the same, allotment will be processed accordingly.

Sl. No	District	Village/ Capacity	Status as on 15.04.2024
4.		**Salahpur Khera 0.5 MGD for Lift station**	Rectified TSS drawing of village Salahpur has been forwarded to the O/o SDM (KH) South-West, GNCTD for verification vide letter dated 29.01.2024. Joint Inspection in this regard was carried out on 20.03.2024 and discrepancies were found in TSS. The recitification of the same is under process. Upon rectification and verification of TSS, handing over of water body will be processed.
5.		**Shahbad Mohammadpur 2 MGD for Lift Station**	TSS was carried out and discrepancies were found in TSS drawing. After rectification and verification of the same, handing over of water body will be processed.
6.		**Adjoining Maharishi Valmiki Hospital, Pooth Khurd Village**	Allotted done vide letter dated 16.10.2023. Payment received from DJB on 02.04.2024 and the same is under verification. Upon verification, possession letter will be issued
7.		**Vijay Colony near Bawana Chowk**	
8.		**Village Mohamadpur Majri District 21 MLD for DSTP**	Allotment done vide letter dated 08.12.2021 and Possession letter issued vide letter dtd 12.01.2024.
9.		**Swatantra Nagar and Bankner village for STP/DSTP in Narela Constituency**	Allotment under process

As per request of DJB vide letter dtd. 13.12.2023, NOC has been issued to DJB on 12.02.2024 for four (04) nos. of colonies falling under O Zone namely (i) New Aruna Nagar (Majnu ka Tila), (ii) Bhagat Singh Park Extn Siraspur Village, (iii) Garhi Mandu Village, (iv) Old Village Usman Pur (3rd Pushta Road) for initiating necessary action for extending the sewerage network by DJB.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 14) (Para No. 2.14)

Sewage Intervention

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 81 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.

Reply of the Government

Reply/Comments on recommendation no. 14 was sought from Delhi Pollution Control Committee, HP Pollution Control Board, UK Pollution Control Board, U.P Pollution Control Board, Rajasthan State Pollution Control Board& H.P State Pollution Control Board vide email dated 22.02.2024.

Reply received from Delhi Pollution Control Committee (DPCC) vide email dated 18.03.2024 is reproduced below:

There are currently 37 Operational STPs of DJB in Delhi with total installed capacity of 667 MGD.

Out of 37 STPs, 22 STPs were found not 2 are meeting the Standards prescribed by non- DPCC and only 15 STPs were found non- meeting the Standards prescribed by desh, DPCC in the month of January, 2024.

High Level Committee has prepared Department wise detailed Action Plan for Rejuvenation of river Yamuna to meet the Gap and Accommodate Future Increase in Sewage Generation which includes following:

- Construction of 3 New STPs at Okhla, Delhi Gate and Sonia Vihar[47 MGD addition]
- Upgradation of Existing 18 Sewage Treatment Plants
- Rehabilitation of existing 3 STPs at Kondli Ph-II & Rithala Ph-I and Yamuna Vihar Ph -II.
- Construction of 40 DSTPs [26 DSTPs at various locations of Delhi and 14 DSTPs in Najafgarh Drainage Zone] [Additional Capacity 93.5 MGD]

Total capacity of STPs after augmentation and up-gradation of existing STPs will be as follows:

Total Capacity of STPs by March, 2024

−814 MGD [667 MGD + 147 MGD]

Total Capacity of STPS by December, 2024

−922 MGD [667 MGD + 255 MGD]

Total Capacity of STPs by March, 2025

−964.5 MGD [667 MGD + 297.5 MGD]

#Will be sufficient to treat the sewage of 924.8 MGD (80% of 1156 MGD Water Supply) in future.

Reply received from Himachal Pradesh Pollution Control Board vide email dated 11.03.2024 is reproduced below:

There are 03 nos of Sewage Treatment Plants (STPs) operational to treat the domestic sewage load of Municipal Area Paonta Sahib. The details of these STPs are as under:

TABLE 17: STP DETAILS

Information on Sewage Generation and Treatment capacity in Catchment of River Yamuna						
Sl. No	**Name of Municipality/Municipal Corporation**	**Sewage Generation (in MLD) Calculation as per 1991 Census for a period of 25 years)**	**Installed Capacity**			
			Installed treatment capacity in MLD	**Number of STPs**	**Complying Capacity**	**Number of STPs**
1.	MC Paonta Sahib	Zone-I = 0.44 MLD for 256 Households	0.44 MLD	1	0.40 MLD i.e., 90% of the proposed population as per 1991 census	1
		Zone-II = 1.0 MLD for 540 Households	1.0 MLD	1	0.50 MLD i.e.,50% of the proposed population as per 1991 census	1
		Zone-III = 1.72 MLD for 817 Households	1.72 MLD	1	STP suffered damage during unprecedented heavy rainfall last year during monsoon. The restoration work has been completed in the 3rd week of February, 2024. Now, STP is working and under stabilization.MC Drain carrying grey water near Jamniwala has been tapped for treatment.	

The sampling of these STPs is carried out by HPSPCB Paonta Sahib and sampling results of these STPs from November, 2023 to January, 2024 are given below:

TABLE 18 : SAMPLING RESULT

Sl. No.	Name of Location	Month	Parameters				
			pH (6.5-9.0)	TSS (Mg/l) (<99 mg/L)	FC (MPN/100 ml) (<999)	BOD(mg/l) (<30)	Remarks
1	Executive Engineer JSV STP Zone I Ward No. 10, Devinagar, Paonta Sahib, Distt. Sirmaur, H.P.	**Nov-23**	7.68	37	2700	15	-
		Dec-23	7.58	33	10800	11.5	-
		Jan-24	7.60	31	1840	10.5	-
2	Executive Engineer JSV STP Zone II Near Main Bazaar, Paonta Sahib, Distt. Sirmaur, H.P.	**Nov-23**	STP was under maintenance and upgradation for tertiary treatment.				
		Dec-23	7.66	17	920	6.0	Complying
		Jan-24	7.54	21	700	3.9	Complying
3	Executive Engineer JSV Paonta Zone 3 Village Kishanpura Paonta Sahib, Sirmaur	**Nov-23**	STP suffered damage during unprecedented heavy rainfall last year during monsoon. The restoration work has been completed in the 3rd week of February, 2024. Now, STP is working and under stabilization.				
		Dec-23					
		Jan-24					

Reply received from Uttarakhand Pollution Control Board vide email dated 02.05.2024 is reproduced below:

At present there are 05 operational common STPs in the Yamuna catchment in Uttarakhand STP at Indranagar Dehradun @5 MLD capacity; 01 STP at Bhatta fall Mussorie capacity: 01 STP at Landhore North Mussorie @ 0.8 MLD capacity; 01 STP at Kulri bazar, Mussoorie @ 0.9 MLD capacity and 01 STP at Happy Valley Mussorie @ 1.1 MLD capacity) with total capacity 11.02 MLD.

Uttarakhand Pollution Control Board is monitoring water quality of all these 05 STPs on monthly basis. As per the results the STPS were found complied with the standards as notified by MoEFCC, GOI.

All the STPs were found complying in the month December 2023 as per the standards prescribed by MoEF & CC while 02 STPs namely 0.8 MLD STP at Landour North and 1.2 MLD STP Happy Valley were found non complying as per the standards prescribed by Hon'ble NGT, Annual average of the STP monitoring data for the year 2023 is enclosed at **Annexure-13:**

Under Construction Common STPs: -

1. 04 STPs of total capacity 3.2 MLD are under construction in Mussoorie.
2. 02 STPs of total capacity 7.01 MLD are proposed in Vikasnagar.

Reply received from Rajasthan State Pollution Control Board vide email dated 10.05.2024 is reproduced below:

Currently total no. of STPs in the State are 133 (123 operational & 10 non-operational) with treatment capacity of 1,400.05 MLD out of which the capacity utilization of existing STPs is 892.75 MLD. The State Board is ensuring compliance of these treatment plants from time to time. As of now, based on applicable standards 43 STPs are complying and 80 are non-complying and action isbeing taken by the State Board accordingly.

Reply received from Uttar Pradesh State Pollution Control Board vide email dated 29.05.2024is reproduced below:

The issue regarding construction of STP, its commissioning and operation is related to Urban Development Department and Department of Housing and Urban Planning, Uttar Pradesh. Hence, the information may be sought from Urban Development Department and Housing and Urban Planning, Uttar Pradesh.

Reply received from Haryana State Pollution Control Board, vide email dated 14.06.2024 is reproduced below:

There are 184 STPs in Haryana of 2033 MLD capacity. The non-complying STPs are being upgraded. Presently, 58 STPS are non-complying and work is likely to be completed by Dec., 2025. Rest of the STPs are complying.

Input from National Mission for Clean Ganga

As on April 2024, under the Namami Gange Programme, a total of 200 nos. (including one modular STP) Sewerage Infrastructure projects costing Rs. 31,737 crores have been sanctioned for creation of 6,218 MLD. Out of this, 116 projects are completed with a treatment capacity of 3,111 MLD, 48 projects are under progress with treatment capacity of 1,763 MLD, and 36 projects are under tendering. The State wise Sewerage Infrastructure Project details is enclosed at **Annexure-14.**

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 15) (Para No. 2.15)

Use of fertilizer and pollution of river Yamuna

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 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 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 82 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.

Reply of the Government

Reply/Comments on recommendation no. 15 was sought from CPCB which forwarded the recommendation to Ministry of Agriculture & Farmer's Welfare.

Reply received from Ministry of Agriculture and Farmers' Welfare vide email dated 29.04.2024 is reproduced below:

Government is promoting organic farming in the country through two dedicated schemes of Paramparagat Krishi Vikas Yojana (PKVY) and Mission Organic Value

Chain Development for North Eastern Region (MOVCDNER) since 21015-16. PKVY scheme is implementing in all the States/UTs except NE States and MOVCDNER scheme is exclusively for North Eastern States.The PKVY Scheme is implemented by the State/UTs Government with a funding pattern 100% in Union Territories (UT), 90:10 in North-Eastern and Hilly States and 60:40 in case of all other States.

The PKVY Scheme is implemented in a cluster mode with min. 20 ha size and states have been asked to implement in cluster size of 1000 ha in plain area and 500 ha in hilly area to facilitate marketing of organic produce. All farmers are eligible but within a group a farmer can avail benefit to a maximum of 2 ha. and the limit of assistance is Rs.31, 500 per hac., out of which, Rs. 15,000 is given as incentives to a farmer for organic conversion, organic inputs, during the conversion period of 3 years.

Under PKVY scheme, for promotion of Organic Farming in 500 clusters covering 10,000 ha area funds Rs 471.45 lakh was released in 2017-18. Government of Delhi was unable to make any progress under PKVY clusters showing the lack of interest and priority for promoting organic farming among farmers of Delhi. Therefore, GoI had requested them to refund the entire amount Rs. 471.45 lakh released to Delhi Government.

Since, the scheme is implemented by the State/UTs government. Therefore, we may again request to the Delhi Government to adopt area for promotion of Organic Farming along the bank of Yamuna River, so that usage of chemical fertilizers and pesticides may be minimized.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

CPCB in association with SPCBs/ PCC of Uttarakhand, Himachal Pradesh, Haryana, Delhi and Uttar Pradesh carries out water quality monitoring of river Yamuna on monthly basis parameters such as physio-chemical, biological and pesticides on bi-annually basis.The water quality data w.r.t pesticides (Alpha HCH, Beta HCH, Gamma HCH (Lindane), o,p' DDT, p,p' - DDT, Alpha Endosulphan, Beta Endosulphan, Aldrin, Dieldrin, 2,4-D, Chloropyriphos, Methyl Parathion, Malathian, Ortho Phosphate) for the year 2022-23 is attached as **Annexure-15**. It is observed that the concentration of monitored the pesticides found in the range 0.05- 0.5 mg/L except 2,4-D (1.52 mg/L at u/s of Lakhwar Dam) and Orthophosphate (0.1- 0.25 mg/L (at Dakpatthar, Dehradun).

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 16) (Para No. 2.16)

Solid Waste

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

Reply of the Government

Reply/Comments on recommendation no. 16 was sought from Delhi Pollution Control Committee (DPCC) Himachal Pradesh Pollution Control Board, Uttarakhand Pollution Control Board, Rajasthan Pollution Control Board, Uttar Pradesh Pollution Control

Board and Haryana Pollution Control Board vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Delhi Pollution Control Committee (DPCC) vide email dated 18.03.2024 is reproduced below:

Total Capacity of Existing MSW Processing Facilities (Including MRFs) - 8224.475 TPD (72.3%)

i) Total MSW Processing – 6709.665 TPD (Fresh MSW + MRFs) (58.98%)
ii) Disposal through Compost Pits (258 No) 549.42 TPD
iii) Recycling through MRFs- 306 TPD
iv) Gap in MSW Processing Capacity - 3151.525 TPD (27.7%)
v) Gap in MSW Processing – 4666.335 TPD (41%)

Solid Waste Monitoring Committee (SWMC) headed by Hon'ble Lt. Governor, Delhi and constituted by the Hon'ble National Green Tribunal vide order dated 16.02.2023 in O A. No. 606 /2018 in the matter of "Compliance of Municipal Solid Waste Management Rules, 2016 and other Environmental Issues".

Solid Waste Monitoring Committee (SWMC) has prepared Department wise detailed Action Plan for Solid Waste Management in Delhi including following:

1. 100% Segregation of Municipal Solid Waste at source.
2. Transportation of all Solid Waste for Processing
3. 100% processing of Municipal Solid Waste
4. Bioremediation of entire legacy waste
5. Setting up of Engineered Sanitary Landfill.

Meetings of Solid Waste Monitoring Committee (SWMC) were held to monitor the progress of the said Action Plan.

Reply received from Himachal Pradesh Pollution Control Board vide email dated 11.03.2024 is reproduced below:

MC Paonta Sahib has 13 wards for which solid waste approx. 8.65 TPD is collected and further processed at the designated Solid Waste Management Facility in Village Kedarpur, Paonta Sahib. Additional solid waste is collected by MC Paonta Sahib from the adjacent panchayats which is processed in the existing facility and RDF is sent to M/s Versatile Star Pvt. Ltd. (Copy enclosed at **Annexure-16**). In order to segregate solid waste collection & processing for municipal and rural areas, Worthy Deputy

Commissioner, Sirmaur has asked Block Development Officer, Paonta Sahib to identify separate land for solid waste processing facility for nearby rural area in Paonta Sahib block.

Reply received from Uttarakhand Pollution Control vide email dated 02.05.2024 is reproduced below:

There are seven Local Bodies located along the river Yamuna. Details of Solid Waste generation is submitted as follows: -

TABLE 19: DETAILS OF SOLID WASTE GENERATION

S.No.	Name of local body	Quantity of Municipal Solid Waste	Mode of Disposal of Municipal Solid Waste
1	Barkot Dist Uttarkashi	3.0 MTD	--
2	Naugaon, Dist Uttarkashi	4.0 MTD	--
3	Purola, Dist Uttarkashi	3.0 MTD	--
4	Vikas Nagar, Dist Dehradun	10.0 MTD	Disposed in SLF located at Sheeshambada, Dehradun
5	Herbertpur, Dist Dehradun	4.5 MTD	
6	Selaqui Dist Dehradun	15.0 MTD	
7	Mussorie, Dist Dehradun	10.0 MTD	

Reply received from Rajasthan State Pollution Control Board vide email dated 10.05.2024 is reproduced below:

Currently total Solid Waste generation in the State is 6836.681 TPD out of which total 6733.941 TPD is collected and processed either through treatment or land filling. The State Board in coordination with state ULBs is taking all steps to setup solid waste processing facilities for 100% collection & treatment of Solid Waste. Mapping of cement plants with MRF's has been done in the State to ensure co-processing of waste in those plants. Same plants are also under installation in state (i.e in Jaipur and Jodhpur).

Reply received from Uttar Pradesh State Pollution Control Board vide email dated 29.05.2024 is reproduced below:

The issue regarding construction of Municipal Solid Waste (MSW) processing facilities, it's commissioning and operation is related to Urban Development Department. Hence, this information may be sought from the Urban Development Department.

Reply received from Haryana State Pollution Control Board, vide email dated 14.06.2024 is reproduced below:

The proposal and execution of installation of sewers have to be taken by the Irrigation Department.However, as per annual Report 2022-2023, 5785 TPD solid waste is being generated from 88 MCs. ULBD has decided the area into 13 clusters covering all 88 ULBs for the safe & scientific treatment of solid waste with the aims to install one treatment facility in each cluster. Out of 13 clusters, the 02 facilities have been established & operating.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 18) (Para No. 2.18)

Formation of Foam in River Yamuna

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. 84 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.

Reply of the Government

Reply/Comments on recommendation no. 18 was sought from Delhi Jal Board, Delhi Pollution Control Committee (DPCC) & Uttar Pradesh Irrigation department vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

The reply did not receive from Delhi Jal Board.

Reply received from Delhi Pollution Control Committee (DPCC) vide email dated 18.03.2024 is reproduced below:

DJB carried out dosing of anti-foaming agents in river Yamuna during Chhath Puja. Government of NCT of Delhi is primarily working on following Sectors for improving the functioning of STPs in Delhi and details are given in following Table:

v. Rehabilitation of existing 3 STPs at Kondli Ph-II & Rithala Ph-I and Yamuna Vihar Ph -II.
vi. Upgradation and increasing capacity of remaining 18 existing STPs
vii. Construction of 3 New STPs at Okhla, Delhi Gate and Sonia Vihar

viii. Construction of 40 DSTPs 26 DSTPs at various locations of Delhi and 14 DSTPs in Najafgarh Drainage Zone]

Total capacity of STPs after augmentation and up-gradation of existing STPs will be as follows:

- Total Capacity of STPs by March, 2024 814 MGD |667 MGD + 147 MGD]
- Total Capacity of STPs by December, 2024 922 MGD [667 MGD + 255 MGD]
- Total Capacity of STPs by March, 2025 -964.5 MGD 667 MGD + 297.5 MGD]

Will be sufficient to treat the sewage of 924.8 MGD (80% of 1156 MGD Water Supply) in future.

Delhi Pollution Control Committee issued following directions u/s 33 (A) of the Water (Prevention and Control of Pollution) Act, 1974 on 14.06.2021(enclosed at **Annexure- 17**).

3. Sale, Storage, Transportation and Marketing of Soaps & Detergents not conforming to the revised BIS Standards shall be completely prohibited in NCT of Delhi.
4. All the concerned Departments / Authorities including Municipal Corporation al/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 (1l) above through strict vigil and surprise checks on such establishments.

Reply received from Uttar Pradesh Irrigation Department vide email dated 02.05.2024 is reproduced below:

Okhla barrage on Yamuna river is only a diversion head works which is built to divert the water into the canal for irrigation purposes.Minimum E-flow is maintained downstream Okhla barrage in compliance with MoU dated 11.03.1995 between Yamuna basin states and as per directions of NGT. After supplying water in the Agra canal for irrigation purposes as per demand, excess water is released downstream of the barrage.Barrage is operated through gates as per operation manual of barrage. The water only flows under the gates. There is no free fall in all of the water at the barrage.

The foam/froth that is being formed downstream of Okhla barrage on Yamuna river is not due to any activity by Irrigation and water resources department, U.P. but mainly untreated/polluted water being discharged into river Yamuna in Delhi region. Action in this regard should be taken by concerned departments/agencies. No action is required by the Irrigation and water resources Department, U.P. However, compliance of the directions - given by the committee to be formed of various departments will be ensured by Irrigation and water department U.P.

Reply from National Mission for Clean Ganga

564 MLD WWTP with targeted NGT parameters of 10/10 is being constructed at Okhla which is likely to be fully functional by Oct 2024. Presently about 200 MLD quantity of liquid line commissioning has been attained at this plant.

Comment of the Committee

(Please see Para No. 29 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 19) (Para No. 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 Government 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.

Reply of the Government

Reply/Comments on recommendation no. 19 was sought from Delhi Development Authority (DDA) and Uttar Pradesh Irrigation Department vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Delhi Development Authority vide email dated 10.05.2024 is reproduced below:

The matter of Froth/Foam formation mainly relates to operation of Gates of Barrage and release of water thereafter, smoothness of the Flow of water and Quality of water in the River.

Reply received from Uttar Pradesh Irrigation and Water ResourceDepartment vide email dated 02.05.2024 is reproduced below:

UP-Irrigation Department Okhla barrage on Yamuna river is only a diversion headworks which is built to divert the water into the canal for irrigation purposes.

After supplying water in Agra canal for irrigation purposes as per demand. excess water is released downstream of barrage. The downstream floor of existing barrage is already on gentle slope with D/S glacies. There is no freefall of water at any stage of the existing Okhla barrage.Barrage is operated through gates as per operation manual of barrage. The water flows under the gates only. There is no free fall of water at barrage.

The foam/froth that is being formed at downstream of Okhla barrage on Yamuna river is not due to any activity by Irrigation and water resources department, U.P. but mainly due to untreated/polluted water being discharged into river Yamuna in Delhi region.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 20) (Para No. 2.20)

Namami Gange Programme

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 86 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.

Reply of the Government

Input from National Mission for Clean Ganga

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 monthly review, and 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) Important sewage infrastructure projects are reviewed at the Cabinet Secretariat level on PMG portal.

vi) Sewage Infrastructure projects under Namami Gange Programme are also being monitored on OCMS portal, PRAYAS & NIP portal.

vii) 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.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024)
(Recommendation No. 21) (Para No. 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 wholeheartedly 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.

Reply of the Government

- National Mission for Clean Ganga vide its D.O. letter dated 1st December, 2023 addressed to Sh. Naresh Kumar, Chief Secretary, Government of NCT of Delhi has requested to put in place the State Ganga Committee (SGC), State Programme Management Group (SPMG) & District Ganga Committees (DGC) in the State of Delhi on an urgent basis in the larger interest pollution abatement of tributaries of river Ganga i.e. Yamuna. So far NMCG has approved a total of 08 projects of Rs. 1728.61 Cr. During the recent years in the State of Delhi. The response from the Government of Delhi is still awaited.
- As per the Authority Notification dated 7th October 2016, the State is required to constitute the State Ganga Rejuvenation, Protection and Management Committee as per the composition and powers specified in the Schedule to implement various programmes and projects of NMCG.
- The State is also required to put in place the State Programme Management Group (SPMG) for preparation, supervision and management of projects. The project funds will be routed through SPMG to the Executing Agencies. The institutional structures are in place in the Ganga main stem States, where the maximum number of projects under NMCG have been taken up so far.
- As per Paragraph 53 of the Authority Order, District Ganga Committees (DGCs) are required to be constituted for the prevention, control and abatement of pollution in the river Yamuna (a tributary of Ganga) as specified in the aforesaid notification.

- The Clean Ganga Fund (CGF) was established in 2015 as a trust under the Indian Trusts Act, 1882, to enable Resident Indians, Domestic and Overseas Corporates/ Trusts, and NRIs / PIOs to contribute towards the conservation efforts of River Ganga. The objective of the fund is to contribute to the national effort of improving the cleanliness of the River Ganga with contributions received from the residents of the country, NRIs/ PIO, and public and private companies. The specific purpose of CGF includes -

v. To fund the work program of Ganga rejuvenation chosen from the Namami Gange program of the Government of India.
vi. To coordinate and oversee the implementation of the projects sanctioned.
vii. To accept donations/ contributions from individuals, institutions, and corporates.
viii. To develop any suitable plan for achieving the main objective of improving the cleanliness of the river Ganga.

- Namami Gange Programme was launched in June 2014 for a period up to 31 March 2021 to rejuvenate River Ganga and its tributaries. The programme was subsequently extended up to 31March, 2026 to accomplish the twin objectives of effective abatement of pollution, conservation and rejuvenation of National River Ganga and its tributaries, which includes river Yamuna also.
- Therefore, contributions to the CGF can also be utilized for the rejuvenation efforts of river Yamuna.

Comment of the Committee

(Please see Para No. 32 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 22) (Para No. 2.22)

ITO Barrage and Flood Management in Delhi

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 Barrage for an inspection of the 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 87 was constructed to supply cooling water for above mentioned 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 noted 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 noted the submission of the State of Haryana, as per which, the only reason for non-maintenance/overhauling 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 believes 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 the present context. The Committee feels 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 a victim of floodings as witnessed in the month of July 2023. The Committee urged 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 88 also like to be apprised of the findings of the Committee constituted by the Department under the Chairmanship of Central Water Commission.

Reply of the Government

Reply/Comments on recommendation no. 22 was sought CWC vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Water Commission vide email dated 03.04.2024 is attached below:

Due to a combination of Western Disturbances and Southwest Monsoon, there was heavy rainfall in different places of Himachal Pradesh, Uttarakhand and Haryana during 09-13 July 2023, leading to extensive landslides and flooding in the hills and plains. The heavy rainfall in the catchment area of river Yamuna resulted in huge runoff in the river, due to which an earlier Highest Flood Level (HFL) of 207.49 m recorded at the CWC gauging site of old Delhi railway bridge on 6th September, 1978 got surpassed by a new HFL of 208.66 m observed on 13th July 2023. This necessitated a fresh look at the river's flood management in its reach from Hathnikund Barrage up to Okhla Barrage. In this regard, DoWR, RD&GR, Ministry of Jal Shakti, vide OM No. Z-15011 /1 /2020-FM Section-MOWR dated 6th August 2023, constituted a Committee for conducting a joint flood management study of river Yamuna for its reach between Hathnikund and Okhla barrage. The Committee headed by Chairman CWC has members from Haryana, Uttar Pradesh, NCT of Delhi and expert Organizations. It will inter-alia examine the meteorological aspects, return period of floods, discharging capacity of barrages, functional requirement of ITO barrage, etc. The Committee has been mandated to examine the meteorological aspects, return period of floods, discharging capacity of barrages, functional requirement of ITO barrage, etc. The Committee has submitted an Interim report in January 2024 to DoWR, RD & GR (FM Wing). It would be appropriate to consult the FM Wing of DoWR, RD & GR for including the information from the Interim report.

Comment of the Committee

(Please see Para No. 35 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 23) (Para No. 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.

Reply of the Government

Reply/Comments on recommendation no. 23 was sought from CWC vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Water Commission vide email dated 03.04.2024 is reproduced below:

TheRiver cross section survey of Yamuna is carried out every year during non-monsoon period for river morphological study purpose at approx. 10 km interval. There are four locations in Delhi region namely Burari (u/s of Wazirabad Barrage), Kalishnagar (near Old Delhi Railway Bridge), Bhogal (between Nizamuddin & DND bridge) and Jaitpur Extension (d/s of Okhla Barrage). A Morphological Study of Yamuna River has been got carried out by CWC through IIT Delhi. The final report of the same was submitted in Sept 2020 and a dissemination workshop on the findings of the report for all stakeholders was organized in Jan 2024. The objective of the study was: 1. To study morphological behaviour of the River Yamuna 2. To estimate erosion and deposition (areal retreat) on a decadal time scale 3. To analyse the dynamics of the river, course 4. To identify stable and critical reaches in the river. One of the findings of the study is "In the Delhi segment, very less braiding is observed, it is most likely due to the regulations of flows by Wazirabad, ITO and Okhla Barrage. Also, anthropogenic activities around the floodplains of Yamuna and river training works for flood control have restricted river activity to minimum level"(page 224). Channel bank Retreat due to erosion and deposition for the time frames of 1975-1990, 1990- 2000, 2000-2010 and 2010-2016 have been estimated on grid-scale (page 341- 44). The results show that channel has experienced erosion for the period 1975 up to 2000 at the rate of 1.17 sq.km per year whereas from 2000 to 2016 channel experienced deposition of 7.12 sq.km in total from Ganaur to New Delhi whereas Noida and surrounding Delhi NCR region, channel has experienced deposition (11.25 sq.km) during 1975-1990, erosion (12.66 sq.km) during 1990-2000, deposition 7.46 sq.km during 2000-2010 and erosion 5.47 sq.km during 2010-2016. No specific trend or pattern has been noticed in erosion and deposition processes in the Yamuna River. Aggradation and degradation patterns analysed from observed cross-sections are in line with satellite-based captured erosion deposition maps. Suspended sediment load (SSL) varies spatially across Yamuna River. Delhi recorded the maximum value of SSL

in 1995. The year 1999- 2000 can be considered as a breaking point after which SSL for all available stations reduced drastically. Ministry of Jal Shakti (MoJS) has come up with a National Framework for Sediment Management (NFSM) for managing the sediments in a holistic manner. This framework lays emphasis on sediment management through integrated river basin management plan. It provides reference to all existing guidelines/policies dealing with the various aspects of the sediment management. The framework will facilitate the concerned stakeholders such as the State Governments other Ministries, Departments, etc in planning strategies and implementation of projects giving due consideration to environment and ecology and will serve as a guidance document for management of sediment across the river basin. The framework provides specific provisions for sediment management vide para 2.2 and de-silting/dredging / mining restrictions details vide its **Annexure-18**. A "National Workshop on Integrated Management of Sediments in River Basins and Reservoirs for Sustainable Development" was organized by CWC/MoJS on 19th June 2023 to share the contents of the framework with the State Government to follow for sediment management related sensitive issues including de-silting/dredging of rivers. **Annexure - 19** of the framework provides details of de-silting/ dredging work in rivers to be followed by the executing agencies.

Comment of the Committee

(Please see Para No. 38 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 24) (Para No. 2.24)

Upper Yamuna River Board (UYRB)

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 89 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.

Reply of the Government

Reply/Comments on recommendation no. 24 was sought from Upper Yamuna River Board vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Upper Yamuna River Board (UYRB) vide email dated 01.04.2024 is reproduced below:

As per the recruitment rules, all the posts in UYRB Secretariat are intended to be filled through deputation of officers / staff from Central, State, and Union Territory Governments. It is found that even after advertisement of post for several times, there has been very low response from the applicants. In view of this, these posts have remained vacant for a long duration leading to its abolition.

At present, there are only 6 live vacant posts in UYRB. The Upper Yamuna River Board (UYRB) Secretariat is continuously taking steps for filling the above posts. The advertisement for the post of Assistant Executive Engineer was issued on 4.3.2023 but yielded no response. The advertisement for filling two posts of Executive Engineer and

two posts of Draftsman were issued on 12.10.2023. The advertisement for filling one post of Specialist (Environment) has been issued on 7.3.2024.

Even after wide circulation of the advertisements, no application has been received for the post of Executive Engineer. Two applications have been received for the post of Draftsman, processing of which is under progress. The advertisement for the post of Assistant Executive Engineer is being issued again.

It has been found that there is an apparent lack of interest among applicants to join UYRB. The matter has been discussed in the Ministry. Process has been initiated to revise the recruitment rules to relax the conditions so as to attract a broader range of applicants. As a stop gap arrangement, informal postings of few officers from sister organizations of DoWR, RD&GR has also been made for smooth functioning of the organisation. Efforts are also being made for encadrement of few posts in cadres being managed by DoWR, RD&GR for its other organisations.

The Upper Yamuna River Board (UYRB) Secretariat has also taken several other measures to tackle the pressing issue of staff shortages. Efforts have been made to fill some of the posts in the UYRB secretariat through outsourcing. In this regard, three skilled and four unskilled personnel have been engaged since 2013 Recently, DoWR,RD&GR has also approved a proposal for engagement of consultants with technical experience, two consultants with administrative experience, one consultant with finance experience and 4 young professionals with technical background. Out of this, five Consultants (four technical and one finance has already been engaged in Sep 2023. Two such consultants have also left last month. Process for engaging personnel for these two positions and other approved positions is under progress.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 25) (Para No. 2.25)

PUBLIC AWARENESS PROGRAMME

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 thestakeholders 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.

Reply of the Government

The National Mission for Clean Ganga (NMCG) has been undertaking comprehensive public awareness campaigns to foster a sense of responsibility and engagement among the public in efforts to clean and conserve the Ganga River through educational materials, community outreach, school programs, mass media campaigns, and online engagement. Swachhta Pakhwada Ganga Utsav, Ganga Run, Ganga Rafting expeditions, treks, Ghat pe Haat with a social message and several activities have also been taken up. 139 District Ganga Committees (DGCs) have been formed and their mandated monthly meetings done to encourage decentralization and ensure people's participation. Some of the important public awareness programme organished by National Mission for Clean Ganga are;

Swachhta Pakhwada 2024: On 28th March, 2024, NMCG, in collaboration with the Delhi Jal Board, partner NGOs, students, and the local public, spearheaded a vibrant cleanliness drive at ITO Chhath Ghat as part of Swachhta Pakhwada 2024. During the event, an inspiring oath-taking ceremony reiterated our collective commitment to river cleanliness by the Secretary of DoWR, RD & GR, along with the DG, NMCG. Additionally, children enthusiastically engaged in a painting competition themed 'Ecology and Environment.'

Swachhata Hi Seva (SHS) 2023 campaign: On 1st October 2023, NMCG organised a cleanliness drive at Chhath Ghat, ITO, as part of the Swachhata Hi Seva (SHS) 2023

campaign, inspired by Prime Minister Shri Narendra Modi's 'Ek Tareekh Ek Ghanta Ek Saath' call for collective action. The event commenced at 10 AM, and saw the active participation of high-ranking officials, including the Secretary, DoWR, RD & GR, and DG, NMCG. A pivotal aspect of the event was the administration of the Swachhata Pledge, emphasizing personal and collective responsibility for cleanliness. To further raise awareness about the importance of clean rivers, a nukkad natak was conducted at the 'ghats'. The event drew substantial support, with approximately 1000 individuals.

Ganga Utsav 2023: The 7th edition of Ganga Utsav 2023 was celebrated as a River Festival on 4th November 2023 across the Ganga basin. It was celebrated with the aim to spread the message of river rejuvenation as emphasized by the Hon'ble Prime Minister of India on numerous occasions. The event was widely publicized through social media platforms, print and electronic media, hoardings and banners at important locations within the Ganga belt. All mediums- print and digital- are being leveraged to reach out to the large number of people to transform Namami Gange into a Jan Andolan.

Ganga Utsav 2023 was also celebrated at several locations along River Ganga through the District Ganga Committees which organized various engaging activities on the ghats and other places around the river including Ganga Artis, Cultural Performances, Games, Poetry Recitals etc. On-ground cadres of volunteers like Ganga Praharis, Ganga Mitras, Ganga Doots, Ganga Task Force etc. and district administrators were at the helm of the celebrations in the states to truly make this a Jan Bhagidari event.

State Ganga Committees and District Ganga Committees was actively engaged in the Ganga Utsav 2023 to promote the local products of the Ganga Basin in a bid to enhance the livelihood opportunities of the local people, one of the primary aim of Arth Ganga campaign espoused by the Hon'ble Prime Minister.

Yamuna Par Azadi Ka Amrit Mahotsav: On 16th August 2022 presided over the event 'Yamuna Par Azadi Ka Amrit Mahotsav' organised by National Mission for Clean Ganga (NMCG), Department of Water Resources, River Development and Ganga Rejuvenation, Ministry of Jal Shakti. The event took place at Zero Pushta, Sonia Vihar along River Yamuna in the presence of Secretary, Do WR, RD & GR, Ministry of Jal Shakti, Director General, NMCG and Director General, Tourism, Ministry of Tourism.

The event marked the launch of many new initiatives under Arth Ganga including- the virtual launch of Jalajinitiative at 26 locations on Ganga basin main stem states, a MoU with Sahakar Bharati to achieve the vision of a sustainable and viable economic development by public participation and a tourism-related portal ImAvatarto promote livelihood opportunities along the Ganga basin by promoting Arth Ganga initiative through tourism. Also included in events of the day was felicitation of the winners of the Ganga Quest 2022 and launch of the new River Champ course on the Continuous Learning and Activity Portal (CLAP) by the Hon. Union Minister.

Yamuna Ghat Par Yamunotsav: Namami Gange Amrit Vatika was created at Kalindi Kunj ghat on River Yamuna in Delhi on 2nd July 2022 under the Azadi Ka Amrit Mahotsav during which 75 saplings were planted by National Mission for Clean Ganga (NMCG) in association with Delhi Jal Board (DJB), NGOs and other associated organisations. The plantation activities were carried out under the initiative 'Yamuna Ghat par Vriksharopan'. Officials from NMCG, DJB, volunteers, school children and others participated in the event. A nukkad natak was also performed by the dynamic group of youngsters from Rang Sarthi on Environment & Rivers. School children from Adarsh Gyan Vatika also took part in the event. Cleanliness drive on River Yamuna in Delhi is a regular activity organized on the 4th Saturday of every month by NMCG.

Ganga Run for Unity: A Run for Unity was organized in Haridwar by National Mission for Clean Ganga **public awareness campaign**, on 1st November 2022 to mark Sardar Vallbhbhai Patel's birth anniversary. Union Jal Shakti Minister, Haridwar MP Shri Ramesh Pokhriyal Nishank and Director General, NMCG along with mass public participated in the Run

Namami Gange-Universities Connect: On 12th April 2023 NMCG and APAC News Network organized "Namami Gange: Universities Connect" event. Shri Gajendra Singh Shekhawat, Hon'ble Union Minister for Jal Shakti, presided over the function, where Memorandums of Understanding (MoU) were signed between NMCG and Chancellors /Vice-Chancellors of 49 universities to foster awareness among the youth on water conservation and river rejuvenation. These MoUs strive to bring the student communities to the forefront of the mass movement for creating a sustainable ecosystem of our rivers.

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

CHAPTER III

RECOMMENDATIONS/OBSERVATIONS WHICH THE COMMITTEE DO NOT DESIRE TO PURSUE IN VIEW OF THE GOVERNMENT'S REPLIES

NIL

CHAPTER IV

RECOMMENDATIONS/OBSERVATIONS IN RESPECT OF WHICH REPLIES OF THE GOVERNMENT HAVE NOT BEEN ACCEPTED BYTHE COMMITTEE

(Recommendation No. 5) (Para No. 2.5)

River Bed Management in Delhi

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. 73 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.

Reply of the Government

Reply/Comments on recommendation no. 5 was sought from Delhi Jal Board, Delhi Pollution Control Committee (DPCC) & Delhi Irrigation & Flood Control (I&FCD) vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

The reply did not receive from Delhi Jal Board.

Reply received from Irrigation & Flood Control, Delhi vide email dated 15.04.2024 is reproduced below:

When flood water released from Hathni Kund Barrage more than 1 lakh cusec. It acts as a flushing/ carries away the sludge deposit from the river Yamuna in the stretch between the Wazirabad barrage to Okhla barrage.

Regarding deposition/ erosion of silt/ sand in the river bed is also covered in the scope of study given to CWPRS, Pune by this department, after the highest ever flood water level recorded at ORB i.e. 208.66 mtr on 11th July 2023.

Reply received from Delhi Pollution Control Committee vide email dated 30.05.2024 is reproduced below:

The matter of controlled dredging in the river bed of debris and heavy metals from the bottom of river bed pertains to DDA, IFCD, GNCTD & NMCG/ MOJ.

If the dredged material contains heavy metals and exceeds the Concentration limits given under schedule-ll of the Hazardous and Other Waste (Management & Transboundary Movement)Rules, 2016, then it is hazardous waste and requires to be disposed at the TSDF for Hazardous Waste at Bawana in Delhi.

Input from National Mission for Clean (NMCG)

D. For de-silting and de-sludging of Yamuna River a committee headed by Dr M A Chitale in its report- For Preparation of Guidelines for Works on De-siltation from Bhimgauda to Farakka submitted Feb, 2017 has highlighted following observations:-

4. The large scale de-silting or dredging of rivers are not recommended;
5. A technical institute may be entrusted to conduct the sediment budget, morphological and flood routing studies that would examine and confirm the necessity of the delisting of the reach under consideration;
6. The dredging/ siltation/ mining activities may result into some adverse impacts, i.e – (a) river degradation; (b) bank erosion; (c) channel widening; (d) lowering of meter surface elevations in the river channel (e) lowering of water table elevation adjacent to the river (f) a reduction in the structural integrity of bridges pipelines jetties barrages weirs foundation supporting high tension lines, existing bank protection works and other manmade structures and (g) a loss of environmental values resulting from (a) through (e).

E. Since similar concerns have also been underlined by Irrigation Deptt in its letter submitted to NMCG, it was suggested by NMCG that Department of Irrigation, Uttar Pradesh may first carry out detailed study in order to understand the necessity of de-silting/ de-sludging along with their disposal plan and its probable impact on environmental values. In this regard, if felt necessary, technical assistance may be taken from Central Water Commission (CWC).

F. NMCG has also requested the State Government to ensure proper Solid Waste Management in the cities, and screens/ bars may be installed on all drains to prevent the floating solid waste from entering the rivers.

Comment of the Committee

(Please see Para No. 11 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 6) (Para No. 2.6)

Environmental Flow (E-Flow)

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 74 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 cusecs 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.

Reply of the Government

Reply/Comments on recommendation no. 6 was sought from Upper Yamuna River Board (UYRB) and Central Water Commission (CWC) vide email dated 22.02.2024. Further, the follow-up was done through reminders and phone calls.

Reply received from Central Water Commission vide email dated 03.04.2024 is reproduced below:

No specific information is available in CWC. Further, CWC is presently doing the e-flow monitoring for 11 Hydro-Electric Projects situated in the Upper Ganga River Basin starting from originating glaciers and through respective confluences of its head tributaries finally meeting at Devprayag up to Haridwar and the main stem of Ganga up to Unnao district of Uttar Pradesh.

Reply received from Upper Yamuna River Board vide email dated 21.05.2024 is reproduced below:

As per the MoU of 1994 among the basin States, a minimum flow in proportion to completion of upstream storages going upto 10 cumec is to be maintained downstream of Tajewala and downstream of Okhla Head works throughout the year from ecological considerations. Later, Hon'ble NGT Principal Bench, New Delhi vide order dated 11-06-2015 directed that "State of Haryana shall release 10 Cumec water directly into the main stream of river Yamuna from Hathnikund Barrage and maintain e-flow of river till Wazirabad". As per the discharge data submitted by Government of Haryana, the flow of 10 cumecs is being maintained d/s of Hathnikund Barrage. The matter related to the E-flow study by NIH has not been dealt with in UYRB. However, the MoU of 1994 could be reviewed after the year 2025, if any of the Basin States so demand. The provision for e-flow as decided by the competent Authority over and above the current provision could be considered then.

Reply from Haryana Irrigation Department is yet to be received:

An e-mail dated 10.06.2024 has been sent to Haryana Irrigation Department and their reply is yet to be received.

Input from NMCG

As per MoU of 1994 on sharing of surface water flows among upper Yamuna basin States, a minimum flow of 10 cumecs will be maintained from ecological considerations downstream of Hathinikund and Okhla barrages. Further, this arrangement is open for review after 2025, if any of the Basin States demand. The Government of Haryana in Dec, 2020 (vide DO letter enclosed **at Annexure-3**) expressed that before the revision of this MOU which is due only after 2025, it is absolutely unwarranted to reopen this issue of e-flow.

Comment of the Committee

(Please see Para No. 14 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 8) (Para No. 2.8)

Impact of Pollution on the ecology of Yamuna

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.

Reply of the Government

Reply/Comments on recommendation no. 8 was sought from Haryana State Pollution Control Board, Delhi Pollution Control Committee (DPCC) & CPCB vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

The status of restore and rejuvenate the floodplains of River Yamuna by DDA may be obtained from DDA.

CPCB issued directions on 02.01.2023 to State Pollution Control Boards (SPCBs) of Delhi-NCT and Haryana regarding augmentation and upgradation of CETPS and display of OCEMS data by CETPs located in Delhi and Haryana. The details of directions are:

- To take necessary action against the non-complying CETPs in the state
- To prepare and submission of action plan for upgradation /augmentation of identified CETPs situated in the state.
- Mandatory to display of OCEMS data of each individual CETP in a conspicuous location.

Reply received from Uttar Pradesh Pollution Control Board vide email dated 29.05.2024 is reproduced below:

Monitoring water quality of River Yamuna at 22 sampling Locations under Critically polluted river stretches in the State Uttar Pradesh. Out of 22, three sampling points are located in the Agra district which are U/s Kailash ghat, U/s water works & D/s Taj mahal. The water quality monitoring data obtained in the year 2021, 2022 & 2023 are attached as **Annexure-6.**

Input from National Mission for Clean (NMCG)

The water quality monitoring of River Yamuna being carried out by Delhi Pollution Control Committee (DPCC), there is improvement in quality in terms of BOD when compared from monitoring data of 2022 and 2023:

TABLE 20: BOD MONITORING DATA OF 2022 AND 2023

	December 2022	December 2023
ISBT	46 mg/l	35 mg/l (24% reduction)
Asgarpur	73 mg/l	51 mg/l (30% reduction)

The Water Quality Trend of River Yamuna for 2022 and 2023 is enclosed at **Annexure-7.** So far, no such study on ecological assessment has been conducted on river Yamuna in the National Capital Territory (the stretch between downstream of Wazirabad Barrage after meeting Najafgarh Drain to Asgarpur Village) under the Namami Gange Programme (NGP), yet.

The initiatives for pollution abatement through tapping of sewage drains, are being implemented under the Namami Gange Programme in Delhi region and on completion it may help in improvement of water quality vis a vis aquatic life.

Presence of biological organisms in river water is also considered as an indicator of river water quality/ecology and the assessment of these biological organisms is referred to as Bio-monitoring. Bio-monitoring of River Ganga and River Yamuna was carried out during FY 2023-24 in 2 phases: (i) Pre-monsoon period- April – June and (ii) Post-monsoon period- November – March. In this regard, in River Ganga, a total of 42 locations from Gangotri, Uttarakhand to Garden Reach, West Bengal and in River Yamuna, a total of 26 locations from Yamunotri, Uttarakhand to Prayagraj, Uttar Pradesh have been identified.

Biomonitoring:

e) River Yamuna originates from Yamunotri Glacier of Uttarkashi and traverses through states of Uttarakhand, Himachal Pradesh, Haryana, Delhi and Uttar Pradesh travelling to a total distance of 1376kms before confluencing with the river Ganges at Prayagraj, Allahabad. River Yamuna being the longest and the largest (by volume) tributary of river Ganga.

f) Biomonitoring is one of the tool for assessing the long term biological quality of water of river Ganga and Yamuna. Benthic macro-invertebrates are referred to assess the biological health of water bodies as these being ubiquitous, abundant in aquatic ecosystem, have wide range of pollution tolerance amongst various families and also these are good integrators of environmental conditions. These organisms are used to derive Saprobic Score for Biological water quality

assessment which is based on Biological Monitoring Working Party (BMWP) scoring chart. Based on the saprobic values, the surface water bodies are classified in different Biological Water Quality Class (BWQC) that ranges from Very Good to Severe.

g) CPCB is assessing the biological health of river Yamuna since 2019 and To assess the seasonal variation in terms of water quality, monitoring is performed twice in a year viz. pre- and post – monsoon. Pre-monsoon phase of monitoring is carried out during April to June and post-monsoon from November to February.

h) Biomonitoring of river Yamuna has been carried out in the Haryana, Delhi, and Uttar Pradesh i.e., in the stretch from Panipat (Haryana) to Prayagraj (Uttar Pradesh) covering 13 locations (04 Location in Haryana; 02 Locations in Delhi; and 07 Locations in Uttar Pradesh) to assess the biological water quality using benthic macro-invertebrates.

TABLE 21:BIOLOGICAL WATER QUALITY CRITERIA

Saprobic Score	Biological Water Quality Class	Saprobic Score
7.0 to 10.0	Very Good	7.0 to 10.0
5.0 to 6.9	Good	5.0 to 6.9
3.0 to 4.9	Moderate	3.0 to 4.9
1.1 to 2.9	Poor	1.1 to 2.9
1.0	Severe	1.0

Based on monitoring data, the major observations are as follows:

River Yamuna (First Round)

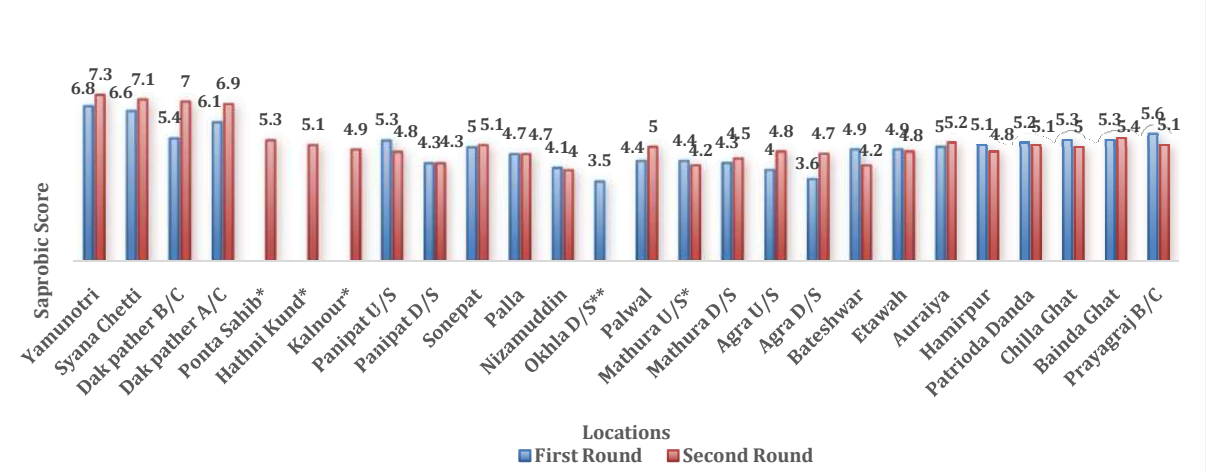
- In Uttarakhand Stretch from Yamunotri to Dak Pathar the BWQ was found to be in 'Good' class.
- In Haryana stretch, Panipat U/S & Sonepat were in 'Good' class and Panipat D/S & Palwal were in 'Moderate' class.
- In Delhi stretch, the BWQ was found in 'Moderate class at all the three locations (Palla, Nizamuddin and Okhla D/S)
- In Uttar Pradesh stretch, from Mathura U/S till its confluence with River Ganga at Prayagraj, the BWQ of River Yamuna in the upper stretch till Etawah was in

Moderate class and lower stretch (from Auraiya to Prayagraj D/S) was in 'Good' class.

River Yamuna (Second Round)

- In Uttarkhand, stretch from Yamunotri to Dak Pathar the BWQ was in 'Very Good' class.
- At Paonta Sahib, in Himachal Pradesh the BWQ was in 'Good' class.
- In the Haryana stretch, from Kalanour, Panipat U/S & D/S the BWQ was 'moderate' class and at Hathni kund, Sonepat and Palwal was in 'Good' class.
- In Delhi, the BWQ was in Moderate class (Palla and Nizamuddin).
- From Mathura U/S to confluence with River Ganga at Prayagraj, the BWQ from Mathura U/S to Etawah, was in Moderate class and from Auraiya to its confluence point the BWQ was in 'Good' class except at Hamirpur where it was in moderate class

FIGURE 2: SAPROBIC SCORE AT LOCATIONS OF RIVER YAMUNA



**Bio-monitoring could not be conducted due to early onset of monsoon*
***Sufficient number of Benthic macro-invertebrates were not collected*

Comment of the Committee

(Please see Para No. 20 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 10) (Para No. 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.

Reply of the Government

Reply/Comments on recommendation no. 10 was sought from Municipal Corporation of Delhi, Delhi Pollution Control Committee (DPCC) & Delhi State Industrial and Infrastructure Development Corporation (DSIIDC) vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

The reply did not receive from Municipal Corporation of Delhi.

Reply received from Delhi State Industrial and Infrastructure Development Corporation vide email dated 10.05.2024 is reproduced below:

Industries Department/DSIIDC only looks after the issues related to 28 approved industrial areas in Delhi, out of which, 17 approved industrial areas are already connected to 13 Common Effluent Treatment Plants (CETPs). The remaining 11 approved industrial areas do not have CETPs as they are not water-polluting industrial areas.

Reply from National Mission for Clean (NMCG)

An Office Memorandum dated 03.06.2024 is sent to the Chief Secretary, Government of NCT of Delhi is sent to direct the DSIIDC department to take necessary action in this regard.

Comment of the Committee

(Please see Para No. 23 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

(Recommendation No. 17) (Para No. 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.

Reply of the Government

Reply/Comments on recommendation no. 17 was sought from HP Pollution Control Board, UK Pollution Control Board, U.P Pollution Control Board, CPCB, and Municipal Corporation of Delhi vide email dated 22.02.2024. Further the follow-up was done through reminders and phone calls.

The reply did not receive from Municipal Corporation of Delhi.

Reply received from Himachal Pradesh Pollution Control Board vide email dated 11.03.2024 is reproduced below:

No electric/CNG furnace has been established till date. Existing cremation process in MC limits is carried out through pyres built on crematorium under a shed. No proposal regarding electric/CNG furnaces has been submitted till date by Municipal Committee Paonta Sahib.

Reply received from Uttarakhand Pollution Control Board vide email dated 02.05.2024 is reproduced below:

There is no pollution reported in the river Yamuna due to cremation in the State of Uttarakhand. Water quality of river Yamuna 07 locations is found under category- 'A' of the Designated Best Use Water Quality Criteria and water quality of following 04 locations fall under category 'B' of the DBU category.

Reply received from Central Pollution Control Board vide email dated 08.03.2024 is reproduced below:

There is no specific study carried out with respect to Yamuna. The study carried out by CPCB i.e. Environmental Management of Crematorium of Bhopal city using cow dung wood as alternative fuel, recommended the following to manage the solid waste from crematoriums. The report is available in the following link:https://cpcb.nic.in/zobhopal/Project_Report_RDBhopal_3.pdf.

TABLE 22: ENVIRONMENTAL MANAGEMENT OF CREMATORIUM

Sl. No.	Materials	Management
1.	Cremated bones	Shall be handed over to relatives, if not collected by relatives on time stored in tinned box with full details in a designate room by the management and on yearly basis disposed of in river.
2.	Ash	Shall be handed over to relatives, if not collected by them or in case of non-claimed bodies disposed in low lying areas of crematorium
3.	Bamboo	Shall be used by crematorium management for making plant protective guard, taken by working people for their use making huts, fence etc.
4	Flower/ Straw	Shall be collected separately from other non-degradable wastes, shall be treated as wet waste and send to Municipal Solid Waste facility for wet waste, shall install a bio—digester / composter/ compost pit for large sized crematoriums.
5	Clothes	Shall be donated to needy ones
6	Utensils	Shall be donated to needy people
7	Mud pots	Shall be crushed and disposed in low lying areas
8	Metals/ Ornaments	Shall be occupied by the poor people or shall be donated to the needy ones
9	Plastic waste	Shall be collected separately and is to be collected by Nagar Nigam authority
10	Glass materials	Shall be collected separately and is to be collected by Nagar Nigam authority
11	Food materials	Shall be collected separately from other non- degradable wastes, shall be treated as wet waste and send to Municipal Solid Waste facility for wet waste, shall install a bio—digester/ composter/ compost pit for large sized crematoriums
12	Rope (Kalawa)	Shall be used to prepare and tie up the plant protective guards at crematorium
13	Hairs	Shall be collected separately and disposed off accordingly, shall be collected and can be used for amino acid preparation. More effective ways for utilizing human hairs shall be explored.

Reply received from Uttar Pradesh Pollution Control Board vide email dated 29.05.2024 is reproduced below:

The issue regarding construction of electric crematorium facilities, its commissioning and operation is related to the Urban Development Department. Hence, this information may be sought from the Urban Development Department.

Comment of the Committee

(Please see Para No. 26 of Chapter I of the Report)

(OM NO. LAFEAS-SCWRO29/6/2O24-SCWR Dated 07th February 2024.)

CHAPTER V

OBSERVATION/RECOMMENDATION IN REPSECT OF WHICH FINAL REPLY OF THE GOVERNMENT IS STILL AWAITED

NIL

NEW DELHI
March, 2025
Phalguna,1946 (Saka)

RAJIV PRATAP RUDY,
Chairperson,
Standing Committee on Water Resources

[Vide Para 4 of the Introduction]

ANALYSIS OF ACTION TAKEN BY THE GOVERNMENT ON THE RECOMMENDATIONS/OBSERVATIONS CONTAINED IN THE TWENTY SEVEN REPORT (SEVENTEENTH LOK SABHA) OF THE COMMITTEE

(i)	Total number of Recommendations/Observations	25
(ii)	Recommendation/Observations which have been accepted by the Government Recommendation Nos. 1,2,3,4,7,9,11,12,13,14,15,16,18,19,20,21,22,23,24 and 25	 Total – 20 Percentage– 80 %
(iii)	Recommendations/Observations which the Committee do not desire to pursue in view of the Government's replies Recommendation Nos. NIL	 Total – 00 Percentage – Nil
(iv)	Recommendations/Observations in respect of which replies of the Government have not been accepted by the Committee Recommendation Nos.5,6,8,10 and 17	 Total – 5 Percentage– 20%
(v)	Recommendation/Observation in respect of which final reply of the Government is still awaited Para Nos. NIL	 Total – 00 Percentage – Nil

Annexure I

LIST OF MINING BLOCKS OF DISTRICTS SONIPAT, KARNAL, PALWAL AND YAMUNANAGAR

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
DISTRICT SONEPAT														
1.	Bega	Bega	116.56	9.85	126.41	08	M/s Tirupati Earth and Project Works Pvt. Ltd., 3 Sadashiv Properties Katras Raod, Bank More, Dhanbad, Jharkhand, India-826001	27.06.2023	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
2.	Chandauli -Pabnera	Chandauli	109.78	11.13	153.06	08	M/s Tirupati Earth and Project Works Pvt. Ltd., 3 Sadashiv Properties Katras Raod, Bank More, Dhanbad, Jharkhand, India-826001	25.08.2023	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
		Pabnera	32.15	--										
3.	Mimarpur - Tikola	Mimarpur	41.01	--	107.32	09	M/s R M Secure Services Private Ltd., 15a/55, First Floor, Wea Karol Bagh, Delhi, India-110005	27.06.2023	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
		Tikola	56.31	10.00										
4.	Jainpur -1	Jainpur	84.41	7.37	91.78	09	M/s GD Infra Solution, 2nd Floor, IDPS Building, Sector-70A, Palra, Gurugram, Haryana 122101	27.06.2023	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
														EC.
5.	Jainpur	Jainpur-2 Sand Unit	109.71	--	44.40	09	M/s Yodha Mines & Minerals through Sh. Pardeep Ahlawat S/o Sh. Anand Singh, 19-P, Sector-8, Jind	09.03.2015	28.01.2016	14,40,000	31.03.2016	20.04.2016	Operational	--
6.	Asadpur	Asadpur Sand Unit	138.40	--	56.01	10	M/s Zelkova Buildcon Pvt. Ltd., 5th Floor, East Wing, World Mark-1, Tower-B, Aerocity, Delhi- 110057	02.01.2015	31.01.2017	15,50,000	07.07.2017	16.09.2017	Operational	--
DISTRICT KARNAL														
7.	Chandraon Garhpur Tapu	Chandraon	22.18	---	235.89/94.35	10	M/s Chaudhary Transport Company, Through Sh. Sidhant Randhawa, #112, Ground Floor, Santpura Road, Model Town, Yamuna Nagar.	21.06.2022	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
		Garhpur Tapu	115.32	14.83										
		Kalsora	59.56	25.00										
8.	Nabiabad	Nabiabad	101.90	--	154.72/61.89	09	M/s Darsh Minerals Pvt. Ltd., Through Sh. Gurpreet Singh Sabharwal, # 1666, Sector-4, Panchkula	21.06.2022	4.8.2023	18,81,000 TPA	4.10.2023	23.10.2023	Operat-ional	--
		Jabti Chhapra	29.62	23.2										
9.	Nangal Block	Nangal North	18.14	25.00	207.13/82.85	10	M/s Chaudhary Transport Company, Through Sh. Sidhant Randhawa, #112, Ground Floor, Santpura Road, Model Town, Yamuna Nagar.	21.06.2022	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
		Nangal North	34.80	--										
		Tatarpur	21.68	--										
		Kamalpur Gadian	107.51	--										

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
10.	Shergarh Tapu Block	Shergarh Tapu	42.50	14.91	57.41/22.96	08	M/s Enbridge Civil Corporation, through Shri Amarjeet Singh, #305-P, Sector-32, Karnal, Haryana.	21.06.2022	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
11.	Jarauli Block	Jarauli	13.30	--	192.26/76.90	09	M/s Tripta Project and Infrastructure, through Sh. Gurpreet Singh Sabharwal, # Sadashiv Properties, Katras Road, Bank More, Dhanbad, Jharkhand, India-826001.	21.06.2022	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
		Nabipur	48.33	--										
		Khirajpur	82.66	19.92										
		Mohamadpur	28.05	--										
12.	Kunda Kalan Block	Kunda Kalan	90.73	16.00	106.73/42.70	08	M/s R M Industries, through Sh. Mohit Chhikara, R/o Village Khairpur, Bahadurgarh, Haryana -124507	21.06.2022	29.08.2023	18,00,000 TPA (Sand)	11.11.2023/ 29.12.2023	06.01.2024	Operational	--
13.	Dabar Ki Par Block	Dabar Ki Par	23.17	--	211.98/84.79	10	M/s Maxx Mining Company, Through Sh. Yuvraj Sandhu, R/o House No. 465 r, Model Town, Yamuna Nagar, Haryana, India-135001.	21.06.2022	NA	NA	NA	NA	NA	The Contractor Company is under process of obtaining EC.
		Mustafabad	110.98	15.73										
		Dhakwala (North)	62.10	--										
14.	Dakhwala South Block	Dakhwala South	241.92	--	241.92/96.77	10	M/s Mahadev Enclave Private Limited, through Sh. Kartik Rathi, R/o B-37, Ayodhya Marg, Hanuman Nagar, Jaipur, Rajesthan-	21.06.2022	NA	NA	NA	NA	NA	The Contractor Company is under process of

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
							302021							obtaining EC.
DISTRICT PALWAL														
15.	Dostpur Unit	Dostpur	164.96	9.0	173.96	09	M/s Darsh Buildinfra Pvt. Ltd., through Gurpreet Singh Sabharwal, Plot No. 129, Sector4, Urban Estate, Panchkula – 134 112	24.05.2022	NA	NA	NA	NA	NA	The contractor company is under process of obtaining EC
16.	Sultanpur Unit	Sultanpur	39.25	11.00	83.54	08	M/s M.M. Traders, through Manjeet Kumar, S/o Sh. Ved Parkash Village Manglora Quidem, Karnal, Haryana – 132 037	17.08.2022	NA	NA	NA	NA	NA	The contractor company is under process of obtaining EC
		Atwa	23.41	9.88										
		Hasspur	92.94	27.75										
17.	Thantri unit	Thantri	107.29	9.10	248.46	10	M/s Minerio Mining Pvt. Ltd., through Sh. Sachin Sharma, MCD No. 01, First Floor, Samman Bazar Road, Bhogal, Delhi, South Delhi - 110014	21.07.2023	NA	NA	NA	NA	NA	The contractor company is under process of obtaining EC
		Rajpur Khadar	120.57	11.50										
18.	Pharladpur Unit	Pharladpur	105.41	0	247.07	10	M/s Tirupati Earth and Project works Pvt.Ltd.,	05.10.2023	NA	NA	NA	NA	NA	The contractor

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
		Gurwari	107.28	13.87			Through Sh. Gurpreet Singh Sabharwal, 3 Sadashiv properties Katras Road, Bank More, Dhanbad, Jharkand, India - 826001							company is under process of obtaining EC
		Chandhut (North)	20.51	0										
19.	Chandhut (South)	Chandhut (South)	228.05	17.34	245.39	10	M/s Apex Project works Through Sh. Upendra Kumar, Shop No. 1 , Manjeet filling Station Near Yamuna Pul, Village Manglora, Distt. Karnal, 132001 Haryana	05.10.2023	NA	NA	NA	NA	NA	The contractor company is under process of obtaining EC
DISTRICT YAMUNANAGAR														
20.	Mandoli Ghaggar East Block YNR B-3 BGS / River Bed Area	Mandoli Ghaggar	20.18	0	20.18	10	M/s JSM Foods Pvt. Ltd.,	19.06.2015	21.12.2016	8.58	13.06.2017	18.06.2017	Working	--
21.	Kanalsi Block/YNR-5 BGS / River Bed Area	Kanalsi	44.14	0	44.14	9	M/s P. S. Buildtech Pvt Ltd.	30.11.2015	15.09.2016	19.50	25.01.2017	27.01.2017	Working	--

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
22.	M. T. Kerhera YNR B-13 Sand / River Bed Area	M. T Kerhra	67.79	0	67.79	7	M/s Kawaljeet Singh Batra,	21.10.2016	09.04.2018	20.00	24.04.2018	24.04.2018	Working	--
23.	Nagla Rangran YNR B-14 Sand / River Bed Area	Nagla Rangran	89.48	0	89.48	9	M/s Tirupati Earth & Project Works Pvt. Ltd.,	16.06.2017	22.03.2019	38.60	16.04 .2019	16.06.2018	Working	--
24.	Nagli Block/YNR B-15 Sand / River Bed Area	Nagli	77.25	0	77.25	10	M/s M P Traders ,	20.10.2016	09.04.2018	22.40	26.04.2018	26.04.2018	Working	--
25.	Gumthala South Block/YNR B-17 Sand / River Bed Area	Gumthla	49.67	0	49.67	9	M/s Elite Mining Corporation ,	30.11.2015	09.03.2017	21.88	19.04.2017	26.04.2017	Working	--
26.	Jathlana Block/ YNRB-12 Sand/ River	Jathlana	101.27	0	101.27	10	M/s P. S. Buildtech Pvt Ltd.	30.11.2015	17.03.2017	101.27	20.04.2017	28.04.2017	Working	--

Sr No.	Mining Block/Name of Unit	Name of the Village	Area As per Revenue Record		Area (in Acres/Hect.)	Period (In Years)	Name of Highest Bidder/Company	Date of LoI	Date of Grant of EC	Production As Per EC Granted (TPA)	Date of Grant of CTO	Date of Start of Working	Present Status	Remarks
			For Mining (In Acre)	For Ancillary Area (In Acre)										
1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.
	Bed Area													
27.	Jairampur Jagir Block/YNR B-6 Sand /River Bed Area	Jairampur Jagir	33.58	0	33.58	10	M/s Balaji Infra	30.11.2015	29.01.2022	15.20	21.02.2022	18.05.2022	Closed by NGT	--

Annexure- ~~I~~ 02

DETAILS OF CHALLANS FROM THE YEAR 2018-24

Sl. No.	Year	Offence	No. of challans	Compensation amount	Recovery amount
1.	2018	Dumping of malba	1	Rs.50,000/-	Nil
2.	2019	Dumping of malba, unauthorized parking and garbage dumping in Yamuna River flood plain.	186	Rs. 90,40,000/-	Rs.25,47,500/-
3.	2020	Dumping of malba and unauthorized parking in Yamuna River flood plain.	54	Rs.21,30,000/-	Rs.6,45,000/-
4.	2021	Dumping of malba and illegal parking in Yamuna River Flood Plain	776	Rs.1,22,95,000/-	Rs.31,70,000/-
5.	2022	Dumping of malba and illegal parking in Yamuna River Flood Plain	1167	Rs.2,75,25,000/-	Rs.26,20,000/-
6.	2023	Dumping of malba and illegal parking in Yamuna River Flood Plain	1250	Rs.1,29,50,000/-	Rs.8,20,000/-
7.	2024	Dumping of malba and illegal parking in Yamuna River Flood Plain	221	Rs.73,60,000/-	Rs.1,65,000/-
		TOTAL =	**3655**	**Rs. 7,13,50,000/-**	**Rs.99,67,500/-**

Annexure 3

D.O. No. CMH-2020/7282

मनोहर लाल
MANOHAR LAL

15/1/2021

O/o CE
Dy. No. 162
Date 25/01/2021

मुख्य मन्त्री, हरियाणा,
चण्डीगढ़।
CHIEF MINISTER, HARYANA,
CHANDIGARH.

Dated 30/12/2020

Respected Sh. Shekhawat Sahib

This is your reference to your letter vide No. D.O. TE-18015/7/2020-O/o AD (RD Tech)-NMCG/866 dated 14.07.2020. First of all, I would appreciate the fact that the concerns of State of Haryana have been looked into by your office.

As regards your observations on percentage of recommended e-flow, no doubt the recommended e-flow values given in table 6.5 of the NIH report (Annexure-A) are about 30% of the median values, but median values do not reflect actual availability of water in volumetric terms. Actual availability of water in volumetric terms can only be worked out by average of the average daily discharges, table 8.1 of the NIH report has correctly reflected the same and there is no scope of any error. Annexure to my DO dated 29.5.2020 correctly reflects NIH recommended e-flow as percentage (varying from 38.58% to 61.58%) of the monthly average discharge upstream of Hathnikund Barrage during December May period and the same Annexure is again enclosed as Annexure-B herewith. NIH has recommended average e-flow of 26.47 cumecs during December-May period which is 2.647 times of the present e-flow releases of 10.0 cumecs which is just 11.33% of the median values against 30% recommended by NIH, **which amounts to nearly 300% increase of the existing e-flow of 10.0 cumecs,** which cannot be accepted by us, as it would completely jeopardize our drinking water and Irrigation requirements in the water deprived areas of Southern Haryana.

As regards your observation in the last para of your D.O. that officials from the Haryana State Government had participated in the meetings in which the NIH report was discussed, it is pointed out that Engineer in Chief Haryana Irrigation and Water Resources Department (HIWRD) **had strongly objected to the draft final report of NIH vide his e-mail dated 22.5.2020, copy of which is attached as Annexure-C.**

At present as against the allocation of 330 cusecs at HKB, we have to release 710 cs at HKB **for Delhi in compliance of Hon'ble Supreme Court Orders. This combined with the mandatory release of 352 cusecs; make a total liability of 1062 cusecs water, leaving hardly 600 to 800 cusecs of water during the month of December to May for the States of Haryana** and Uttar Pradesh. Now, NIH report suggest that average e-flow from the month of December to May should be increased from the present 10.0 cumecs to 26.47 cumecs i.e. an increase of 16.47 cumecs or 582 cs. This means that after implementation of the NIH report, balance water left for Haryana and Uttar Pradesh **would be even less than 300 cs, which is not even sufficient for drinking water needs of Southern Haryana.**

As per the MOU of 1994, a minimum e-flow in proportion of completion of upstream storages going up to 10 Cumecs is to be maintained downstream of Tajewala (now HKB) and downstream Okhla Headworks throughout the year from ecological considerations as upstream storages would be built up progressively in a phased manner. Construction of Renuka and Keshau will take another 10-15 years to complete, but without waiting for construction of these dams, 10 cumecs of e-flow is being released downstream of HKB by Haryana for environmental considerations. **Therefore, at this stage, before the revision of this MOU which is due only after 2025, it is absolutely unwarranted to reopen this issue of e-flow.**

Contd...P/2

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Resi. : H.No. 1, Sector-3, Chandigarh - 160001, Ph. 0172-2749394, 0172-2740596 (Fax)
email : cmharyana@nic.in

Haryana is concerned about pollution in River Yamuna but control of pollution cannot be achieved by increasing e-flow only. Treated and untreated sewage entering River Yamuna mainly pollutes it and efforts should be made to stop entry of such polluted water to Yamuna. Haryana has drawn up an ambitious plan to use treated waste water in the State for Irrigation and other purposes for stopping entry of treated and untreated water to River Yamuna. This will go a long way in cleaning the River Yamuna and other co-basin States should also make similar plans.

At present due to acute shortage of water upstream of Hathnikund Barrage, the channels of **Haryana have already been shifted to five P.O. (Preference Order) system wherein the channels are being run for 8 days in every 40 days period, which is an indication of severe crisis of water availability and which is not even sufficient to quench the drinking water needs** of water starved Southern Haryana. The demonstration due to scarcity of water have already started in Southern Haryana and if NIH report is implemented, then it could lead to ecological disaster for Southern Haryana where 70% of the blocks have already been declared as dark zones due to over exploitation of ground water.

It is also to inform here that, due to less availability, the supplies from Bhakra, which were to the tune of **around 9544 cusecs for Haryana, have already been reduced to 7500 cusecs. This reduction of about 2000 cusecs from Bhakra supply is already causing hue and cry in the State of Haryana, due to this net availability of water for the purpose of drinking water supply and Irrigation.**

Thus the recommended e-flow release by NIH from HKB which varies from 22.81 cumecs to 150.76 cumecs (805 cs to 5324 cs) during non-monsoon period is not acceptable to the State of Haryana at any cost. Its implementation may lead to unmanageable law and order problems and even trigger migration of population. Thus, Haryana cannot spare even a drop of water beyond 10 cumecs (352 cusecs) which is already being released in River Yamuna from HKB on daily basis.

Regarding long term planning to focus on increasing water efficiency in irrigation sector, water conservation and harvesting practice, Government of Haryana is very conscious in preserving and protecting the environment especially with respect to water conservation and water harvesting by adopting crop diversification with incentivization, use of treated waste water policy and micro irrigation projects etc.

In view of the aforementioned facts and circumstances, I would request you to reject the recommendations of NIH to increase e-flow from HKB.

With Regards

Yours sincerely,

(Manohar Lal)

Shri Gajendra Singh Shekhawat,
Minister of Jal Shakti,
Government of India,
210, Sharam Shakti Bhawan, Rafi Marg,
New Delhi.

540/WMCII
21/05/2024

Annexure-11

DELHI POLLUTION CONTROL COMMITTEE
(Government of N.C.T. of Delhi) 4th & 5th Floor, ISBT Building
Kashmere Gate, Delhi 110006
(Visit us at https://www.dpccocmms.nic.in)

LiFE Lifestyle for Environment

WATER QUALITY STATUS OF RIVER YAMUNA

REPORT NO: DPCC/W/Y/2024/ 894

DATE OF SAMPLING: 24.04.2024

Dated 21/05/2024

S. No.	Sampling locations	Latitude Longitude	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
	Water Quality Criteria ('C' Class)		6.5-8.5	-	3mg/l or less	5mg/l or more	500(desirable) 2500 (max permissible)
1	Palla	28.8138023, 77.2100181	7.11	26	2.3	6.8	$5.5x10^2$
2	Wazirabad	28.7131310, 77.2319304	7.25	42	8.7	4.2	$9.1x10^2$
3	ISBT Bridge	28.6713533, 77.2338207	7.34	136	42	NIL	$22x10^3$
4	ITO Bridge	28.6284288, 77.2534977	7.40	112	38	NIL	$14x10^3$
5	Nizamudin Bridge	28.5915608, 77.2715342	7.32	144	49	NIL	$18x10^3$
6	Okhla Barrage	77°18'49" 28°32'40"	7.20	152	53	NIL	$27x10^4$
7	Agra Canal at Okhla Barrage	28.545414, 77.311075	7.08	165	55	NIL	$34x10^4$
8	River Yamuna at Asgarpur (After confluence of Shahdara & Tuglakabad drains)	28.4657003, 77.33905231	7.04	181	58	NIL	$43x10^4$

NMoitra

I/C Water Laboratory

Dr. Nandita Moitra
Scientist 'D'

SSA/Analyst/SLA

EE(SW)
JEE(Sr. Athup)

Anupam Singh
21/05/2024

dpcc

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4th FLOOR, ISBT BUILDING, KASHMERE GATE, DELHI-06
visit us at http.//dpcc.delhigovt.nic.in

WATER QUALITY STATUS OF RIVER YAMUNA

REPORT NO: DPCC/W/Y/2024/ 785
DATE OF SAMPLING: 20.03.2024

Dated: 18.4.2024

S. No.	Locations	Latitude Longitude	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
Water Quality Criteria ('C' Class)			6.5-8.5	-	3mg/l or less	5mg/l or more	500(desirable) 2500 (max permissible)
1	Palla	28.8138023, 77.2100181	7.42	40	2	8.1	2×10^2
2	Wazirabad	28.7131310, 77.2319304	7.23	32	6	5.6	11×10^2
3	ISBT Bridge	28.6713533, 77.2338207	7.36	120	36	NIL	26×10^2
4	ITO Bridge	28.6284288, 77.2534977	7.52	96	30	0.5	17×10^2
5	Nizamudin Bridge	28.5915608, 77.2715342	7.56	144	40	NIL	20×10^4
6	Okhla Barrage	77°18'49" 28°32'40"	7.12	192	53	NIL	44×10^3
7	Agra Canal at Okhla Barrage	28.545414, 77.311075	7.11	152	43	NIL	22×10^4
8	River Yamuna at Asgarpur (After confluence of Shahdara & Tuglakabad drains)	28.4657003, 77.33905231	7.62	200	56	NIL	40×10^3

18/04/2024

EE (SU)

JLE (TC) 18/4

Nandita

I/C WATER LAB

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WATER QUALITY STATUS OF RIVER YAMUNA

REPORT NO: DPCC/W/Y/2024/ 698 Dated 07/03/2024
DATE OF SAMPLING: 02.02.2024

S. No.	Locations	Latitude Longitude	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
Water Quality Criteria ('C' Class)			6.5-8.5	-	3mg/l or less	5mg/l or more	500(desirable) 2500 (max permissible)
1	Palla	28.8138023, 77.2100181	7.32	24	1.3	9.6	2×10^2
2	Wazirabad	28.7131310, 77.2319304	7.41	48	6.7	5.3	4×10^2
3	ISBT Bridge	28.6713533, 77.2338207	7.34	136	41	NIL	11×10^3
4	ITO Bridge	28.6284288, 77.2534977	7.25	88	28	0.8	8×10^3
5	Nizamudin Bridge	28.5915608, 77.2715342	7.48	160	42	NIL	9×10^3
6	Okhla Barrage	77°18'49" 28°32'40"	7.24	176	50	NIL	17×10^4
7	Agra Canal at Okhla Barrage	28.545414, 77.311075	6.98	168	45	NIL	12×10^4
8	River Yamuna at Asgarpur (After confluence of Shahdara & Tuglakabad drains)	28.4657003, 77.33905231	6.82	184	54	NIL	25×10^4

N Mitra

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WATER QUALITY STATUS OF RIVER YAMUNA

REPORT NO: DPCC/W/Y/2024/573
DATE OF SAMPLING: 01.01.2024

Dated : 15.01.2024

S. No.	Locations	Latitude Longitude	pH	COD (mg/l)	BOD (mg/l)	DO (mg/l)	Fecal Coliform MPN/100ml
Water Quality Criteria ('C' Class)			6.5-8.5	-	3mg/l or less	5mg/l or more	500(desirable) 2500 (max permissible)
1	Palla	28.8138023, 77.2100181	7.38	32	2.5	6.4	4.0×10^2
2	Wazirabad	28.7131310, 77.2319304	7.33	46	9.0	4.0	8.2×10^2
3	ISBT Bridge	28.6713533, 77.2338207	7.30	128	37	NIL	17×10^3
4	ITO Bridge	28.6284288, 77.2534977	7.27	101	31	0.3	12×10^3
5	Nizamudin Bridge	28.5915608, 77.2715342	7.20	152	42	NIL	22×10^3
6	Okhla Barrage	77°18'49" 28°32'40"	7.09	168	44	NIL	24×10^4
7	Agra Canal at Okhla Barrage	28.545414, 77.311075	7.12	176	47	NIL	27×10^4
8	River Yamuna at Asgarpur (After confluence of Shahdara & Tuglakabad drains)	28.4657003, 77.33905231	7.52	181	54	NIL	31×10^4

Nmitra
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Annex-5

Annexure 3 Reply of the Government on Recommendation no. 7

List of projects with status on River Yamuna under Namami Gange (11 projects in the Delhi @ Rs. 2009.12 crore; 1 project in HP @ Rs. 11.57 crore; 2 projects in Haryana @ Rs. 217.87 crore; 20 Projects in UP @ Rs. 3596.15 crore)

Himachal Pradesh

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern
		(MLD)	(Rs. In crore)			
1	Sewerage Scheme for Zone II & III of Paonta Town in Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh (New – 1.72 MLD, Rehab – 1 + 0.44 MLD STPs)	3.16	11.57	Yamuna	Completed	Non-EAP (100% Central share)
	Total	3.16	11.57			

Haryana :

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern
		(MLD)	(Rs. In crore)			
1	STP & Sewerage works" in Panipat town (New 20+25 MLD; Rehab- 35+10 MLD)	90	217.87	Yamuna	Completed	Non-EAP (70% Central share, 30% State share)
2	STP & Sewerage works" in Sonipat town (New – 25 MLD, Rehab- 30 MLD)	55		Yamuna	Completed	
	Total	145	217.87			

Delhi :

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern
		(MLD)	(Rs. In crore)			
1	"Rehabilitation of Trunk Sewer No. 4, (K1)" in Kondli WWTP Catchment	0	87.43	Yamuna	completed	EAP- JICA funding) (85% Central share, 15% State share)
2	"Rehabilitation of Trunk Sewer No.5 (K2)" in Kondli WWTP Catchment	0	83.4	Yamuna	completed	EAP- JICA funding) (85% Central share, 15% State share)
3	"Providing and Laying Pressure Mains of 700-900 mm dia DI Pipes in Kondli WWTP Catchment ('K-4')"	0	59.13	Yamuna	completed	EAP- JICA funding) (85% Central share, 15% State share)

4	"Rehabilitation of Sewers of sizes varying from 600mm to 1400mm Dia. in Ashok Vihar and Jahangirpuri Area in Rithala (R1a)" in Rithala WWTP Catchment	0	43.92	Yamuna	Completed. (Only some document submission pending)	EAP- JICA funding) (85% Central share, 15% State share)
5	"Providing and Laying 1200 mm dia. DI Rising Mains from Bharat Nagar SPS to Pitampura ('R-1b'))" in Rithala WWTP Catchment	0	45.4	Yamuna	completed.	EAP- JICA funding) (85% Central share, 15% State share)
6	"Rehabilitation & Up-gradation of existing 182 MLD Rithala Phase-I STP (R2)"	182	211.79	Yamuna	Project under execution. (Liquid Line Fully operational)	EAP- JICA funding) (85% Central share, 15% State share)
7	"Rehabilitation and Up-gradation of Kondli Phase-I, II & III WWTPs (45, 114, 45 MLD) (K3)"	204	239.11	Yamuna	Project under execution. (Liquid Line Fully operational)	EAP- JICA funding) (85% Central share, 15% State share)
8	"Construction of 564 MLD (124 MGD) WWTP at Okhla ('O')"	564	665.78	Yamuna	Project under execution. Liquid Line partially operational	EAP- JICA funding) (85% Central share, 15% State share)
9	Public Outreach		20.461	Yamuna	On going	EAP- JICA funding) (85% Central share, 15% State share)
10	Consultancy Services (PMC)		37.62	Yamuna	On going	EAP- JICA funding) (85% Central share, 15% State share)
	Sub Total	950.00	1494.04			
11	Construction of 318 MLD (70 MGD) WWTP with 10 years O&M on DBO basis at Coronation Pillar, Delhi	318	515.08	Yamuna	Completed (318 MLD)	Non-EAP (50% Central share, 50% State share)
	Sub Total	318.0	515.08			
	Total	1268.0	2009.12			

Uttar Pradesh:

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern

		(MLD)	(Rs. In crore)			
1	Kairana Sewerage project (I&D) on DBOT basis	15	78.42	Yamuna	Project under execution.	Non-EAP (100% Central share)
2	Mathura Sewerage project (New 30 MLD, Rehab – 14.5+16.5+6.8 MLD STP) under hybrid annuity based PPP model	67.8	460.45	Yamuna	Completed	Non-EAP (100% Central share)
3	Renovation and Upgradation of 4 MLD STP/SPS & appurtenance works at Vrindavan (Mathura), U.P.	4	42.8	Yamuna	Completed	Non-EAP (100% Central share)
4	Agra Sewerage Scheme (Interception & Diversion Works) and construction of 10 DSTPs (New -100+35+31+11.60 = 177.6 MLD STPs) under hybrid annuity based PPP model on one city one operator policy	177.6	842.25	Yamuna	Project under execution	EAP (100% Capex under World Bank) (100% Opex under NGP)
5	Interception & Diversion (I&D) and STP works of Baghpat Town, (New-14 MLD)	14	77.36	Yamuna	Completed	Non-EAP (100% Central share)
6	Etawah Sewerage Scheme (Interception & Diversion (I&D) works) (New – 21 MLD, Rehab – 23.94 MLD STP)	44.94	140.6	Yamuna	Completed	Non-EAP (100% Central share)
7	Firozabad Sewerage Scheme (Interception & Diversion (I&D) works)	0	51.08	Yamuna	Completed	Non-EAP (100% Central share)
8	Upgradation of existing 6.25 MLD CETP at Mathura	6.25	13.87	Yamuna	Completed	Non-EAP (75% Central share, 25% State share)
9	I&D and STP Works for balance drains at Mathura under hybrid annuity based PPP model	60	292.56	Yamuna	LOA issued	Non-EAP (100% Central share)
10	Chhata town sewerage scheme (I&D and STP works), District Mathura	6	56.15	Yamuna (Kosi Drain)	Technical Bids under Evaluation	Non-EAP (100% Central share)
11	I&D and STP works at Kosi Kalan Town, District Mathura	12	66.59	Yamuna (Kosi Drain)	LOA to be issued shortly	Non-EAP (100% Central share)

12	I&D and 13 MLD STP works at Vrindavan City, District Mathura	13	77.70	Yamuna	Financial Bids under Evaluation	Non-EAP (100% Central share)
13	I&D and STP works at Hathras Town	24	128.91	Karvan	LOA to be issued shortly	Non-EAP (100% Central share)
14	I&D and STP works at Budhana, (New-10 MLD)	10	48.76	Hindon (Kali West)	Project under execution.	Non-EAP (100% Central share)
15	I&D with STP works at Muzaffarnagar, (New-32.50+22 = 44.50 MLD)	44.5	234.03	Hindon (Kali West)	Project under execution	Non-EAP (100% Central share)
16	Saharanpur Sewerage Scheme (I&D and STP works)	135	577.23	Dhamola	Financial Bids under Evaluation	EAP (100% Capex under World Bank) (100% Opex under NGP
17	I&D and STP works 40 MLD Shamli Town, Shamli	40	206.02	Hindon (krishni river)	Financial Bids under Evaluation	Non-EAP (100% Central share)
18	I&D and STP works 10 MLD Thanabhawan, Distt. Shamli	10	97.19	Hindon (krishni river)	Under Retendering	Non-EAP (100% Central share)
19	I&D and STP works 5 MLD Banat, Distt. Shamli	5	48.71	Hindon (krishni river)	Under Retendering	Non-EAP (100% Central share)
20	I&D and STP works 5 MLD Babri & Bantikhera, Distt. Shamli	5	55.47	Hindon (krishni river)	Under Retendering	Non-EAP (100% Central share)
	Total	694.09	3596.15			
	Grand Total	**2110.25**	**5834.71**			

Annex – 6

Annexure 1 -reply of UPPCB- Recomm 8 (Yamuna 1-7,2021)

Water Quality of River Yamuna In UP
Year 2021

Sampling Point

S.N.	Month	1 U/S Okhla Barrage, Noida					2 D/S Village Gharbara/Tilwara, Noida				
		DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	1.4	24.0	-	-	-	0.0	30.0	-	-	-
2	February	1.8	21.0	-	-	-	0.0	27.0	-	-	-
3	March	0.0	24.0	-	-	-	0.0	33.0	-	-	-
4	April	0.0	22.5	-	-	-	0.0	30.0	-	-	-
5	May	0.0	24.0	-	-	-	0.0	31.5	-	-	-
6	June	0.0	27.0	-	-	-	0.0	30.0	-	-	-
7	July	0.0	21.0	-	-	-	0.0	24.0	-	-	-
8	August	4.2	15.0	72.0	-	-	3.3	18.0	80.0	-	-
9	September	2.1	24.0	104.0	-	-	1.4	27.0	112.0	-	-
10	October	1.8	22.5	112.0	-	-	1.5	24.0	120.0	-	-
11	November	0.4	26.0	140.0	-	-	0.0	38.0	190.0	-	-
12	December	1.2	30.0	192.0	-	-	0.5	36.0	208.0	-	-
	Average	**1.1**	**23.4**	**124.0**	-	-	**0.6**	**29.0**	**142.0**	-	-
	Category	E					E				

S.N.	Month	3 U/s Vrindavan					4 Kesi Ghat Vrindavan				
		DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)
1	January	7.4	5.8	-	65000	28000	7.1	6.2	-	68000	31000
2	February	7.6	8.0	-	60000	25000	7.2	8.6	-	67000	28000
3	March	7.4	8.8	-	63000	37000	7.0	9.0	-	70000	38000
4	April	6.6	8.2	-	67000	41000	6.3	8.4	-	75000	44000
5	May	7.2	7.4	-	58000	34000	6.8	7.8	-	63000	31000
6	June	6.4	8.2	-	63000	39000	6.2	8.8	-	72000	41000
7	July	5.8	9.0	-	70000	41000	5.2	9.6	-	76000	43000
8	August	7.6	7.4	32.0	63000	34000	7.2	7.8	36.0	70000	39000
9	September	7.2	6.4	24.0	58000	21000	6.8	7.2	28.0	63000	22000
10	October	6.6	7.8	20.0	70000	27000	6.2	8.4	24.0	79000	31000
11	November	5.2	8.6	32.0	84000	31000	4.8	9.4	36.0	92000	34000
12	December	6.4	8.0	36.0	79000	27000	5.8	8.4	40.0	84000	33000
	Average	**6.8**	**7.8**	**28.8**	**66667**	**32083**	**6.4**	**8.3**	**32.8**	**73250**	**34583**
	Category	D					D				

S.N.	Month	5 D/s Vrindavan					6 U/s Mathura					7 Shahpur, Mathura				
		DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)
1	January	7.1	6.2	-	68000	31000	7.2	8.4	-	84000	53000	5.8	7.4	-	70000	33000
2	February	7.2	8.6	-	67000	28000	6.8	7.4	-	75000	39000	6.6	7.2	-	63000	27000
3	March	7.0	9.0	-	70000	38000	6.2	8.0	-	80000	41000	5.8	8.6	-	68000	37000
4	April	6.3	8.4	-	75000	44000	5.6	9.4	-	90000	46000	5.4	9.6	-	70000	39000
5	May	6.8	7.8	-	63000	31000	6.4	8.0	-	84000	53000	6.2	8.8	-	60000	34000
6	June	6.2	8.8	-	72000	41000	5.2	9.2	-	93000	57000	5.4	10.4	-	68000	39000
7	July	5.2	9.6	-	76000	43000	5.4	10.2	-	94000	58000	4.8	12.2	-	84000	46000
8	August	7.2	7.8	36.0	70000	39000	6.8	8.2	40.0	79000	41000	7.2	7.6	40.0	70000	41000
9	September	6.8	7.2	28.0	63000	22000	6.4	7.2	28.0	70000	27000	7.8	6.6	20.0	46000	17000
10	October	6.2	8.4	24.0	79000	31000	5.8	8.8	28.0	84000	32000	6.2	7.2	24.0	48000	20000
11	November	4.8	9.4	36.0	92000	34000	4.6	10.2	40.0	92000	33000	3.6	12.2	48.0	140000	79000
12	December	5.8	8.4	40.0	84000	33000	5.6	9.2	40.0	92000	31000	5.2	8.8	32.0	84000	31000
	Average	**6.4**	**8.3**	**32.8**	**73250**	**34583**	**6.0**	**8.7**	**35.2**	**84750**	**42583**	**5.8**	**8.9**	**32.8**	**72583**	**36917**
	Category	D					D					D				

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection
B= Outdoor bathing (organised)
C = Drinking water source after conventional treatment and disinfection
D = Propagation of wild life and fisheries.
E = Irrigation, Industrial cooling, controlled waste disposal
Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Annexure 1 -reply of UPPCB- Recomm 8 (Yamuna 8-14,2021)

Water Quality of River Yamuna In UP

S.N.	Month	Sampling Point 8					9					10					11				
		Vishram Ghat, Mathura					D/s Mathura					U/s Kailashghat, Agra					U/s Waterworks, Agra				
		D O	BOD(mg	C. O.D	Total Colifo	Fecal Co	D O	BO D(	C. O.	Total Colifo	Fecal Co	D O	BO D(	C. O.	Total Co	Fecal Colifo	D O	BO D(	C. O.	Total Co	Fecal Co
1	January	6.6	9.6	-	96000	79000	6.8	9.2	-	93000	77000	5.4	12.4	-	33000	16000	5.0	16.0	-	45000	22000
2	February	6.2	8.0	-	78000	41000	6.4	8.6	-	89000	46000	6.9	12.0	-	31000	11000	6.4	13.6	-	36000	15000
3	March	5.8	10.0	-	89000	53000	5.6	10.8	-	98000	57000	7.1	9.6	-	28000	13000	6.6	11.2	-	35000	20000
4	April	5.2	11.6	-	93000	58000	5.0	11.2	-	110000	72000	6.9	10.8	-	37000	15000	6.1	12.0	-	44000	21000
5	May	6.2	9.0	-	89000	54000	6.0	8.6	-	92000	57000	7.4	12.0	-	31000	13000	6.7	14.4	-	37000	15000
6	June	4.8	10.8	-	94000	58000	4.6	10.4	-	96000	63000	7.1	11.6	-	23000	9000	6.2	13.6	-	31000	12000
7	July	4.4	11.6	-	96000	63000	4.2	12.0	-	110000	70000	6.4	12.8	-	25000	11000	5.9	13.6	-	28000	12000
8	August	6.4	9.8	44.0	84000	47000	6.2	9.6	44.0	92000	48000	6.2	12.8	20.8	22000	11000	5.6	11.6	24.4	28000	13000
9	September	6.2	8.2	32.0	79000	31000	5.8	8.6	36.0	84000	33000	6.5	8.4	16.0	14000	7000	6.2	9.2	19.2	17000	9000
10	October	5.4	9.0	36.0	92000	33000	5.2	9.6	36.0	94000	38000	6.5	8.8	17.6	16000	9000	6.3	10.0	19.6	22000	15000
11	November	4.4	10.8	48.0	110000	43000	4.2	11.4	52.0	120000	46000	6.1	9.2	24.0	16000	9000	5.6	9.6	28.0	22000	15000
12	December	4.8	10.6	44.0	94000	33000	4.4	11.0	48.0	110000	39000	7.6	8.4	20.8	17000	8000	7.0	9.6	22.4	21000	14000
Average		**5.5**	**9.9**	**40.8**	**91167**	**49417**	**5.4**	**10.1**	**43.2**	**99000**	**53833**	**6.7**	**10.7**	**19.8**	**24417**	**11000**	**6.1**	**12.0**	**22.7**	**30500**	**15250**
Category		D					D					D					D				

S.N.	Month	Sampling Point 12					13					14				
		D/s Tajmahal, Agra					U/s Firozabad					D/s Firozabad				
		D O	BO D(	C. O.	Total Colifo	Fecal Co	D O	BO D(	C. O.	Total Co	Fecal Co	D O	BO D(mg	C. O.	Total Colifo	Fecal Colifo
1	January	4.6	20.0	-	92000	35000	5.7	20.0	-	32000	18000	5.2	21.2	-	92000	28000
2	February	5.8	14.4	-	92000	31000	5.6	19.2	-	35000	20000	5.3	21.6	-	92000	30000
3	March	5.8	13.2	-	92000	30000	5.5	18.8	-	32000	18000	5.2	20.8	-	92000	28000
4	April	5.8	14.0	-	90000	31000	5.7	20.4	-	35000	20000	5.4	22.0	-	120000	32000
5	May	5.9	16.4	-	92000	28000	5.5	20.0	-	35000	20000	5.3	22.4	-	110000	32000
6	June	5.7	15.2	-	79000	26000	5.4	17.6	-	33000	20000	5.2	19.6	-	110000	31000
7	July	5.4	15.2	-	79000	28000	5.6	18.0	-	35000	20000	5.3	20.0	-	120000	31000
8	August	5.4	15.2	24.0	79000	31000	5.8	10.0	32.0	28000	13000	5.6	11.6	36.0	30000	17000
9	September	5.6	10.4	20.8	68000	15000	5.7	10.8	24.0	30000	14000	5.5	11.6	28.0	33000	17000
10	October	5.8	12.8	20.4	52000	28000	5.5	10.4	28.0	30000	13000	5.4	11.6	30.0	34000	17000
11	November	5.4	12.4	32.0	52000	28000	5.7	12.4	36.0	33000	11000	5.5	14.0	44.0	35000	14000
12	December	6.8	10.4	24.0	90000	40000	5.4	13.2	40.0	35000	13000	5.6	14.8	44.0	40000	17000
Average		**5.7**	**14.1**	**24.2**	**79750**	**29250**	**5.6**	**15.9**	**32.0**	**32750**	**16667**	**5.4**	**17.6**	**36.4**	**75667**	**24500**
Category		D					D					D				

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection

B= Outdoor bathing (organised)

C = Drinking water source after conventional treatment and disinfection

D = Propagation of wild life and fisheries.

E = Irrigation, Industrial cooling, controlled waste disposal

Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

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Annexure 1 -reply of UPPCB- Recomm 8 (Yamuna 15-20,2021)

Water Quality of River Yamuna In UP

S.N.	Month	Sampling Point																																	
		15					16					17					18					19					20									
		U/s Etawah					D/s Etawah					U/s Water Intake, Allahabad					D/s Balua Ghat Praygraj					D/s Chhachhar nala, Prayagraj					D/s Emergency Outfall, Prayagraj									
		DO (mg/l)	BOD (mg/l)	C.O.	D.	Total Coliform	Fecal Coliform	DO (mg/l)	BOD (mg/l)	C.O.	D.	Total Coliform	Fecal Coliform	DO (mg/l)	BOD (mg/l)	C.O.	Total Coliform	Fecal Coliform	DO	BOD	C.O.	Total Coliform	Fecal Coliform	DO	BOD	C.O.	Total Coliform	Fecal Coliform	DO	BOD	C.O.	Total Coliform	Fecal Coliform	DO	BOD	C.O.	Total Coliform	Fecal Coliform
1	January	6.3	16.0	-		35000	20000	5.8	18.4	-		92000	30000	8.8	2.4	-	1300	490	8.5	1.9	-	1400	780	8.6	2.6	-	1400	680	8.7	2.5	-	1500	700					
2	February	5.7	16.8	-		35000	20000	5.3	20.8	-		92000	28000	8.9	2.5	-	1100	450	8.5	2.6	-	1400	820	8.4	2.4	-	1300	680	8.2	2.6	-	1700	680					
3	March	6.0	17.2	-		37000	22000	5.5	21.2	-		110000	31000	8.1	2.6	-	1400	450	7.9	2.6	-	1700	930	7.8	2.7	-	1200	610	8.0	2.7	-	1300	600					
4	April	5.9	20.0	-		37000	22000	5.6	22.4	-		110000	31000	7.8	2.6	-	1100	460	7.2	2.5	-	1400	680	7.4	2.5	-	1300	790	7.2	2.8	-	1200	630					
5	May	6.0	18.0	-		35000	21000	5.5	20.4	-		92000	28000	7.5	2.5	-	1300	490	7.4	2.7	-	1500	700	7.3	2.7	-	1500	680	7.3	2.6	-	1400	780					
6	June	5.8	17.2	-		33000	21000	5.6	19.2	-		92000	27000	7.7	2.2	-	1100	450	7.4	2.7	-	1100	490	7.5	2.4	-	1400	680	7.7	2.5	-	1300	680					
7	July	5.7	17.6	-		33000	22000	5.4	20.0	-		92000	28000	7.8	2.2	-	1200	560	7.8	2.5	-	1700	610	7.6	2.5	-	1700	600	7.2	2.6	-	1400	610					
8	August	5.7	9.6	24.0		22000	11000	5.4	10.8	28.0		28000	13000	7.9	2.3	8.0	1400	610	7.7	2.6	8	1700	680	7.8	2.5	8.0	1700	680	7.8	2.5	10.0	1500	700					
9	September	6.0	11.2	28.0		26000	14000	5.7	12.4	32.0		30000	17000	7.8	2.4	6.0	1100	450	7.8	2.5	6.0	1700	600	7.7	2.6	8.0	1400	680	7.6	2.6	8.0	1400	610					
10	October	5.7	9.2	30.0		28000	13000	5.5	11.2	36.0		35000	17000	7.9	2.3	6.0	1200	560	7.6	2.6	8.0	1700	680	7.5	2.7	8.0	1700	680	7.6	2.8	6.0	1300	600					
11	November	5.5	12.8	36.0		34000	14000	5.3	16.4	48.0		40000	21000	8.4	2.4	8.0	1100	400	8.2	2.7	8.0	1300	450	8.0	2.8	10.0	1400	610	8.3	2.7	8.0	1400	560					
12	December	6.1	12.8	34.0		35000	14000	5.7	15.6	44.0		50000	23000	8.8	2.2	6.0	1100	450	8.5	2.7	6.0	1400	600	8.4	2.8	10.0	1400	610	8.6	2.7	8.0	1400	600					
Average		**5.9**	**14.9**	**30.4**		**32500**	**17833**	**5.5**	**17.4**	**37.6**		**71917**	**24500**	**8.1**	**2.4**	**6.8**	**1200**	**485**	**7.9**	**2.6**	**7.2**	**1500**	**668**	**7.8**	**2.6**	**8.8**	**1450**	**665**	**7.9**	**2.6**	**8.0**	**1400**	**646**					
Category		D					D					C					C					C					C									

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection

B= Outdoor bathing (organised)

C = Drinking water source after conventional treatment and disinfection

D = Propagation of wild life and fisheries.

E = Irrigation, Industrial cooling, controlled waste disposal

Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Water Quality of River Yamuna In UP
Year 2022

Sampling Point

S.N.	Month	1 U/S Okhla Barrage, Noida pH	DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	2 D/S Village Gharbara/Tilwara, Noida pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	1.2	42.0	168.0	-	-	-	0.0	48.0	184.0	-	-
2	February	-	1.3	36.0	172.0	-	-	-	0.0	45.0	208.0	-	-
3	March	7.42	1.1	42.0	168.0	-	-	7.64	0.0	48.0	188.0	-	-
4	April	7.56	1.6	45.0	176.0	-	-	7.44	0.0	51.0	192.0	-	-
5	May	7.49	0.0	33.0	152.0	-	-	7.62	0.0	42.0	176.0	-	-
6	June	7.49	1.2	36.0	144.0	-	-	7.56	0.0	42.0	160.0	-	-
7	July	7.68	2.6	33.0	152.0	-	-	7.75	0.0	45.0	176.0	-	-
8	August	7.46	4.3	24.0	128.0	-	-	7.52	2.6	30.0	144.0	-	-
9	September	7.51	4.5	21.0	144.0	-	-	7.67	2.2	30.0	184.0	-	-
10	October	7.51	3.4	27.0	136.0	-	-	7.49	1.1	36.0	176.0	-	-
11	November	7.46	3.9	30.0	144.0	-	-	7.53	1.4	42.0	192.0	-	-
12	December	7.58	1.2	32.0	154.0	-	-	7.84	Nil	38.0	185.6	-	-
	Average	7.52	2.2	33.4	153.2	-	-	7.61	0.7	41.4	180.5	-	-
	Category	E						E					

S.N.	Month	3 U/s Vrindavan pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	FeacalColiform (MPN/100ml)	4 Kesi Ghat Vrindavan pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	FeacalColiform (MPN/100ml)
1	January	-	6.8	7.6	28.0	70000	26000	-	5.4	8.0	32.0	79000	31000
2	February	-	5.6	8.8	34.0	79000	27000	-	5.2	9.2	36.0	84000	32000
3	March	7.3	4.8	11.4	36.0	84000	31000	7.2	4.6	11.8	40.0	92000	34000
4	April	7.8	6.4	9.6	40.0	79000	26000	7.9	6.2	10.4	44.0	84000	31000
5	May	7.7	6.2	11.0	44.0	84000	31000	7.8	5.8	12.0	48.0	92000	33000
6	June	7.6	5.2	12.4	36.0	92000	34000	7.7	6.6	12.8	44.0	94000	39000
7	July	7.9	7.8	9.0	32.0	70000	23000	8.1	7.4	9.6	36.0	79000	27000
8	August	7.3	7.2	6.6	24.0	63000	17000	7.5	6.8	7.2	28.0	70000	22000
9	September	7.4	6.4	8.8	28.0	70000	21000	7.6	5.8	9.6	32.0	79000	27000
10	October	7.7	7.0	7.8	16.0	58000	17000	8.1	6.6	8.6	20.0	70000	22000
11	November	7.6	6.4	8.8	32.0	63000	21000	7.8	5.2	10.6	36.0	79000	23000
12	December	7.6	6.4	8.8	32.0	63000	21000	7.6	4.4	10.8	44.0	84000	26000
	Average	7.6	6.4	9.2	31.8	72917	24583	7.7	5.8	10.1	36.7	82167	28917
	Category	D						D					

S.N.	Month	5 D/s Vrindavan pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	FeacalColiform (MPN/100ml)	6 U/s Mathura pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	FeacalColiform (MPN/100ml)	7 Shahpur, Mathura pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	FeacalColiform (MPN/100ml)
1	January	-	5.4	8.0	32.0	79000	31000	-	5.8	8.6	36.0	84000	33000	-	4.8	10.2	40.0	94000	39000
2	February	-	5.2	9.2	36.0	84000	32000	-	5.4	9.0	40.0	92000	34000	-	5.6	9.8	32.0	92000	38000
3	March	7.2	4.6	11.8	40.0	92000	34000	7.4	4.4	12.6	48.0	94000	43000	7.6	3.6	15.4	56.0	120000	46000
4	April	7.9	6.2	10.4	44.0	84000	31000	7.9	5.8	11.2	44.0	84000	33000	7.7	4.6	13.4	52.0	140000	70000
5	May	7.8	5.8	12.0	48.0	92000	33000	8.0	5.6	13.2	52.0	94000	39000	7.6	5.6	15.4	56.0	150000	63000
6	June	7.7	4.6	12.8	44.0	94000	39000	7.3	4.8	14.4	52.0	110000	49000	*	*	*	*	*	*
7	July	8.1	7.4	9.6	36.0	79000	27000	7.8	7.2	10.2	36.0	84000	33000	7.9	6.2	12.4	44.0	94000	46000
8	August	7.5	6.8	7.2	28.0	70000	22000	7.5	6.8	8.0	28.0	70000	26000	7.6	6.8	8.6	28.0	79000	22000
9	September	7.6	5.8	9.6	32.0	79000	27000	7.6	6.0	9.4	28.0	84000	27000	7.7	5.8	9.2	32.0	70000	26000
10	October	8.1	6.6	8.6	20.0	70000	22000	7.1	6.6	8.2	24.0	49000	13000	7.5	6.0	10.8	28.0	63000	21000
11	November	7.8	5.2	10.6	36.0	79000	23000	7.6	6.0	9.4	36.0	58000	23000	7.9	4.8	13.6	44.0	84000	31000
12	December	7.8	5.2	10.6	36.0	79000	23000	7.8	4.8	10.4	40.0	79000	27000	8.2	4.6	14.2	48.0	94000	33000
	Average	7.8	5.7	10.0	36.0	81750	28667	7.6	5.8	10.4	38.7	81833	31667	7.7	5.3	12.1	41.8	98182	39545
	Category	D						D						D					

Note-* Sampling not done.

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection
B= Outdoor bathing (organised)
C = Drinking water source after conventional treatment and disinfection
D = Propagation of wild life and fisheries.
E = Irrigation, Industrial cooling, controlled waste disposal
Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Water Quality of River Yamuna In UP
Year 2022

Sampling Point

S.N.	Month	8 Vishram Ghat, Mathura pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	9 D/s Mathura pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	5.4	9.4	40.0	92000	32000	-	4.2	9.6	40.0	92000	38000
2	February	-	4.6	10.0	44.0	94000	38000	-	4.4	10.2	48.0	110000	39000
3	March	7.6	4.2	13.4	52.0	110000	46000	7.5	4.2	13.8	52.0	120000	49000
4	April	8.1	5.4	11.4	48.0	92000	40000	8.2	5.2	11.8	52.0	94000	43000
5	May	7.9	5.2	13.6	48.0	110000	46000	8.1	4.4	14.0	52.0	120000	49000
6	June	7.3	4.4	15.6	56.0	120000	63000	7.2	4.2	16.0	60.0	140000	58000
7	July	7.7	6.8	10.6	40.0	92000	40000	7.8	6.6	11.0	48.0	94000	43000
8	August	7.4	6.4	8.2	32.0	79000	27000	7.6	6.2	8.6	32.0	84000	31000
9	September	7.8	5.8	10.0	32.0	94000	32000	7.9	5.6	10.2	36.0	110000	33000
10	October	7.4	6.0	9.0	28.0	70000	17000	7.3	5.6	9.4	32.0	79000	22000
11	November	8.0	5.4	10.0	40.0	63000	26000	7.9	5.6	11.0	40.0	84000	31000
12	December	7.9	4.6	12.6	48.0	94000	32000	8.0	4.2	13.4	52.0	84000	31000
	Average	7.7	5.4	11.2	42.3	92500	36583	7.8	5.0	11.6	45.3	100917	38917
	Category	D						D					

S.N.	Month	10 U/s Kailashghat, Agra pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	11 U/s Waterworks, Agra pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	6.6	10.4	20.0	11000	7000	-	6.3	12.4	24.0	21000	14000
2	February	-	6.4	8.0	20.0	17000	11000	-	5.7	10.0	24.0	26000	13000
3	March	7.38	7.2	9.6	16.0	26000	13000	7.57	6.8	10.4	20.0	34000	22000
4	April	7.68	6.4	10.4	24.0	28000	14000	7.81	6.2	10.8	28.0	35000	17000
5	May	7.40	8.5	8.0	16.0	26000	14000	7.60	7.8	10.0	24.0	33000	22000
6	June	7.40	6.2	9.6	20.0	26000	14000	7.60	5.9	10.4	24.0	34000	22000
7	July	7.10	7.0	8.2	16.0	21000	13000	7.40	6.7	9.6	20.0	32000	14000
8	August	7.60	6.0	7.2	12.0	11000	7000	7.80	5.8	7.6	16.0	17000	12000
9	September	7.50	6.1	7.6	16.0	17000	12000	7.70	5.6	7.6	20.0	32000	14000
10	October	7.40	6.0	7.2	16.0	11000	7000	7.60	5.8	7.6	20.0	17000	12000
11	November	7.00	8.6	7.6	16.0	12000	6800	7.20	8.3	7.6	16.0	15000	9300
12	December	7.10	8.1	8.8	20.0	11000	7000	7.40	7.8	8.8	20.0	15000	9300
	Average	7.36	6.9	8.6	17.7	18083	10483	7.57	6.6	9.4	21.3	25917	15050
	Category	D						D					

S.N.	Month	12 D/s Tajmahal, Agra pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	13 U/s Firozabad pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	5.9	12.8	28.0	34000	22000	-	6.1	16.8	36.0	30000	13000
2	February	-	5.3	11.6	28.0	80000	50000	-	5.6	11.6	36.0	30000	14000
3	March	7.83	6.6	11.6	24.0	60000	30000	7.8	5.9	12.4	32.0	27000	11000
4	April	7.89	5.9	11.6	32.0	60000	30000	7.8	5.4	14.6	36.0	30000	14000
5	May	7.80	6.6	12.0	28.0	80000	30000	7.9	5.6	15.2	40.0	34000	14000
6	June	7.80	5.6	11.2	28.0	70000	30000	7.8	5.8	15.6	44.0	40000	17000
7	July	7.8	6.0	10.4	24.0	63000	26000	7.6	5.6	11.2	32.0	28000	11000
8	August	7.9	5.4	8.0	20.0	32000	14000	7.7	5.5	6.0	20.0	15000	8400
9	September	7.9	5.5	11.2	24.0	58000	25000	7.8	5.7	10.0	28.0	28000	11000
10	October	7.8	5.4	8.4	24.0	33000	21000	8.1	5.6	6.4	24.0	22000	7900
11	November	6.7	7.2	9.2	20.0	38000	21000	7.8	5.1	11.6	32.0	35000	13000
12	December	6.8	7.3	10.0	24.0	32000	14000	7.6	5.4	13.6	36.0	43000	15000
	Average	7.62	6.1	10.7	25.3	53333	26083	7.8	5.6	11.6	33.0	30167	12442
	Category	D						D					

S.N.	Month	14 D/s Firozabad pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	5.9	13.2	40.0	35000	17000
2	February	-	5.8	14.0	44.0	35000	17000
3	March	7.6	5.6	14.8	40.0	33000	13000
4	April	7.6	5.2	15.6	44.0	35000	17000
5	May	7.8	5.2	16.8	44.0	40000	17000
6	June	7.9	5.5	17.2	48.0	60000	21000
7	July	7.7	5.3	13.2	40.0	43000	17000
8	August	7.8	5.4	7.2	28.0	21000	11000
9	September	7.7	5.5	13.6	32.0	43000	14000
10	October	8.3	5.4	7.6	28.0	28000	9400
11	November	7.9	5.3	13.2	40.0	43000	17000
12	December	7.7	5.2	16.4	48.0	92000	24000
	Average	7.8	5.4	13.6	39.7	42333	16200
	Category	D					

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection
B= Outdoor bathing (organised)
C = Drinking water source after conventional treatment and disinfection
D = Propagation of wild life and fisheries.
E = Irrigation, Industrial cooling, controlled waste disposal
Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Water Quality of River Yamuna In UP
Year 2022

Sampling Point

S.N.	Month	15 U/s Etawah pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	16 D/s Etawah pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	6.3	13.6	34.0	34000	13000	-	6.0	16.4	40.0	40000	22000
2	February	-	6.4	10.4	32.0	30000	12000	-	6.1	13.2	40.0	40000	17000
3	March	7.7	6.0	12.8	32.0	30000	14000	7.5	5.7	13.6	44.0	34000	17000
4	April	7.8	5.8	13.2	34.0	28000	14000	7.5	5.5	15.2	42.0	35000	17000
5	May	7.7	5.3	16.4	40.0	40000	17000	7.8	5.1	18.4	52.0	70000	30000
6	June	7.8	6.0	16.8	44.0	50000	21000	7.7	5.8	18.8	56.0	80000	30000
7	July	7.8	5.9	15.6	40.0	43000	17000	7.8	5.6	16.8	48.0	54000	22000
8	August	7.6	5.6	5.8	20.0	21000	9400	7.7	5.4	7.4	32.0	35000	14000
9	September	7.7	5.6	7.2	24.0	24000	11000	7.8	5.4	8.4	32.0	35000	15000
10	October	7.7	5.2	7.4	28.0	24000	9400	7.8	5.0	8.6	32.0	35000	13000
11	November	7.5	5.6	11.2	32.0	28000	12000	7.7	5.4	14.0	44.0	54000	21000
12	December	7.8	5.7	12.4	36.0	43000	17000	7.7	5.5	15.2	52.0	160000	28000
	Average	**7.7**	**5.8**	**11.9**	**33.0**	**32917**	**13900**	**7.7**	**5.5**	**13.8**	**42.8**	**56000**	**20500**
	Category	D						D					

S.N.	Month	17 U/s Water Intake, Allahabad pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	18 D/s Balua Ghat Praygraj pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	9.5	2.1	8.0	1100	400	-	8.8	2.7	8.0	1400	610
2	February	-	8.8	2.3	6.0	1200	450	-	8.4	2.8	6.0	1700	600
3	March	7.82	8.2	2.4	8.0	1300	400	7.95	8.0	2.6	8.0	1400	560
4	April	7.76	8.3	2.3	6.0	1200	450	7.91	8.2	2.6	10.0	1700	610
5	May	7.78	7.8	2.4	6.0	1300	400	8.09	7.6	2.6	10.0	1700	560
6	June	7.83	7.9	2.3	8.0	1200	400	8.11	7.8	2.6	8.0	1500	610
7	July	7.72	7.5	2.4	6.0	1100	400	7.88	7.1	2.5	10.0	1300	450
8	August	7.28	7.1	2.5	6.0	1100	400	7.56	6.5	2.7	8.0	1200	400
9	September	7.57	7.0	2.4	8.0	1200	400	7.61	6.6	2.6	8.0	1300	450
10	October	7.31	7.3	2.5	4.0	1300	450	10.50	6.8	2.7	6.0	1600	610
11	November	7.25	7.7	2.4	4.0	1200	400	7.63	7.5	2.8	8.0	1700	680
12	December	7.19	7.9	2.5	6.0	1200	410	7.72	7.8	2.7	8.0	1400	450
	Average	**7.55**	**7.9**	**2.4**	**6.3**	**1200**	**413**	**8.10**	**7.6**	**2.7**	**8.2**	**1492**	**549**
	Category	C						C					

S.N.	Month	19 D/s Chhachhar nala, Prayagraj pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	20 D/s Emergency Outfall, Prayagraj pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	-	9.2	2.7	10.0	1300	600	-	9.3	2.6	6.0	1100	450
2	February	-	8.5	2.6	8.0	1700	610	-	8.7	2.5	8.0	1400	560
3	March	7.89	7.8	2.8	10.0	1400	610	8.00	8.1	2.6	8.0	1700	610
4	April	7.85	8.0	2.6	8.0	1500	560	7.95	7.9	2.5	8.0	1300	400
5	May	8.13	7.5	2.7	10.0	1700	610	8.06	7.6	2.7	8.0	1500	560
6	June	8.06	7.7	2.6	8.0	1500	560	8.10	7.5	2.5	10.0	1400	550
7	July	7.81	7.2	2.6	10.0	1400	550	7.86	7.0	2.6	10.0	1500	560
8	August	7.58	6.7	2.7	8.0	1300	450	7.42	6.8	2.8	8.0	1400	550
9	September	7.6	6.8	2.6	10.0	1400	550	7.59	6.7	2.7	8.0	1300	450
10	October	7.42	7.0	2.7	6.0	1700	680	7.39	7.1	2.6	6.0	1400	600
11	November	7.51	7.5	2.9	8.0	1700	610	7.61	7.4	2.8	6.0	1500	560
12	December	7.56	7.7	2.8	10.0	1300	450	7.49	7.7	2.6	8.0	1200	400
	Average	**7.74**	**7.6**	**2.7**	**8.8**	**1492**	**570**	**7.75**	**7.7**	**2.6**	**7.8**	**1392**	**521**
	Category	C						C					

	Class of water	A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection

B= Outdoor bathing (organised)

C = Drinking water source after conventional treatment and disinfection

D = Propagation of wild life and fisheries.

E = Irrigation, Industrial cooling, controlled waste disposal

Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Water Quality of River Yamuna In UPYear 2023

S.No.	Month	Sampling Point 1: U/S Okhla Barrage, Noida						Sampling Point 2: D/S Village Gharbara/Tilwara, Noida						Sampling Point 3: U/s Vrindavan						Sampling Point 4: Kesi Ghat Vrindavan						Sampling Point 5: D/s Vrindavan (Kesi Ghat)						Sampling Point 6: U/s Mathura						Sampling Point 7: Shahpur, Mathura					
		pH	DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	pH	DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	pH	DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	pH	DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)	pH	DO (mg/l)	BOD (mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Feacal Coliform (MPN/100ml)
1	January	7.68	4.3	26.0	137.6	-	-	7.72	1.2	31.0	144.0	-	-	8.2	4.8	10.0	40.0	79000	27000	7.9	4.2	11.2	48.0	94000	31000	7.9	4.2	11.2	48.0	94000	31000	7.7	5.2	11.2	44.0	84000	31000	7.8	4.2	15.6	52.0	110000	46000
2	February	7.58	4.6	18.0	112.0	-	-	7.86	1.1	24.0	128.0	-	-	7.7	6.2	9.4	32.0	63000	23000	7.6	5.6	10.4	44.0	79000	27000	7.6	5.6	10.4	44.0	79000	27000	7.9	5.8	9.8	36.0	70000	26000	7.6	5.4	13.6	48.0	94000	43000
3	March	6.84	0.0	46.0	192.0	-	-	7.01	0.0	18.0	224.0	-	-	8.1	5.4	10.8	40.0	70000	26000	7.8	4.8	11.6	52.0	84000	33000	7.8	4.8	11.6	52.0	84000	33000	7.8	4.6	11.4	44.0	79000	27000	7.9	4.8	14.6	56.0	110000	49000
4	April	6.87	2.8	18.0	232.0	-	-	6.94	1.2	32.0	256.0	-	-	8.0	6.0	9.0	24.0	79000	27000	8.0	5.2	10.8	48.0	79000	27000	7.9	5.6	10.2	44.0	63000	26000	7.6	6.0	10.2	40.0	70000	23000	7.7	5.0	13.8	48.0	94000	46000
5	May	8.16	4.3	17.0	144.0	-	-	7.84	1.2	22.0	168.0	-	-	8.2	5.6	10.2	32.0	70000	23000	7.7	4.4	11.6	52.0	79000	27000	8.1	5.2	10.6	48.0	84000	31000	7.9	5.0	12.2	52.0	94000	33000	8.0	5.8	13.2	40.0	84000	43000
6	June	6.90	3.4	20.0	152.0	-	-	7.21	1.1	16.0	144.0	-	-	*	*	*	*	*	*	8.2	4.8	11.2	52.0	94000	32000	*	*	*	*	*	*	8.2	5.8	10.4	36.0	70000	23000	8.1	5.0	14.2	52.0	110000	49000
7	July	7.55	7.6	9.0	48.0	-	-	*	*	*	*	-	-	7.6	6.4	7.8	20.0	47000	17000	7.9	6.8	8.2	28.0	49000	22000	7.7	6.2	8.0	28.0	48000	21000	7.8	6.6	8.6	32.0	58000	23000	8.0	6.2	10.4	40.0	70000	26000
8	August	7.34	5.6	12.0	64.0	-	-	7.86	4.8	10.0	48.0	-	-	7.5	6.6	7.6	32.0	41000	14000	7.8	7.4	7.6	28.0	49000	22000	7.7	7.9	8.8	36.0	58000	23000	7.9	6.6	7.8	28.0	70000	23000	8.1	6.6	9.2	36.0	58000	23000
9	September	7.86	3.8	14.0	48.0	-	-	7.55	1.2	12.0	64.0	-	-	7.9	7.0	8.4	40.0	63000	23000	7.8	6.8	9.0	40.0	79000	27000	8.2	6.4	10.2	44.0	84000	31000	7.6	6.2	9.8	40.0	58000	23000	7.6	7.2	9.6	40.0	63000	23000
10	October	7.68	4.2	16.0	80.0	-	-	7.28	2.1	18.0	96.0	-	-	7.7	7.2	8.0	32.0	49000	22000	7.9	6.6	9.4	40.0	63000	26000	7.8	6.8	9.2	36.0	58000	23000	8.0	6.0	10.2	44.0	41000	14000	7.7	7.2	9.8	40.0	79000	27000
11	November	7.62	3.4	18.0	16.0	-	-	8.02	1.1	21.0	120.0	-	-	7.6	7.4	7.8	24.0	47000	17000	7.7	7.0	8.2	28.0	49000	22000	7.6	7.2	8.4	28.0	48000	21000	8.1	6.6	8.4	32.0	39000	12000	7.8	6.8	10.0	40.0	79000	27000
12	December	7.28	4.6	12.0	64.0	-	-	7.55	1.9	18.0	80.0	-	-	-	-	-	-	-	-	7.9	4.0	11.6	32.0	49000	22000	-	-	-	-	-	-	7.9	6.0	9.6	28.0	47000	20000	7.6	4.2	9.2	20.0	70000	26000
	Average	7.45	4.1	18.8	107.5	-	-	7.53	1.5	20.2	133.8	-	-	7.9	6.3	8.9	31.6	60800	21900	7.9	5.6	10.1	41.0	70583	26500	7.8	6.0	9.9	40.8	70000	26700	7.9	5.9	10.0	38.0	65000	23167	7.8	5.7	11.9	42.7	85083	35667
	Category	D						E						D						D						D						D						D					

Note-* Sampling not done.

	Class of water	A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection

B= Outdoor bathing (organised)

C = Drinking water source after conventional treatment and disinfection

D = Propagation of wild life and fisheries.

E = Irrigation, Industrial cooling, controlled waste disposal

Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Water Quality of River Yamuna In UP
Year 2023

Sampling Point 8 — Vishram Ghat, Mathura

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	8.2	4.8	13.2	52.0	110000	33000
2	February	7.8	5.6	10.8	40.0	94000	31000
3	March	8.1	4.2	12.6	48.0	110000	22000
4	April	7.9	5.8	11.4	44.0	94000	21000
5	May	7.8	4.8	12.8	56.0	120000	26000
6	June	8.1	5.4	11.6	40.0	64000	26000
7	July	7.9	6.4	9.2	36.0	70000	21000
8	August	7.7	6.4	8.0	32.0	63000	23000
9	September	7.9	6.6	10.4	44.0	47000	20000
10	October	7.8	6.2	10.4	48.0	47000	20000
11	November	7.6	6.8	9.8	14.0	41000	14000
12	December	7.7	5.6	10.6	32.0	49000	22000
	Average	7.9	5.7	10.9	40.5	75750	23250
	Category	D					

Sampling Point 9 — D/s Mathura

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.8	4.4	14.0	56.0	120000	38000
2	February	8.0	5.2	11.6	48.0	110000	33000
3	March	8.2	4.0	13.8	52.0	130000	34000
4	April	7.9	5.6	12.4	48.0	120000	32000
5	May	8.0	4.6	13.4	60.0	150000	38000
6	June	8.1	4.6	13.2	56.0	130000	34000
7	July	8.0	6.2	9.6	36.0	63000	26000
8	August	8.0	6.2	8.8	40.0	79000	27000
9	September	7.8	5.8	10.6	52.0	63000	26000
10	October	8.1	5.8	10.8	52.0	70000	26000
11	November	7.9	6.4	10.0	44.0	58000	21000
12	December	8.0	5.2	10.4	32.0	58000	23000
	Average	8.0	5.3	11.6	48.0	95917	29833
	Category	D					

Sampling Point 10 — U/s Kailashghat, Agra

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.8	7.4	8.4	16.0	9300	6800
2	February	7.6	7.2	8.4	16.0	9300	6800
3	March	7.6	7.4	9.2	16.0	9300	6800
4	April	7.7	7.5	9.6	16.0	11000	7000
5	May	7.7	8.0	14.4	20.0	9300	6800
6	June	7.80	7.9	14.4	20.0	11000	7000
7	July	7.60	7.8	6.8	12.0	10000	6100
8	August	7.50	7.7	6.4	12.0	9300	6800
9	September	7.60	7.6	6.8	12.0	7800	4500
10	October	7.70	7.5	7.2	12.0	11000	4000
11	November	7.80	7.2	7.6	13.0	7800	4500
12	December	7.6	7.2	7.6	12.0	7800	4500
	Average	7.67	7.5	8.9	14.8	9408	5967
	Category	D					

Sampling Point 11 — U/s Waterworks, Agra

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.6	7.2	8.6	20.0	15000	9300
2	February	7.5	6.8	8.8	20.0	11000	7000
3	March	7.5	7.2	9.6	16.0	11000	7000
4	April	7.5	7.3	10.0	20.0	15000	9300
5	May	7.6	7.7	15.2	24.0	11000	7000
6	June	7.50	7.7	15.2	24.0	25000	17000
7	July	7.50	7.7	7.2	16.0	11000	7000
8	August	7.40	7.6	6.8	12.0	11000	7000
9	September	7.50	7.5	6.8	16.0	9300	6800
10	October	7.50	7.4	7.6	14.0	13000	6000
11	November	7.5	7.0	8.0	14.0	9300	6800
12	December	7.4	7.0	8.0	14.0	9300	6800
	Average	7.50	7.3	9.3	17.5	12575	8083
	Category	D					

Sampling Point 12 — D/s Tajmahal, Agra

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	6.7	6.9	9.0	24.0	32000	14000
2	February	7.3	6.7	9.2	24.0	25000	13000
3	March	7.2	6.8	10.4	20.0	32000	14000
4	April	7.1	6.9	10.4	24.0	25000	17000
5	May	7.5	6.8	15.6	28.0	15000	9300
6	June	7.40	6.9	15.6	28.0	33000	17000
7	July	7.3	6.9	7.6	16.0	15000	9300
8	August	7.2	6.8	7.2	16.0	14000	7800
9	September	7.4	7.0	8.8	20.0	11000	6800
10	October	7.4	6.9	8.4	16.0	14000	6800
11	November	7.4	6.6	8.4	16.0	11000	6800
12	December	7.2	6.6	8.4	16.0	14000	7000
	Average	7.26	6.8	9.9	20.7	20083	10733
	Category	D					

Sampling Point 13 — U/s Firozabad

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.7	5.3	12.0	40.0	54000	17000
2	February	7.6	5.6	15.2	44.0	54000	21000
3	March	7.7	5.9	18.8	48.0	58000	24000
4	April	7.7	5.6	19.2	48.0	63000	26000
5	May	7.7	5.5	18.4	48.0	58000	21000
6	June	7.7	5.4	17.2	44.0	54000	21000
7	July	7.6	5.0	9.6	28.0	43000	13000
8	August	7.7	5.3	10.4	28.0	28000	8400
9	September	7.6	4.9	10.8	28.0	28000	8400
10	October	7.5	5.9	14.0	44.0	35000	9400
11	November	7.6	6.2	14.8	40.0	35000	9400
12	December	7.7	6.4	14.4	42.0	48000	13000
	Average	7.7	5.6	14.6	40.2	46500	15967
	Category	D					

Sampling Point 14 — D/s Firozabad

S.N.	Month	pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.8	5.2	14.0	48.0	92000	28000
2	February	7.7	5.4	16.8	48.0	92000	35000
3	March	7.8	5.7	20.4	56.0	94000	39000
4	April	7.8	5.5	22.4	52.0	110000	43000
5	May	7.8	5.3	21.2	56.0	94000	39000
6	June	7.8	5.2	18.8	52.0	92000	35000
7	July	7.7	5.2	11.2	36.0	54000	21000
8	August	7.8	5.5	11.6	32.0	35000	9400
9	September	7.7	5.1	12.4	36.0	35000	11000
10	October	7.6	5.7	16.4	52.0	43000	13000
11	November	7.7	5.9	16.8	46.0	54000	14000
12	December	7.8	6.2	17.6	52.0	63000	24000
	Average	7.8	5.5	16.6	47.2	71500	25950
	Category	D					

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection
B= Outdoor bathing (organised)
C = Drinking water source after conventional treatment and disinfection
D = Propagation of wild life and fisheries.
E = Irrigation, Industrial cooling, controlled waste disposal
Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Water Quality of River Yamuna In UP
Year 2023

Sampling Point

S.N.	Month	15 U/s Etawah pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	16 D/s Etawah pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.6	6.1	14.4	44.0	54000	21000	7.5	5.7	16.8	56.0	160000	35000
2	February	7.6	4.9	13.6	40.0	92000	24000	7.7	5.1	16.4	52.0	160000	35000
3	March	7.5	6.1	18.4	48.0	94000	33000	7.6	5.8	21.2	60.0	140000	40000
4	April	7.6	5.9	18.8	48.0	94000	40000	7.7	5.7	22.0	56.0	120000	46000
5	May	7.7	5.8	16.0	44.0	70000	34000	7.9	5.5	18.4	56.0	110000	41000
6	June	7.8	6.0	17.6	44.0	84000	34000	7.7	5.7	21.6	56.0	110000	43000
7	July	7.6	5.6	7.2	20.0	14000	4900	7.7	5.8	8.4	28.0	21000	7000
8	August	7.6	5.3	8.4	24.0	17000	5800	7.8	5.5	10.4	36.0	28000	9400
9	September	7.5	5.7	12.8	36.0	35000	11000	7.6	5.5	16.8	48.0	54000	17000
10	October	7.4	5.8	14.4	40.0	*	*	7.5	5.6	17.6	52.0	*	*
11	November	7.7	6.2	15.2	42.0	43000	14000	7.6	5.9	18.4	56.0	92000	22000
12	December	7.6	6.5	15.6	44.0	54000	22000	7.5	6.2	19.2	59.0	160000	28000
	Average	7.6	5.8	14.4	39.5	59182	22155	7.7	5.7	17.3	51.3	105000	29400
	Category	D						D					

S.N.	Month	17 U/s Water Intake, Allahabad pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	18 D/s Balua Ghat Praygraj pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	7.85	8.9	2.4	8.0	1300	450	8.19	8.4	2.6	8.0	1500	610
2	February	8.11	8.5	2.5	8.0	1200	400	8.28	8.3	2.5	10.0	1400	400
3	March	8.18	8.4	2.4	6.0	1300	450	8.33	8.1	2.6	8.0	1500	610
4	April	7.86	8.2	2.3	8.0	1400	400	8.16	8.0	2.6	10.0	1700	680
5	May	7.91	8.0	2.4	6.0	1200	400	8.12	7.8	2.7	8.0	1500	610
6	June	8.06	8.1	2.3	8.0	1300	450	8.30	7.6	2.6	10.0	1700	680
7	July	8.13	7.8	2.2	8.0	1200	400	8.33	7.4	2.6	8.0	1500	610
8	August	7.85	8.0	2.4	8.0	1400	450	7.71	7.5	2.6	10.0	1700	680
9	September	7.79	7.5	2.5	6.0	1300	400	7.83	6.8	2.6	8.0	1700	600
10	October	7.85	8.0	2.3	6.0	1300	450	7.91	7.9	2.6	10.0	1700	610
11	November	8.01	8.2	2.3	6.0	1100	400	8.19	7.8	2.5	8.0	1400	450
12	December	8.22	8.0	2.2	6.0	1200	400	8.28	7.6	2.6	10.0	1500	610
	Average	7.99	8.1	2.4	7.0	1267	421	8.14	7.8	2.6	9.0	1567	596
	Category	C						C					

S.N.	Month	19 D/s Chhachhar nala, Prayagraj pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)	20 D/s Emergency Outfall, Prayagraj pH	DO (mg/l)	BOD(mg/l)	C.O.D. (mg/l)	Total Coliform (MPN/100ml)	Fecal Coliform (MPN/100ml)
1	January	8.24	8.6	2.7	12.0	1700	680	8.16	8.7	2.7	10.0	1400	450
2	February	8.25	8.2	2.6	10.0	1500	610	8.23	8.1	2.6	10.0	1400	610
3	March	8.29	8.0	2.6	10.0	1700	680	8.26	8.0	2.5	10.0	1400	450
4	April	8.21	7.9	2.7	8.0	1700	610	8.17	8.1	2.6	8.0	1500	560
5	May	8.25	7.7	2.6	8.0	1700	680	8.20	7.8	2.5	8.0	1400	450
6	June	8.26	7.6	2.7	10.0	1700	610	8.21	7.5	2.6	10.0	1500	610
7	July	8.29	7.5	2.5	10.0	1500	610	8.35	7.4	2.5	8.0	1400	450
8	August	7.62	7.6	2.6	10.0	1700	680	7.66	7.7	2.6	8.0	1500	610
9	September	7.85	7.0	2.7	8.0	1700	610	7.80	7.2	2.6	8.0	1700	680
10	October	7.93	7.8	2.5	8.0	1700	680	7.88	7.8	2.4	6.0	1500	610
11	November	8.17	7.7	2.6	8.0	1300	450	8.13	8.0	2.6	8.0	1200	400
12	December	8.31	7.7	2.5	10.0	1400	450	8.25	7.8	2.6	8.0	1300	450
	Average	8.14	7.8	2.6	9.3	1608	613	8.11	7.8	2.6	8.5	1433	528
	Category	C						C					

Class of water		A	B	C	D	E	Below E
1	Dissolved oxygen (mg/l), min	6.0	5.0	4.0	4.0	_	_
2	Biochemical oxygen demand (mg/l), max	2.0	3.0	3.0	_	_	_
3	Total Coliform (MPN/100ml), max	50	500	5000	_	_	_

A = Drinking water source without conventional treatment but after disinfection

B= Outdoor bathing (organised)

C = Drinking water source after conventional treatment and disinfection

D = Propagation of wild life and fisheries.

E = Irrigation, Industrial cooling, controlled waste disposal

Below - E = Not meeting A,B,C,D & E criteria

Source: http://www.cpcb.nic.in/Water_Quality_Criteria.php

Annex-7

Yamuna Water Quality : Dec., 2022 & Dec., 2023

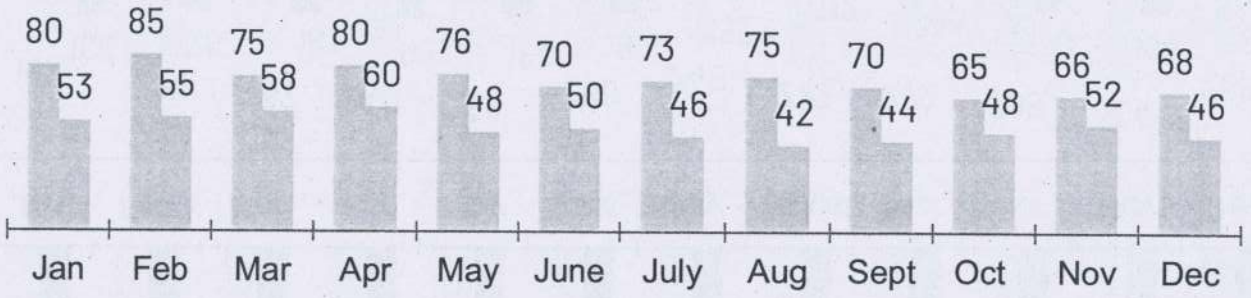
S. No.	Location	Water Quality Criteria ('C' Class)							
		COD (mg/l)		BOD (mg/l) 3mg/l or less		DO (mg/l) 5mg/l or more		Fecal Coliform MPN/100ml 500(desirable) 2500 (max permissible) (in lakh)	
		Dec, 2022	Dec, 2023	Dec, 2022	Dec, 2023	Dec, 2022	Dec, 2023	Dec, 2022	Dec, 2023
1	Palla	37	37	2.2	2.0	9.4	6.8	0.014	0.0036
2	Wazirabad	53	53	9	8.0	5.8	4.3	0.026	0.0061
3	ISBT Bridge	176	106	46	35	Nil	0.2	0.63	0.1
4	ITO Bridge	160	90	42	29	0.8	0.5	2.6	0.082
5	Nizamudin Bridge	184	149	53	40	Nil	Nil	0.41	0.15
6	Okhla Barrage	240	154	68	43	NIL	Nil	5.8	1.7
7	Agra Canal at Okhla Barrage	200	162	62	45	Nil	Nil	3.9	2.1
8	River Yamuna at Asgarpur (After confluence of Shahdara & Tuglakabad drain)	256	170	73	51	Nil	Nil	8.1	2.4

Water Quality of Untapped Outfalling Drains into Yamuna (Dec., 2022 & Dec., 2023)

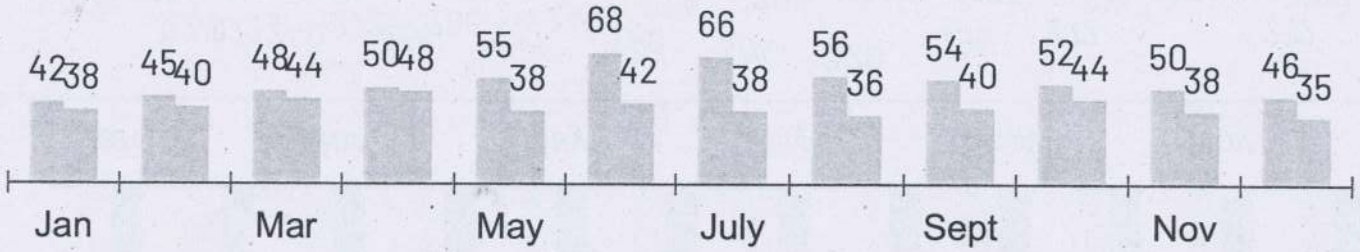
S.No.	Name of Drain	TSS (mg/l)		COD (mg/l)		BOD (mg/l)	
		Dec, 2022	Dec, 2023	Dec, 2022	Dec, 2023	Dec, 2022	Dec, 2023
Standards		100		250		30	
1	Najafgarh	168	92	384	248	68	46
2	ISBT Drain (Qudsia Bagh/ Mori Gate)	156	86	272	202	53	43
3	Sen Nursing Home	164	84	336	245	62	41
4	Delhi Gate/(Power House)	144	82	224	197	60	42
5	Sonia Vihar	200	76	372	176	58	36
6	Kailash Nagar	152	70	248	160	58	38
7	Shastri Park	96	58	256	148	57	27
8	Barapulla	104	74	240	184	50	40
9	Maharani Bagh	100	72	266	256	54	44
10	Jaitpur	128	82	208	218	48	35
11	Tuglakabad	180	64	400	182	95	32
12	Shahdara	136	96	320	304	67	49

Yamuna Water Quality : BOD (mg/l) variation [Stds ≤ 3mg/l]

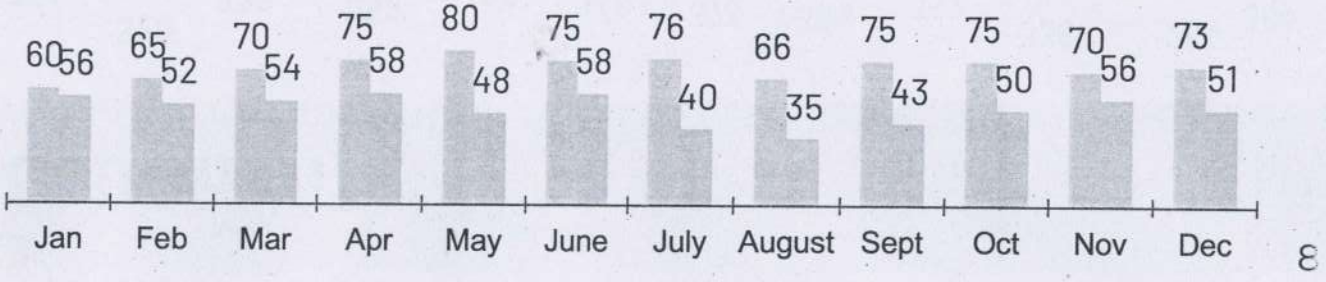
Najafgarh Drain



ISBT (After meeting Najafgarh Drain)



Asgarpur (D/s of Okhla Barrage after confluence of Shahdara & Tuglakabad drains)



Year: 2022

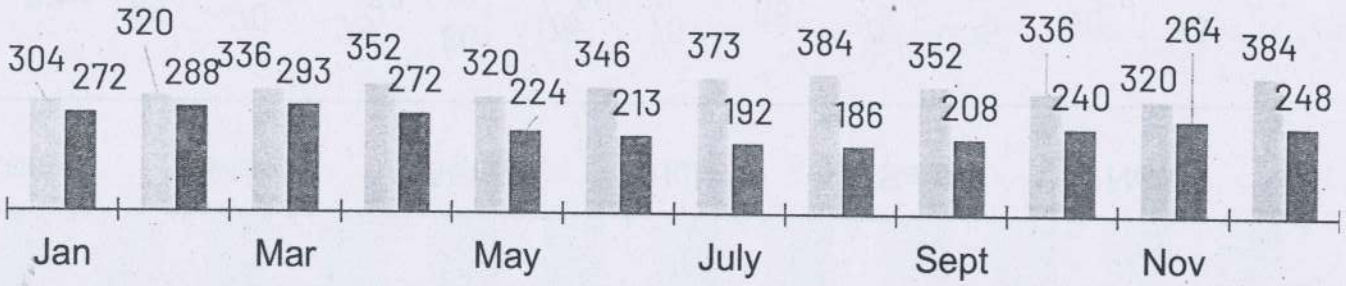
Year: 2023

8

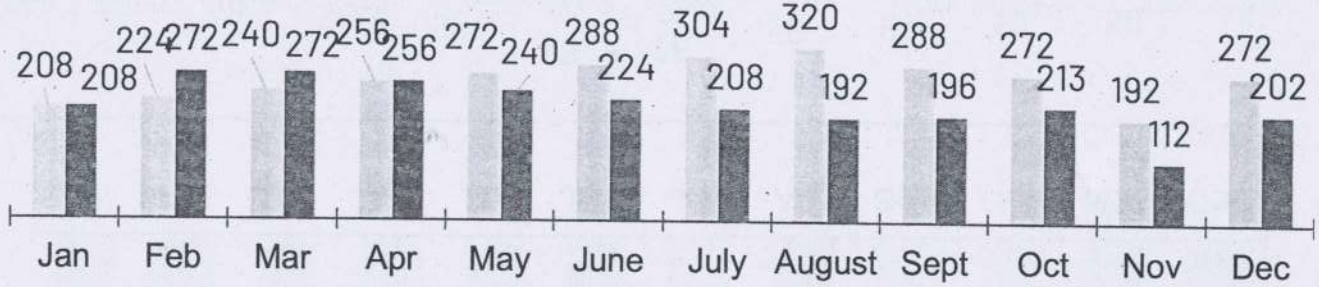
1 ST

Yamuna Water Quality : COD (mg/l)

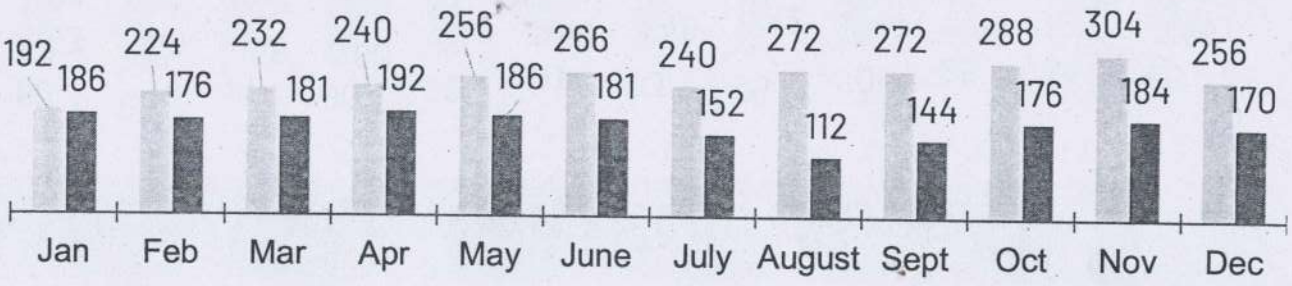
Najafgarh Drain



ISBT (After meeting Najafgarh Drain)



Asgarpur (D/s of Okhla Barrage after confluence of Shahdara & Tuglakabad drains)



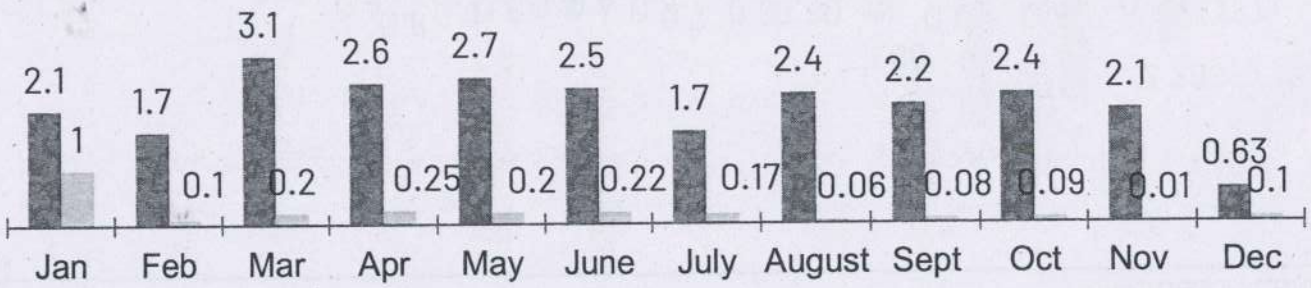
Year: 2022

Year: 2023

152

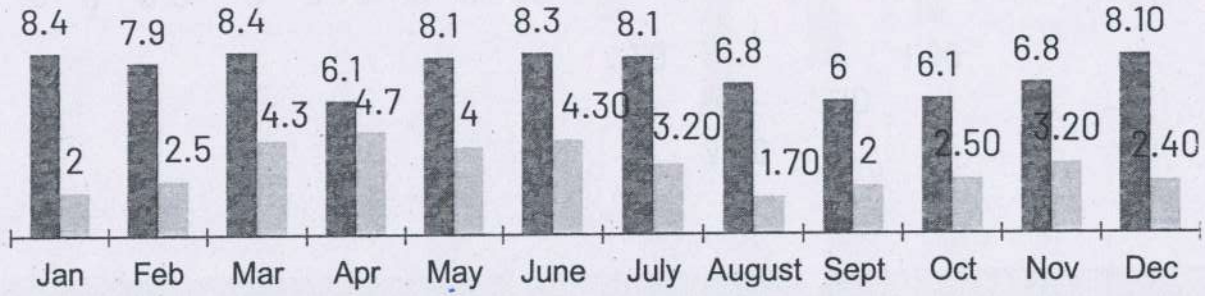
Yamuna Water Quality : FC (mg/l) variation [Stds ≤ 2500 MPN/100ml]

ISBT (After meeting Najafgarh Drain)



Values in Lakhs

Asgarpur (D/s of Okhla Barrage after confluence of Shahdara &Tuglakabad drains)



Values in Lakhs

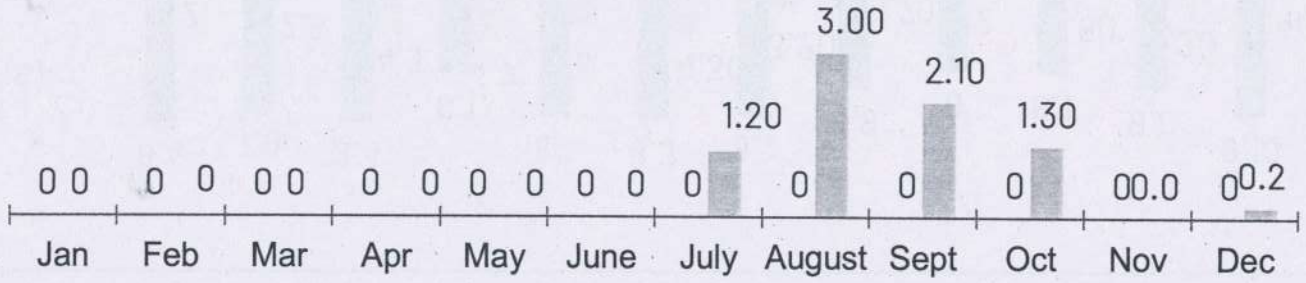
Year: 2022

Year: 2023

153

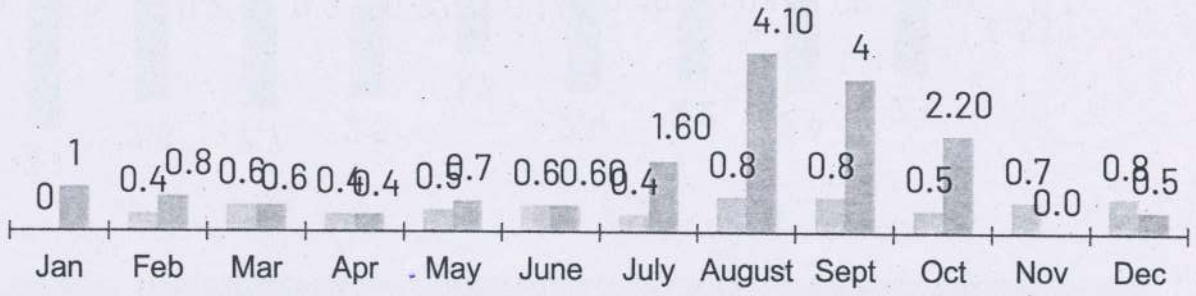
Yamuna Water Quality: Dissolved Oxygen (mg/l) [Stds ≥ 5 mg/l]

ISBT Bridge



Values in Lakhs

ITO Bridge



Values in Lakhs

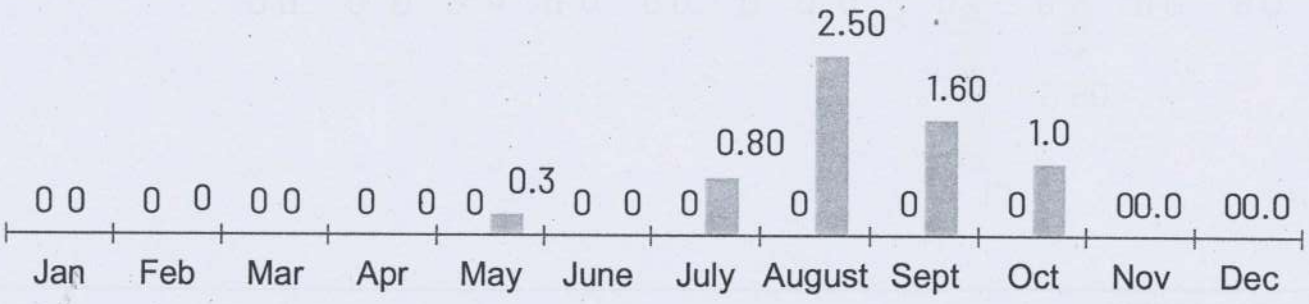
Year: 2022

Year: 2023

154

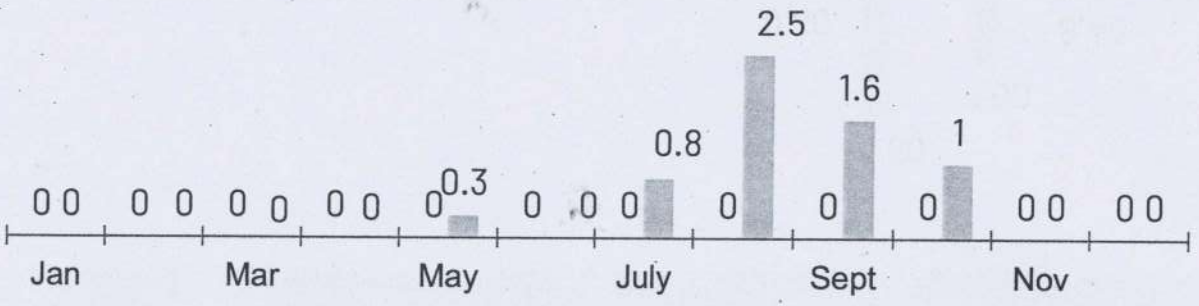
Yamuna Water Quality: Dissolved Oxygen (mg/l) [Stds ≥ 5 mg/l]

Nizamudin Bridge



Values in Lakhs

(Okhla Barrage)



Values in Lakhs

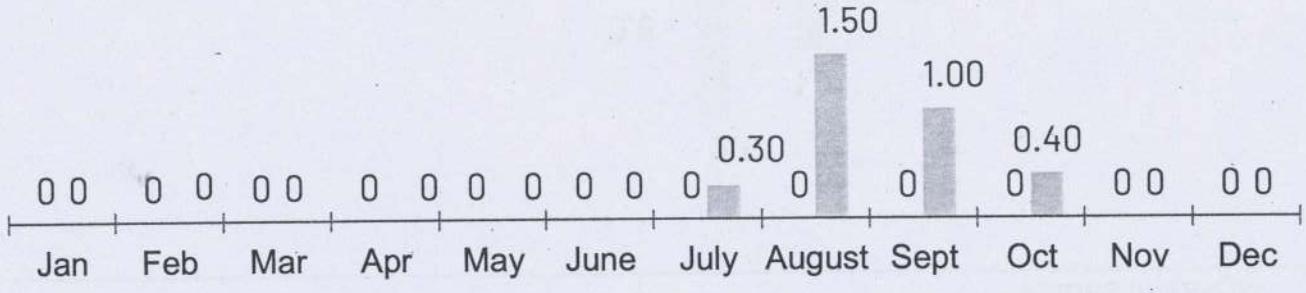
Year: 2022

Year: 2023

153-

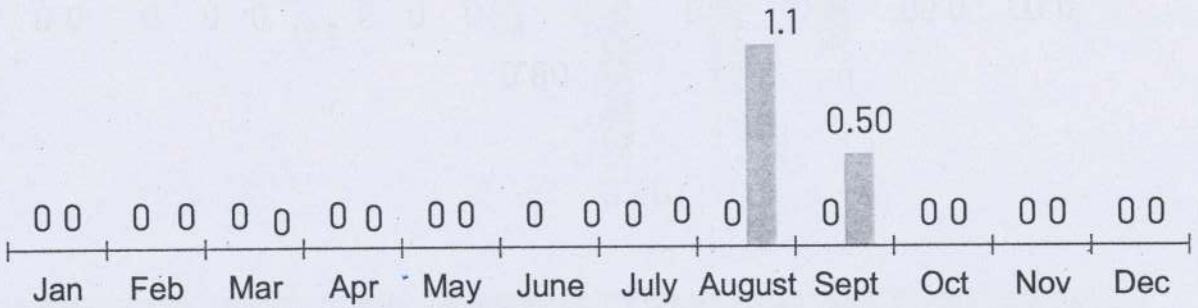
Yamuna Water Quality: Dissolved Oxygen (mg/l) [Stds ≥ 5 mg/l]

Agra Canal at Okhla Barrage



Values in Lakhs

River Yamuna at Asgarpur (After confluence of Shahdara & Tuglakabad drain)



Values in Lakhs

Year: 2022

Year: 2023

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Annexure No. 2

Status of Existing CETPs

April-2024

S.N	Regional Office	Name and Address of the CETPs	Operated by	Installed Capacity (MLD)	Utilized Capacity (MLD)	Nature of Member Units	Final Effluent Quality standards or ZLD condition	Date of Monitoring	Observed final effluent quality	Status of online CEQMS	Status of Hazardous Waste Storage/ Disposal	Mode of receiving Effluent (In any drain etc.)	Name of treated Effluent receiving water body Drain/Sub-Tributary/ River
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Ghaziabad	Apparel Park Tronica City CETP, Phase-I (for textile units), Ghaziabad	UPSIDC	6.00	6.00	Textile	pH = 6.0-9.0 BOD = 30.0 mg/l COD = 250.0 mg/l TSS = 100.0 mg/l	23.04.2024	Achieving pH = 7.52 BOD : 28.0 mg/l COD : 192.0 mg/l TSS : 98.0 mg/l	Yes	-	Jawali Drain	River Yamuna Through Hindon River
2	Mathura	CETP, Industrial Area, Site-A, Mathura	Industrial Association	6.25	6.25	Textile	pH = 6.0-9.0 BOD = 30.0 mg/l COD = 250.0 mg/l TSS = 100.0 mg/l	16.04.2024	Achieving pH = 8.2 BOD : 27.0 mg/l COD : 232.0 mg/l TSS : 62.0 mg/l	No	-	Through Industrial Drain → Ambakhar drain → Dairy farm Sewage Pumping Station → Inlet of 14.5 MLD STP TransYamuna , Jamunapar → River Yamuna	

Annex 9

Annexure -4 : DPCC Reply on recommendation no. 12

Brief about 22 drains out falling into River Yamuna in Delhi and Proposed Action for Tapping of Flow

S.No	Name of Drain	Flow in MLD (As per DJB)			Status of Drain (Tapped/Partially Tapped/Untapped)	STP in which tapped waste water is treated/ proposed to be treated			Proposed Action/ Timeline for Tapping of Drain
		Total Waste Water	Treated Waste Water	Untreated Waste Water		Name	Compliance	End Point of Disposal	
1.	Metcalf House Drain	17.25 (3.79 MGD)	0	17.25	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
2.	Khyber Pass Drain	1.7 (0.37 MGD)	0	1.7	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
3.	Sweeper Colony Drain	8.6 (1.89 MGD)	0	8.6	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
4.	Magazine Road drain	7.8 (1.72 MGD)	0	7.8	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped

5.	Tonga Stand Drain	7.8(1.72 MGD)	0	7.8	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
6.	Civil Mill Drain	14.68 (3.23 MGD)	0	14.68	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
7.	Moat Drain Vijay Ghat	0	0	0	Tapped (no flow at present)	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
8.	Drain No. 14	25.87 (5.69 MGD)	0	25.87	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
9.	Tehkhand drain	39.74(8.74 MGD)	0	39.74	Tapped	Treated in Okhla STP (Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Drain Already tapped
10.	Abul Faizal drain	7 (1.54 MGD)	0	7	To be tapped	Proposed to be treated in Okhla STP(Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Sewage to be tapped after completion of Batla House sewage Scheme,

									Timeline: March 2024
11.	Sen nursing Home Drain	43.20(9.5 MGD)	0	43.2	Partially tapped	Tapped waste water is treated in Sen Nursing Home STP, remaining to be treated in Okhla STP	Meeting	Agra Canal	Overflow/unt apped waste water will be treated at Okhla STP after desilting and commissioni ng of Ring Road SPS Timeline: Decemebr'2 024.
12.	ISBT drain (Qudsia Bagh / More Gate Drain)	20.80(4.58 MGD)	0	20.80	To be tapped	Proposed to be treated in in New Coronation Pillar	Meeting	Najafgarh Drain	Work of construction of SPS at the outfall point of the drain is in progress and likely to be completed by May 2024.

13.	Delhi Gate Drain/ Power House Drain	122.58(26.96 MGD)	62.79	59.79	Partially tapped	Tapped waste water is treated in Delhi Gate STP, remaining to be treated in proposed STP at Delhi Gate	Meeting	Yamuna River	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. 15.30 MLD is being used by PPCL (Cooling Towers, Delhi secretariat, Plant Horticulture Private agencies.) Another STP of 45.46 MLD (10MGD is proposed for the treatment of remaining untapped waste water of this drain.

									Land to be allotted by.
14.	Sonia Vihar Drain(on eastern bank of Yamuna)	27.24(5.99 MGD)	0	27.24	To be tapped	Sonia Vihar STP (under construction)	-	Yamuna River	7 MGD STP is being constructed at Sonia Vihar which is likely to be completed by March 2024.
15.	Kailash Nagar drain (On Eastern bank of Yamuna)	13.62(3.0 MGD)	0	13.62	To be tapped	Proposed to be treated in Kondli STP	-	Yamuna River	Feasibility of diverting the flow of the drain to Kondli STP through Geeta Colony and Preet Vihar SPS is being worked out jointly with MCD DUSIB and DJB.

16.	Shastri park drain (on Eastern bank of Yamuna)	5.45(1.2 MGD)	0	5.45	To be tapped	Proposed to be treated in Yamuna Vihar	-	Yamuna River	Feasibility of construction of DSTP is being worked out jointly by MCD, DUSIB, DDA and DJB.
17.	Maharani Bagh drain	30.24(6.65 MGD)	0	30.24	To be tapped	Proposed to be treated in Okhla STP(Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	The completion of the scheme is likely to be completed by May 2024.
18.	Jaitpur Drain	5.68(1.25 MGD)	0	5.68	To be tapped	Proposed to be treated in Okhla STP(Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Sewage to be tapped after completion of Madanpur Khadar GOC scheme by June 2025.
19.	Tughlaqabad Drain (Kalkaji drain merged in this drain)	25.05(5.51 MGD)	0	25.05	To be tapped	Treated in Okhla STP(Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	-

20.	Barapulla Drain	91(20.02 MGD)	0	91	To be tapped	Proposed to be treated in Okhla STP(Phase II, III,IV,V,VI)	Okhla PH V, VI : meeting Okhla Ph-II,III,IV:not meeting	Agra Canal	Work of Intercepting the Barapulla Drain flow by laying of interceptor sewer through micro tunnelling and conveying the flow to Okhla WWTP for treatment is in progress and expected to be completed by May 2024.

21.	Najafgarh Drain	2056.32(452.34 MGD)	1380	676.32	Being large drain not feasible to be tapped	-	-	Yamuna River	ISP has been commissioned and provision for tapping of 77 drains have been made. There is about 453 MGD flow in the Najafgarh drain. Out of this at present 303.85 MGD comprises of treated effluent from STPs. From Haryana, untreated discharge of 105 MGD is being discharged through Badshahpur and DD-6 drains.

22.	Shahdara Drain	840(184.78 MGD)	363	477	Being large drain not feasible to be tapped	-	-	Yamuna River	ISP has been commissioned and provision for tapping of 29 drains have been made. Total untreated discharge in Shahdara drain is about 105 MGD, out of which 50 MGD (i.e. 45%) is untreated sewage is being discharged by UP through Sahibabad, Indirapuri and Banthala Drain.
	Total	**3411.6(750.4 MGD)**	**1805.8 (397.2 MGD)**						

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Annex - 10

Annexure-2

Annexure-1 Himachal Pradesh Pollution Control

Directions have been issued to MC Paonta Sahib

Annex-I

HPSPCB

HIMACHAL PRADESH STATE POLLUTION CONTROL BOARD
Regional Office, Paonta Sahib, HIMUDA Colony, Shubhkhera
Teh, Paonta Sahib, District Sirmaur, H.P
Email Id: pcbropaonta1@gmail.com, Phone: 01704-225870

No PCB/RO (Pt)/MC Paonta /2023- 2592 Dated: 20.12.2023

To

The Executive Officer
Municipal Committee, Paonta Sahib
Distt. Sirmaur, H.P.

Subject: Regarding inspection of various Municipal Committee Drains in Paonta Sahib

Sir,

This is in reference to the inspection conducted by this office along with representative of your department on 28.11.2023 of various drains provided for sewage/sullage discharge of Municipal Council Paonta Sahib area. The following drains were inspected and sampling was done in the presence of your representative:

1. MC Drain near Kripalshilla Gurudwara, Paonta Sahib
2. MC Drain near Shri Deji Sahiba Temple Devinagar.
3. MC Drain near Old SBI Paonta Sahib
4. MC Drain near Sbji Mandi Paonta Sahib
5. MC Drain Jamniwala near Mankind Pharmaceutical Ltd. Unit 2, Paonta Sahib

It has been amply established vide lab analysis results vide report no. 72838/W-10506, 99861/W-10507, 11147070/W-10509 and 17153/W-10511 dated 20.12.2023,(copies of results is enclosed as Annexure A) that the untreated domestic wastewater containing high fecal coliform is flowing through these drains is confluence into River Yamuna and its tributary River Bata leading to water pollution in the catchment of River Yamuna.

Whereas the above mentioned facts tantamount to the violation of the provisions of Water (Prevention & Control of Pollution) Act, 1974, constituting a cognizable offence under the aforesaid acts.

Hence, you are requested to take proper measures to check flow of untreated sewage/sullage into tributaries and River Yamuna itself and submit a concrete short term and long term action plan of measures to be taken to ensure treatment and scientific disposal of sewage/sullage being carried out through drains provided by your department within 15 days.

Please note that in the event of failure to comply and unsatisfactory deposition, action as Environmental Compensation shall be initiated as per relevant provisions of law.

Encl: as above

Yours faithfully

Regional Officer
HPSPCB, Paonta Sahib

Annex II

Annexure- 6 : UK-PCB reply on Recomm no. 12

Annual Average Data for the year 2023

S.No.	Monitoring Location	pH	DO (mg/l)	BOD (mg/l)	TC (MPN/100ml)	Designated Best Use (DBU) Water Quality criteria
1	River Yamuna U/S at Yamunotri	7.8	11.2	1	1.8	A
2	River Yamuna D/S at Sayana-Chhatti	7.6	10.8	1	1.8	A
3	River Yamuna at Barkot, Uttarkashi District	7.83	10.31	1	1.82	A
4	River Tons Before joining to River Yamuna at Dakpathar, Dehradun	8.04	9.9	1	47.75	A
5	River Tons At Selaqui, Dehradun	7.79	6.95	2.6	295	B
6	Asan Conservation Reserve, Dehradun	8.03	8.9	1	2.2	A
7	River Yamuna At Lakhwar, Dehradun	8.06	10.25	1	1.86	A
8	River Yamuna D/S At Kalsi, Dehradun	8.16	10.05	1	46.5	A
9	River Yamuna D/S at Vikash Nagar, Dehradun	7.89	9.7	1.07	86.91	B
10	Yamuna Canal at Dakpathar, Dehradun	7.82	9.76	1	83.27	B
11	River Yamuna at Dakpathar, Dehradun	7.85	9.96	1	83.75	B

Pollution Control Board, Uttarakhand Drains monitoring results are placed at Annexure 7

Annex 12

Annexure-7: UK-PCB reply on Recomm no. 12

Drains monitoring results

Analysis Report Of Water Quality Of Drains					
Name of Sampling Point		Drains of Municipality areas (Barkot, Naugaon, Purola, district Uttarkashi and Vikasnagar, Harbatpur District Dehradun)			
Sample collected by		Pradeep Chauhan (LA)			
Date of Sampling		25.01.2021 to 27.01.2021			
S.No.	**Name of Drains**	**Parameters All value are in mg/l except pH**			
		pH	**COD**	**BOD**	**TSS**
1	Upraadikhda, Barkot, Uttarkashi	7.69	4	1	22
2	Sarakhaada, Barkot, Uttarkashi	7.13	12	4	422
3	Mungra Basic School Gadhera, Naugaon, Uttarkashi	Drain is found dry during sampling			
4	Naugaon Khadd, Naugaon, Uttarkashi	8.01	6	1.2	16
5	Devalsari Khadd, Naugaon, Uttarkashi	Drain is found dry during sampling			
6	Mundri Khadd, Naugaon, Uttarakshi	Drain is found dry during sampling			
7	Salui Khadd, Naugaon, Uttarakshi	8.16	4	1	8
8	Khundi Khadd, Naugaon, Uttarakshi	Drain is found dry during sampling			
9	Devdung Gadhera, Purola, Uttarkashi	8.08	4	1	12
10	Kumala Khadd, Purola, Uttarkashi	7.72	6	1.4	18
11	Chada Khadd, Purola, Uttarkashi	7.90	4	1	10
12	Maal Gadhera, Purola, Uttarkashi	7.94	4	1	14
13	Kamal Nandi, Purola, Uttarkashi	8.55	8	1.6	16
14	Syphon Nala, Vikasnagar, Dehradun	7.21	262	88	157
15	Gandha Nala, Vikasnagar, Dehradun	6.89	94	26	115
16	Udiyayagh Nala, Herbatpur, Dehradun	7.29	12	1.2	15
17	Peerwala Nala, Herbatpur, Dehradun	7.72	8	1.4	19

Annex 13

Annexure-8: UK-PCB reply on Recomm no. 14

Data of STPs operational in the Catchment of River Yamuna and its tributaries

S.No.	Name of the Sewage Treatment Plant (With Capacity)	Sampling Point						Compliance Status as per MoEF&CC Standards	Compliance Status as per NGT Standards
		Inlet of STP			Outlet of STP				
		pH	BOD	TSS	pH	BOD	TSS	Fecal Coliform		
January-2023										
1	3.12 MLD Bhatta fall, Mussoorie	6.53	155	150	7.01	9.2	10	94	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	6.96	175	166	7.52	9.2	09	120	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	6.71	175	167	7.51	10.0	10	84	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.84	170	160	7.25	8.8	10.0	110	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	6.76	130	136	7019	7.2	08	63	Complying	Complying
February-2023										
1	3.12 MLD Bhatta fall, Mussoorie	6.60	150	144	7.23	8.8	09	49	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	6.81	170	165	7.41	9.6	10	84	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	6.63	180	173	7.67	9.2	09	79	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.92	175	167	7.36	8.4	09	94	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	6.64	140	145	7.11	08	10	16*10^2	Non-Complying	Non-Complying
March-2023										
1	3.12 MLD Bhatta fall, Mussoorie	7.30	155	148	8.50	8.4	08	84	Complying	Complying

S.No.	Name of the Sewage Treatment Plant (With Capacity)	Sampling Point							Compliance Status as per MoEF&CC Standards	Compliance Status as per NGT Standards
		Inlet of STP			Outlet of STP					
		pH	BOD	TSS	pH	BOD	TSS	Fecal Coliform		
2	0.8 MLD STP at Landour (N), Mussoorie	7.02	175	168	7.80	8.8	09	94	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	6.90	190	185	8.60	9.6	10	94	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	8.30	185	179	8.75	9.2	10	70	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	7.20	150	153	7.70	8.8	10	920	Complying	Non-Complying
April-2023										
1	3.12 MLD Bhatta fall, Mussoorie	7.20	160	156	8.10	9.2	10	94	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.10	180	175	7.40	8.4	09	84	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	6.95	195	189	7.80	8.8	09	79	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	STP found non-operational at the time of inspection. (date of Inspection: 01-04-2023).								
5	05MLD STP at Indra Nagar, dehradun	7.05	155	159	7.26	8.04	09	140	Complying	Complying
May-2023										
1	3.12 MLD Bhatta fall, Mussoorie	6.90	165	163	7.14	9.6	11	170	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.14	185	181	8.30	8.8	10	540	Complying	Non-Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.05	195	199	7.80	10	13	16*10^2	Non-Complying	Non-Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.70	200	196	7.09	9.2	10	110	Complying	Complying

S.No.	Name of the Sewage Treatment Plant (With Capacity)	Sampling Point							Compliance Status as per MoEF&CC Standards	Compliance Status as per NGT Standards
		Inlet of STP			Outlet of STP					
		pH	BOD	TSS	pH	BOD	TSS	Fecal Coliform		
5	05MLD STP at Indra Nagar, dehradun	7.15	160	162	7.43	8.8	10	84	Complying	Complying
June-2023										
1	3.12 MLD Bhatta fall, Mussoorie	7.20	160	155	7.50	9.2	10	84	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.60	180	175	7.90	8.4	09	220	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.01	190	192	7.40	9.2	11	140	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.80	195	193	7.30	10	12	280	Complying	Non-Complying
5	05MLD STP at Indra Nagar, dehradun	6.10	165	169	7.90	9.6	12	130	Complying	Complying
July-2023										
1	3.12 MLD Bhatta fall, Mussoorie	7.08	155	151	7.90	8.8	09	79	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.30	175	172	8.60	9.6	11	150	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	**STP was found closed and non-operational at the time of visit and also no any representative was present there. (date of inspection: 10-07-2023).**								
4	1.2 MLD STP at Happy Valley, Mussoorie	6.60	190	186	8.20	9.6	10	240	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	7.19	170	172	7.50	8.8	10	170	Complying	Complying
August-2023										
1	3.12 MLD Bhatta fall, Mussoorie	6.80	150	148	7.50	9.6	11	210	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	6.90	165	163	8.20	8.8	10	170	Complying	Complying

S.No.	Name of the Sewage Treatment Plant (With Capacity)	Sampling Point							Compliance Status as per MoEF&CC Standards	Compliance Status as per NGT Standards
		Inlet of STP			Outlet of STP					
		pH	BOD	TSS	pH	BOD	TSS	Fecal Coliform		
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.10	180	185	7.40	10	14	210	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	7.50	180	178	7.90	8.8	09	1600	Non-Complying	Non-Complying
5	05MLD STP at Indra Nagar, dehradun	7.10	165	169	7.32	9.6	12	210	Complying	Complying
September-2023										
1	3.12 MLD Bhatta fall, Mussoorie	7.35	155	151	7.89	9.6	09	170	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.45	175	173	7.96	9.2	10	220	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.25	185	189	7.90	10	12	920	Complying	Non-Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.34	190	192	7.86	9.6	11	170	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	7.71	160	163	7.84	9.2	11	210	Complying	Complying
October-2023										
1	3.12 MLD Bhatta fall, Mussoorie	8.14	150	147	8.35	8.8	08	130	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.47	170	168	8.30	10.0	12	350	Complying	Non-Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.09	180	182	7.78	9.2	10	170	Complying	Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.84	185	188	8.79	8.8	10	94	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	7.24	155	157	7.81	8.4	09	94	Complying	Complying
November-2023										

S.No.	Name of the Sewage Treatment Plant (With Capacity)	Sampling Point							Compliance Status as per MoEF&CC Standards	Compliance Status as per NGT Standards
		Inlet of STP			Outlet of STP					
		pH	BOD	TSS	pH	BOD	TSS	Fecal Coliform		
1	3.12 MLD Bhatta fall, Mussoorie	6.44	145	143	7.55	9.2	09	170	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.41	165	162	8.17	9.2	10	110	Complying	Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.04	175	178	7.71	10.0	12	540	Complying	Non-Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.66	190	192	7.99	9.2	11	130	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	7.33	160	164	7.68	8.8	11	170	Complying	Complying
December-2023										
1	3.12 MLD Bhatta fall, Mussoorie	6.91	150	147	7.11	8.8	08	140	Complying	Complying
2	0.8 MLD STP at Landour (N), Mussoorie	7.05	160	158	7.29	10.0	12	350	Complying	Non-Complying
3	0.9 MLD STP at Kurli Bazaar, Mussoorie	7.42	180	184	7.63	10.8	14	920	Complying	Non-Complying
4	1.2 MLD STP at Happy Valley, Mussoorie	6.84	185	188	7.38	9.6	12	220	Complying	Complying
5	05MLD STP at Indra Nagar, dehradun	7.47	155	158	7.60	9.2	13	220	Complying	Complying
Sewage treatment final effluent standards (As notified by MoEF&CC dated 13.10.2017)					**6.5-9.0**	**30**	**<100**	**<1000**		
Sewage treatment final effluent standards (As per NGT norms Dated: 30.04.2019					**5.5-9.0**	**10**	**20**	**230**		

Annex – 14

STATEWISE PROJECT DETAILS:

Himachal Pradesh :

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern
		(MLD)	(Rs. In crore)			
1	Sewerage Scheme for Zone II & III of Paonta Town in Tehsil Paonta Sahib, District Sirmour, Himachal Pradesh (New – 1.72 MLD, Rehab – 1 + 0.44 MLD STPs)	3.16	11.57	Yamuna	Completed	Non-EAP (100% Central share)
	Total	**3.16**	**11.57**			

Haryana :

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern
		(MLD)	(Rs. In crore)			
1	STP & Sewerage works" in Panipat town (New 20+25 MLD; Rehab- 35+10 MLD)	90	217.87	Yamuna	Completed	Non-EAP (70% Central share, 30% State share)
2	STP & Sewerage works" in Sonipat town (New – 25 MLD, Rehab- 30 MLD)	55		Yamuna	Completed	
	Total	**145**	**217.87**			

Delhi :

S.No.	Name of Project Component	Treatment Capacity	AA&ES Cost	Associated River	Status	Funding Pattern
		(MLD)	(Rs. In crore)			
1	"Rehabilitation of Trunk Sewer No. 4, (K1)" in Kondli WWTP Catchment	0	87.43	Yamuna	completed	EAP- JICA funding) (85% Central share, 15% State share)
2	"Rehabilitation of Trunk Sewer No.5 (K2)" in Kondli WWTP Catchment	0	83.4	Yamuna	completed	EAP- JICA funding) (85% Central share,

Annex

S.No.	Name of Project Component	Treatment Capacity (MLD)	AA&ES Cost (Rs. In crore)	Associated River	Status	Funding Pattern
						15% State share)
3	"Providing and Laying Pressure Mains of 700-900 mm dia DI Pipes in Kondli WWTP Catchment ('K-4')"	0	59.13	Yamuna	completed	EAP- JICA funding) (85% Central share, 15% State share)
4	"Rehabilitation of Sewers of sizes varying from 600mm to 1400mm Dia. in Ashok Vihar and Jahangirpuri Area in Rithala (R1a)" in Rithala WWTP Catchment	0	43.92	Yamuna	Completed. (Only some document submission pending)	EAP- JICA funding) (85% Central share, 15% State share)
5	"Providing and Laying 1200 mm dia. DI Rising Mains from Bharat Nagar SPS to Pitampura ('R-1b'))" in Rithala WWTP Catchment	0	45.4	Yamuna	completed.	EAP- JICA funding) (85% Central share, 15% State share)
6	"Rehabilitation & Up-gradation of existing 182 MLD Rithala Phase-I STP (R2)"	182	211.79	Yamuna	Project under execution. (Liquid Line Fully operational)	EAP- JICA funding) (85% Central share, 15% State share)
7	"Rehabilitation and Up-gradation of Kondli Phase-I, II & III WWTPs (45, 114, 45 MLD) (K3)"	204	239.11	Yamuna	Project under execution. (Liquid Line Fully operational)	EAP- JICA funding) (85% Central share, 15% State share)
8	"Construction of 564 MLD (124 MGD) WWTP at Okhla ('O')"	564	665.78	Yamuna	Project under execution. Liquid Line partially operational	EAP- JICA funding) (85% Central share, 15% State share)
9	Public Outreach		20.461	Yamuna	On going	EAP- JICA funding)

S.No.	Name of Project Component	Treatment Capacity (MLD)	AA&ES Cost (Rs. In crore)	Associated River	Status	Funding Pattern
						(85% Central share, 15% State share)
10	Consultancy Services (PMC)		37.62	Yamuna	On going	EAP- JICA funding) (85% Central share, 15% State share)
	Sub Total	**950.00**	**1494.04**			
11	Construction of 318 MLD (70 MGD) WWTP with 10 years O&M on DBO basis at Coronation Pillar, Delhi	318	515.08	Yamuna	Completed (318 MLD)	Non-EAP (50% Central share, 50% State share)
	Sub Total	**318.0**	**515.08**			
	Total	**1268.0**	**2009.12**			

Uttar Pradesh :

S.No.	Name of Project Component	Treatment Capacity (MLD)	AA&ES Cost (Rs. In crore)	Associated River	Status	Funding Pattern
1	Kairana Sewerage project (I&D) on DBOT basis	15	78.42	Yamuna	Project under execution.	Non-EAP (100% Central share)
2	Mathura Sewerage project (New 30 MLD, Rehab – 14.5+16.5+6.8 MLD STP) under hybrid annuity based PPP model	67.8	460.45	Yamuna	Completed	Non-EAP (100% Central share)
3	Renovation and Upgradation of 4 MLD STP/SPS & appurtenance works at Vrindavan (Mathura), U.P.	4	42.8	Yamuna	Completed	Non-EAP (100% Central share)

S.No.	Name of Project Component	Treatment Capacity (MLD)	AA&ES Cost (Rs. In crore)	Associated River	Status	Funding Pattern
4	Agra Sewerage Scheme (Interception & Diversion Works) and construction of 10 DSTPs (New - 100+35+31+11.60 = 177.6 MLD STPs) under hybrid annuity based PPP model on one city one operator policy	177.6	842.25	Yamuna	Project under execution	EAP (100% Capex under World Bank) (100% Opex under NGP)
5	Interception & Diversion (I&D) and STP works of Baghpat Town, (New-14 MLD)	14	77.36	Yamuna	Completed	Non-EAP (100% Central share)
6	Etawah Sewerage Scheme (Interception & Diversion (I&D) works) (New – 21 MLD, Rehab – 23.94 MLD STP)	44.94	140.6	Yamuna	Completed	Non-EAP (100% Central share)
7	Firozabad Sewerage Scheme (Interception & Diversion (I&D) works)	0	51.08	Yamuna	Completed	Non-EAP (100% Central share)
8	Upgradation of existing 6.25 MLD CETP at Mathura	6.25	13.87	Yamuna	Completed	Non-EAP (75% Central share, 25% State share)
9	I&D and STP Works for balance drains at Mathura under hybrid annuity based PPP model	60	292.56	Yamuna	LOA issued	Non-EAP (100% Central share)
10	Chhata town sewerage scheme (I&D and STP works), District Mathura	6	56.15	Yamuna (Kosi Drain)	Technical Bids under Evaluation	Non-EAP (100% Central share)
11	I&D and STP works at Kosi Kalan Town, District Mathura	12	66.59	Yamuna (Kosi Drain)	LOA to be issued shortly	Non-EAP (100% Central share)
12	I&D and 13 MLD STP works at Vrindavan City, District Mathura	13	77.70	Yamuna	Financial Bids under Evaluation	Non-EAP (100% Central share)
13	I&D and STP works at Hathras Town	24	128.91	Karvan	LOA to be issued shortly	Non-EAP (100% Central share)
14	I&D and STP works at Budhana, (New-10 MLD)	10	48.76	Hindon (Kali West)	Project under execution.	Non-EAP (100% Central

S.No.	Name of Project Component	Treatment Capacity (MLD)	AA&ES Cost (Rs. In crore)	Associated River	Status	Funding Pattern
						share)
15	I&D with STP works at Muzaffarnagar, (New-32.50+22 = 44.50 MLD)	44.5	234.03	Hindon (Kali West)	Project under execution	Non-EAP (100% Central share)
16	Saharanpur Sewerage Scheme (I&D and STP works)	135	577.23	Dhamola	Financial Bids under Evaluation	EAP (100% Capex under World Bank) (100% Opex under NGP
17	I&D and STP works 40 MLD Shamli Town, Shamli	40	206.02	Hindon (krishni river)	Financial Bids under Evaluation	Non-EAP (100% Central share)
18	I&D and STP works 10 MLD Thanabhawan, Distt. Shamli	10	97.19	Hindon (krishni river)	Under Retendering	Non-EAP (100% Central share)
19	I&D and STP works 5 MLD Banat, Distt. Shamli	5	48.71	Hindon (krishni river)	Under Retendering	Non-EAP (100% Central share)
20	I&D and STP works 5 MLD Babri & Bantikhera, Distt. Shamli	5	55.47	Hindon (krishni river)	Under Retendering	Non-EAP (100% Central share)
	Total	**694.09**	**3596.15**			

This makes a total of **34** projects costing **Rs. 5834.71 crore** by which **2110.25 MLD STP capacity** will be created.

Annex 15

Annexure-9: CPCB reply on recommendation no. 15

The water quality data w.r.t pesticides (Alpha HCH, Beta HCH, Gamma HCH (Lindane), o,p' DDT, p,p' - DDT, Alpha Endosulphan, Beta Endosulphan, Aldrin, Dieldrin, 2,4-D, Chloropyriphos, Methyl Parathion, Malathian, Ortho Phosphate) for the year 2022-23

Name Of Monitoring Location	State	Year	Alpha HCH (mg/L)		Beta HCH (mg/L)		Gamma HCH Lindane (mg/L)		o,p' DDT (mg/L)		p,p' – DDT (mg/L)		Alpha Endosulphan (mg/L)		Beta Endosulphan (mg/L)		Aldrin (mg/L)		Dieldrin (mg/L)		2,4-D (mg/L)		Chloropyriphos (mg/L)		Methyl Parathion (mg/L)		Malathian (mg/L)		Ortho Phosphate (mg/L)	
			Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max	Min	Max
River Yamuna At Yamunotri	UK	2022	-	-	-	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.5	0.5	-	-	0.5	0.5	0.05	0.05
	UK	2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	0.1
River Yamuna At Hanumanchatti	UK	2022	-	-	-	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.5	0.5	-	-	0.5	0.5	0.05	0.05
		2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			-	-	_	_	0.12	0.12
River Yamuna At U/S of Lakhwar Dam	UK	2022	-	-	-	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	1.52	1.52	0.5	0.5	-	-	0.5	0.5	0.09	0.23
		2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	0.26
River Yamuna At U/S Dakpathhar, Dehradun	UK	2022	-	-	-	-	-	-	-	-	-	-	0.05	0.05	0.05	0.05	0.1	0.1	0.05	0.05	_	_	0.5	0.5	_	_	0.5	0.5	0.11	0.18
		2023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.16	0.25
River Yamuna U/S Paonta Sahib	HP	2022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05	0.05
River Yamuna at shahpur	UP	2022	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.5	0.5	0.5	0.5	0.5	0.5	-	-
River Yamuna At Kesighat, Vrindavan	UP	2022	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.5	0.5	0.5	0.5	0.5	0.5	-	-
River Yamuna At Vishramghat, Mathura	UP	2022	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.5	0.5	0.5	0.5	0.5	0.5	-	-
River Yamuna At Mathura D/S Near Shamshan Ghat	UP	2022	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	0.5	0.5	0.5	0.5	0.5	0.5	-	-
River Yamuna At Prayagraj D/S (Balua Ghat), UP	UP	2022	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-
		2023	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	-	-	-	-	-	-	-	-	-	-

Annexure 16

Annexure 10: Reply of HP-PCB on recomm. No. 16

Annex-II

DEW RESOURCE MANAGEMENT

Receipt & Processing Certificate

Issued to: M/S. NAGAR PARISHAD PONTA SAHIB
Reference: DEW/NPPS/2024/001
Authorization No: 185358/UPPCB, Valid Upto:31.07.2025
Date: 05-Febraury-2024

This is to certify that we have received the following quantities sent by **M/S. NAGAR PARISHAD PONTA SAHIB, DISTT. SIRMAUR, HP On Behalf of VERSATILE STAR PVT. LTD.** at our processing site **Surju, Muzaffarnagar, UP** and the same quantity has been processed.

Month	Type of Waste Material	Quantity Received (ton)
January	RDF	210.115

For **DEW RESOURCE MANAGEMENT**

Authorized Signatory

1827/1, 1829/1, 1830/1 & 1831/1, Sujru, Pargana, Distt.-Muzaffarnagar-251003 (U.P.)
+91 9911013931 | www.dewrm.com | info@dewrm.com
GSTIN : 09AATFD2410L1Z7

Annex 17

By Speed Post/ Email

DELHI POLLUTION CONTROL COMMITTEE
DEPARTMENT OF ENVIRONMENT, GOVT. OF NCT OF DELHI
5th FLOOR, ISBT BUILDING, KASHMERE GATE, DELHI-110006
visit us at : http://dpcc.delhigovt.nic.in

F.12 /(644) / Env/ YMC Matter / Soaps & Detergents/2021/5996 - 6017 Dated : 14/06/2021

Subject: Directions under Section 33 (A) of the Water (Prevention and Control of Pollution) Act, 1974, as amended to date.

Whereas, Central Pollution Control Board (CPCB) is the State Board for all the union Territories to exercise powers and performs functions under the Water (Prevention and Control of Pollution) Act, 1974, as amended to date.

And whereas, Central Pollution Control Board has delegated all its powers and functions under the Water (Prevention and Control of Pollution) Act, 1974 in respect of Union Territory of Delhi to Delhi Pollution Control Committee (DPCC) vide notification Dated 15.03.1991.

And whereas, Hon'ble National Green Tribunal vide judgment dated 13.01.2015 in O.A.No.06 of 2012 and O.A.No.300 of 2013 in the matter of Manoj Mishra Vs. Union of India & Ors. has given various directions for control of pollution and rejuvenation of River Yamuna in Delhi.

And whereas, Hon'ble National Green Tribunal vide order dated 26.07.2018 in the said matter, had constituted a two member Monitoring Committee (known as Yamuna Monitoring Committee) for monitoring and compliance of the above mentioned Judgment / Orders of the Tribunal. The said Committee monitored the various issues related to control of pollution in River Yamuna including Foam / Froth formation due to presence of Phosphates and Surfactants in river Yamuna.

And whereas, Indiscriminate use of soaps and detergents, not confirming to BIS standards has been identified as one of the contributors to the deteriorating water quality of river Yamuna. There is probability of use of non-permissible chemical substance in the manufacture of soaps and detergents which are not conforming to BIS standards, which may cause harm to the aquatic life, river water quality, animal's dependents on river water as well as human beings.

And whereas Yamuna Monitoring Committee in its report submitted to Hon'ble NGT in January, 2021 has recommended that "….. iv. NGT may also direct the Government of NCT Delhi to issue orders prohibiting sale, storage and transportation /marketing of detergents which do not conform to the revised BIS standards. GNCT Delhi may also be directed to launch awareness campaigns about the harmful effect of using substandard soaps and detergents……."

And whereas, Hon'ble Green Tribunal vide order dated 27.01.2021 in aforesaid matter has accepted the recommendations of the Yamuna Monitoring Committee including above mentioned recommendations regarding prohibiting sale, storage and transportation / marketing of detergents which do not conform to the revised BIS standards. It is also mentioned in the said order that further actions in terms of the earlier orders of the Tribunal as well as the current recommendations of the Committee need to be taken, which may be overseen by the Chief Secretaries of concerned States on regular basis……..

Now therefore, in view of the above and in exercise of the powers conferred under section 33 (A) of the Water (Prevention and Control of Pollution) Act, 1974 and keeping in view to curb pollution in River Yamuna in Delhi, Delhi Pollution Control Committee hereby issues following directions:

1. Sale, Storage, Transportation and Marketing of Soaps & Detergents not conforming to the revised BIS Standards shall be completely prohibited in NCT of Delhi.
2. 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 (1) above through strict vigil and surprise checks on such establishments.

Monthly action taken reports of inspections conducted and subsequent action taken shall be submitted by the authorized officers to Delhi Pollution Control Committee, without fail.

Non compliance with respect to above mentioned directions attracts penal action u/s 41 of the Water (Prevention and Control of Pollution) Act, 1974, as amended to date.

(Dr. K.S. Jayachandran)
Member Secretary, DPCC

To,

1. The Secretary-cum-Commissioner, Food Supplies & Consumer Affairs Deptt. Govt. of NCT of Delhi, K-Block, VikasBhavan, I.P. Estate, New Delhi-110002 (cfood@nic.in)
2. The Chairman, New Delhi Municipal Council, Palika Kendra Building, Parliament Street, Delhi-110001.
3. The Commissioner, South Delhi Municipal Corporation (SDMC), 9th Floor, Dr. S.P.M Civic Center, JLN Marg, New Delhi - 110002
4. The Commissioner, North Delhi Municipal Corporation (NDMC), 4th Floor, Dr. S.P.M Civic Center, JLN Marg, New Delhi-110002
5. The Commissioner, East Delhi Municipal Corporation (EDMC), 419, Udyog Sadan, Patparganj Industrial Area, Delhi-110092
6. The Chief Executive Officer, Delhi Cantonment Board (DCB), Delhi Cantt. Sadar Bazaar, New Delhi-110010
7. The Commissioner of Industries, Govt. of NCT of Delhi. 419, Udyog Sadan, FIE Patparganj, Delhi-110092.
8. The Pr. Secretary (Revenue) cum Divisional Commissioner, 5 Sham NathMarg, Delhi-110054.

Copy to:

1. The Commissioner, Delhi Police, Delhi Police Headquarter, MSO Building, IP Estate, Delhi- 110002.
2. The Vice Chairman, Delhi Development Authority, Vikas Sadan, INA, Delhi-110023.
3. The Addl. Chief Secretary, Urban Development Department, Govt of NCT of Delhi, 9th Level, Delhi Secretariat, I.P. Estate, Delhi -110002.
4. Additional Chief Secretary (Environment), 7th Level, Delhi Secretariat, I.P. Estate, Delhi – 110002.
5. The Principal Secretary (Environment & Forest), 6th Floor, Delhi Secretariat, I.P.Estate, New Delhi – 110002.
6. The Principal Secretary (Health & Family Welfare), Govt of NCT of Delhi, 9th Level, Delhi Secretariat, I.P. Estate, Delhi – 110002.
7. The Chief Executive Officer, Delhi Jal Board, Varunalaya Ph-II, Jhandewalan, Karol Bagh, New Delhi-110005
8. The Managing Director, Delhi State Industrial & Infrastructure Development Corporation Ltd. N-36, Bombay Life Building, Connaught Circus, New Delhi – 110001
9. The Secretary, Irrigation & Flood Control Department (I&FC), Govt. of NCT of Delhi, L. M. Bundh, Shastri Nagar, Delhi - 110031.
10. The Member Secretary, Central Pollution Control Board , PariveshBhawan, East Arjun Nagar, Delhi - 110032
11. The Secretary - Cum -Commissioner, Development Department, Govt. of NCT of Delhi 5/9, Under Hills Road, Delhi-110054
12. The District Magistrate (North District) [Nodal Officer & DM (HQ)], 5 Sham NathMarg, Delhi-110054
13. Staff Officer to Chief Secretary, Govt. of NCT of Delhi, 5th Level, Delhi Secretariat, I.P. Estate, Delhi – 110002.
14. The Director (Environment), Govt. of NCT Delhi, Delhi Secretariat, I.P. Estate, New Delhi- 110002.

o/c 183

(K.S. Jayachandran)
Member Secretary, DPCC

Annex 18

Annexure 14 – Reply of CWC on Recomm 23

2.2 Sediment Management in Rivers The following basic principles should be followed for sediment management of Indian rivers:-

1. Sediment management should become a part of integrated river basin management plan. Regular sediment budgeting for all basins should be done especially which are affected by heavy siltation problem.

2. Removal of sediments from river bed may help in channelization of river flow during the lean season and improve the navigability, but will not have any considerable effect on flood levels.

3. There is natural deposition of sediments upstream of any barrage, but this attains equilibrium after few years. Desiltation in upstream of a barrage may be taken for channelization of stream flow. However proper operation of Gates should be ensured for reducing sediment deposition in the upstream of the Barrages/Wier.

4. Urbanization and infrastructure development works like buildings, roads, embankments etc. require large amount of sediment. The quantity of sediment removed in such cases from the river shall be limited to the extent to which it does not harm the ecology of river or gainfully utilized in developmental works, whichever amount is less. Exploitable quantity should be determined "a-priori" and the reach should be monitored for excessive exploitative practices.

5. There is a need to pursue the de-siltation/dredging schemes with utmost care backed by scientific study, including simulations through mathematical and/or physical model study at appropriate scales and employing consistent formulations applicable to the given site. Mathematical and/or physical model study is exempted for dredging/desiltation carried out for navigation purpose by Inland Waterways Authority of India.

6. If necessary, permanent observation stations may be opened for collecting data such as cross-section, hydrological observation etc. This should be coupled with periodic monitoring of various morphological changes with space technology such as formation of shoals, meandering tendency of the river, effect of construction of hydraulic structures, damages to the bank, effect of afforestation/ deforestation and tectonic occurrences. Data sharing mechanism is to be established in case of an inter-state river.

2.2.1 **Effect of De-siltation in Reducing Floods** In general, de-silting of rivers does significantly affect flood levels. In this regard, it is mentioned that the Mittal Committee was constituted by the erstwhile Ministry of Water Resources in the year 2001, under the Chairmanship of Dr. B.K. Mittal, Former Chairman, Central Water Commission. The main objectives of the Committee were to identify the cause and extent of siltation in rivers, to suggest measures to minimize siltation, to examine as to whether de-silting is a technically feasible means to minimize magnitude of floods in rivers, to suggest appropriate technology/ methods of de-silting of rivers, to propose a realistic operational programme in a time-bound manner and other related aspects. The findings/recommendations of the Committee were as follows: (i) De-silting of rivers for flood

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control is not an economically viable solution; (ii) Dredging in general has been found to be inadequate and should not be resorted to, particularly in major rivers; (iii) There are, of course, some locations such as tidal rivers, confluence points with narrow constrictions and the like which can be tackled by de-silting after thorough examination and techno-economic justification; (iv) Selective dredging is suggested depending upon local conditions; and (v) De-silting of rivers can marginally minimize the magnitude of floods and be effective only for a short period. However, selective need-based dredging of certain reaches of rivers coupled with structural and nonstructural measures may be considered in order to protect habitation, agriculture land, airports, industrial and institutional installations etc.

2.2.2 Extraction for Navigational Purpose Inland Waterways Authority of India (IWAI) is required to carry out dredging to clear shoals/shallow patches on fairways in National Waterways as a mandatory functional requirement in terms of provisions of Section 14 (Chapter IV) of IWAI Act, 2016 (82 of 85). The above dredging shall be necessitated to be carried out at frequent intervals as and when shoals are surfaced and identified based on continuous fortnightly/monthly bathymetric surveys being carried out by IWAI. This maintenance dredging is also required to be taken up at short notice and complete the dredging in a time bound manner to facilitate navigation. The above maintenance activities of dredging including its disposal are also exempted from obtaining clearance from MoEF&CC.

2.2.3 Extraction for Economic Uses Sediment deposit in both rivers and reservoirs at some places contains considerable quantity of sand. In places where sediment deposits are having good sand content (of the order of 30% - 40%), it is possible to extract sand from sediment to meet the ever-increasing demand of sand. Sediment component such as silt and clay bears comparatively lesser economic value but still can be used in many works such as for brick making, as filling material, construction of embankments, roads, 05 constructing raised platforms for flood proofing etc. Its different uses are given at Annexure-IV. There is possibility of revenue generation in such cases. 2.2.4 Indispensable Removal Many a time, excess deposition of sediment at undesirable places causes bank erosion, shifting of river course and navigational issues. Sediment deposition on the mouth of a river may cause large scale flooding due to drainage congestion. At many places, sediment needs to be removed from a river to channelize it to bring it to its original course especially during pre-monsoon and post monsoon. In such cases, it is imperative to remove the sediment by practically suitable means. Similarly, in some old reservoirs, especially those which are supplying drinking water, sediment removal becomes necessary to regain their capacity. In hydro-power projects, excess deposition of sediment just below the intake level of turbines hamper their operation and has to be removed with suitable means.

Annex 19

ANNEXURE-II

APPROACH FOR SEDIMENT MANAGEMENT OF RIVERS

To reduce sediment production in the watershed sustainably, the main actions include (i) study watershed characteristics, (ii) assess the vulnerability of watershed in terms of soil erosion & sediment production using modelling and to identify & prioritise the degraded micro-watershed for treatment, (iii) treatment of the prioritised micro watersheds with biological and engineering erosion control measures, (iv) stream bank erosion control using river training works like spurs etc., and (v) trapping sediment upstream of reservoir (in river).

Identification of hotspots may be carried out for prioritizing the action plans for Sediment Management thereby helping in targeted, cost-effective interventions. It is recommended to quantify the sediment load in order to identify effectiveness and type of interventions required.

A. **Upper course-** In this stage, the rivers have steep slopes and high sediment transport capacity. The following sediments management practices may be adopted-

a. **Catchment Area Treatment-** Catchment Area Treatment and Watershed Development works along with good agricultural practices and river bank protection/anti-erosion works are necessary to reduce silt inflow into the river system and must be undertaken in a comprehensive way. Catchment area treatment on watershed approach plays an important role in minimizing sedimentation. Watershed management programme needs to be integrated with river basin management programme appropriately. An effective and permanent method of sediment control is soil conservation in the catchment.

The method to be adopted in catchment may include-

i. Afforestation and forest management

ii. Regrading and grassland management

iii. Cultivation practices, such as crop rotation, increasing organic matter, mulching, seasonal cover crops, contour cultivation, strip cropping and terracing.

iv. Gully control and check dams- contour bunding and trenching.

v. Appropriate land use controls for protecting areas of importance.

vi. The various on-farm practices to control the soil detachment to reduce silt load may include the following practices:

- To maintain grass cover on soil
- To control sediment generation through film trap

vii. Adoption of practice of bio-filter strips, field borders, sediment retention terraces and ponds

b. **Regrading & Check dams-** Regrading of river bed slope and construction of check dams may be suitably adopted for management of degradation of river beds as per techno-economic feasibility.

c. Controlled construction activities of roads and houses also reduce the silt intake in hilly areas.

d. Occurrence of landslides / landslips especially in hilly areas with heavy rainfall need to be controlled by proper slope stability measures.

e. **Storage Reservoirs-** The reservoirs are built to store water. Incidentally, these act as settling tanks for sediment and trap the sediment carried by the river. Therefore, the sediment concentration of the water released from the reservoir gets effectively reduced depending upon the size of the reservoir.

f. River training works such as bank protection, spurs etc. should also be made for the vulnerable reaches to check the river bank erosion.

g. **Boulder/Gravel/ Sand Mining-** In the upper course, boulder, gravels and sand (course & fine) are deposited in the river. If these are mined at this stage and used for construction purpose, then Boulder/ Gravel/sand mining can be done strictly as per following guidelines-

   I. "Sustainable Sand Mining Management Guidelines – 2016" of MoEF&CC

   ii. "Sand Mining Framework" released by Ministry of Mines in March, 2018

   iii. GSI Guidelines for riverbed gravel/ sand mining.

B. **Middle course-** In this stage, the river exits the hills, enters the plains, gets meandered mostly on bed of fine sand, has a wide river bed and flood plain. Most importantly, the river gets modified through human interventions in terms of huge quantities of water diversion/abstraction and subjected to high degree of pollutant loads from domestic, industrial and agricultural activities. In this stage, following sediments management practices may be adopted:-

a. **River training works such as bank protection, spurs etc** – River training works are used to control the erosion of river banks. Erosion control of riverbank reduces the sediments intake in river

b. **Submerged Vanes & Bandalling-** These methods may be adopted for management of localized aggradations within the river course as per techno-economic feasibility.

c. **Sand Mining -** In this stage, sand is deposited in the river. If these are mined at this stage and used for construction or other purposes, then a major portion of sediment can be reduced. Sand mining can be done as per the guidelines mentioned above.

d. **De-siltation/Dredging-** De-silting using sluicing and flushing near water resources infrastructure is very effective in increasing their serviceability. However, there exist some

locations such as congestion at the mouth of tidal rivers, confluence points and the likes which can be tackled by de-silting after thorough examination. For navigation purpose the river reaches in the waterway path can be dredged, to have minimum required draft for plying vessels. De-silting improves the hydraulic efficiency if done near outlets and intakes.

When the meander loop extends substantially in the lateral direction, the friction loss over the meander length generates a head loss thereby resulting in a rise in the flood levels. Over the course of time, when the water path around a meander lengthens, arising to a critical level, a natural cut-off takes place. Construction of artificial cut-offs (cunnette) can be utilized as a method for flood control.

It is necessary to appreciate that de-silting does not always lead to reduction of flood levels as the levels in the river are essentially controlled by the hydraulic conditions persisting at the cross sections forming upstream and downstream boundaries of the reach. The lowering of the bed level within the reach may not have influence on them consequently leading back to drainage problems within the season or within a few years. On the other hand, unsystematic dredging may have the effect on bank destabilisation.

C. **Lower course-** In this stage, the river experiences considerable changes in the sediment transport and deposition, causes wide spread flooding, undergoes frequent changes in the channel path/ delta formation.

The following sediments management practices may be adopted:-

(a) **Desiltation/ Dredging-** In this stage, generally delta formation occurs due to heavy siltation, which leads to drainage congestion and the mouth of river gets choked. In these areas, dredging/ de-silting works may be undertaken to maintain flow continuity and ensure sediments transportation to sea.

(b) **River training works wherever possible may be taken up for sediment management.**

General Guidelines for carrying out de-siltation/dredging work

(i) A study of the river reach may be selected for de-siltation/ dredging by appropriate mathematical and/ or physical model studies by employing consistent practices. Based on the outcome, the DPR may be prepared.

(ii) Dredging for de-silting of Indian rivers may be adopted only in exceptional circumstances or when no other sustainable alternative is available. However, dredging for maintaining the necessary draft for maintaining the navigation may be done as and where required. However, it shall be ensured that such dredging does not cause any considerable pollution to river water and not harm flora and fauna.

(iii) The de-silting of any river reach needs to be justified bringing out clearly the flooding caused due to siltation along with technical comparisons of the alternative flood mitigation measures with "do nothing" or "proposed de-silting/ dredging" being other options. It should invariably be associated with sediment flux studies and morphological studies to confirm no significant adverse effect on downstream or upstream reach of the river including the safety and effectiveness of river crossings, water intakes, existing river

bank / flood protection measures, etc. Post dredging, sediment flux studies should also be carried out to quantify the amount of silt likely to be deposited in future i.e. Sediment modelling studies for the river may be done before taking up any such project.

(iv) Negative impact on ecology and environment due to de-silting may also be studied along with other studies and should be invariably made a part of DPR.

(v) The quantity of sediments needed to be removed from rivers is usually very high. Since it may not be easy to find lands for silt disposal, therefore it should be ensured that all silt removed from river should be utilized in some works in association with concerned state government.

(vi) The proposal for de-siltation/ dredging work should also contain environmentally acceptable, practically possible silt disposal/ utilisation plan. River gravels/sands/silts are valuable resource and could be used gainfully in construction works, including housing, roads, embankment and reclamation works. Since it is very difficult to find lands for silt disposal therefore it should be ensured that all silt removed from river is utilized in some works in association with concerned state governments. However, in the critical cases where it becomes necessary to remove the silt for free flow of water or protection of any installation, action may be taken up with the prior approval of the committee.

(vii) Under no circumstances, disposal should create any contamination of water bodies, harmful to the flora and fauna existing adjacent to the disposal sites or disposed material should come back into the river again.

(viii) Desilted material should not be used for filling up of wetlands and water bodies including oxbow lakes, as these are important for recharging the ground water and providing base flow in rivers during lean season.

(ix) The modus operandi for sediment disposal should be finalized before carrying out dredging. No project should be executed before formulating a suitable and sustainable action plan for sediment disposal and be preceded by EIA Study, as per MoEF& CC notification dated 15.01.2016 to avoid damage to ecology. The methodology to be adopted (say use of dredgers etc.) should be clearly laid down in the proposal so that its co-relation with the environmental hazards can be made.

(x) Normally, funds required for dredging projects are enormous. Before embarking on a major de-silting operation in any of the rivers, the financial implications may be discussed in detail.

(xi) The dredging/de-siltation/mining activities thereby disturbing the river regime may result into some adverse impacts, i.e., (a) River bed degradation; (b) Bank erosion; (c) Channel widening; (d) Lowering of water surface elevations in the river channel; (e) Lowering of water table elevations adjacent to the river; (f) Reduction in the structural integrity of bridges, pipelines, jetties, barrages, weirs, foundations supporting high tension lines, existing bank protection works and other man-made structures; and (g) Loss of environmental values resulting from (a) through (e). Restrictions as presented in **Annexure III** need to be enforced

before planning and executing any dredging/ de-silting / mining activities. These restrictions may be modified only after proper study and monitoring the effects of dredging / de-silting / mining.

OTHER STRATEGIES

1. Silt management upstream of bridges, barrages & weirs

Shoal formation upstream of barrages/bridges in the pond area is a natural phenomenon. Reduced velocities of water in upstream of barrage leads to deposit of silt, but sometime after construction, this attains equilibrium and the incoming silt is washed away through the under sluices and during the flood season when all gates of the barrage are open.

I. Upstream reaches of construction works, like barrages/bridges, etc., tend to get silted leading to wandering of river. As the waterway provided for design flood condition is much larger than actual waterway required in normal condition, there is a tendency for shoal formation upstream of barrages. Possibly, proper operation of gates verified on the basis of physical or mathematical modelling, river training, cut-off developments and provision of extra water way near the constrictions could be tried after proper assessment without impacting the morphology of river elsewhere. The area freed from the development in the form of oxbow lakes should be used for flood moderation rather than reclaiming it for other purposes.

II. Sediment sluicing may be incorporated to maintain sediment continuity from upstream to downstream reaches after carrying out necessary studies.

2. Lateral Connectivity for Sediment Management- Construction of embankment has resulted in breaking the lateral connectivity of river with its flood plain. Therefore, the silt carried by the river is being deposited in river bed only leaving the flood plains devoid of sediments. This has resulted in rising of river bed and causing bank erosion at high flood levels. In order to provide lateral connectivity to the river with its flood plains, sluice gates may be provided at appropriate places in the embankment to allow controlled flooding in flood plains. This will allow silt carried by the river to be deposited in its flood plains in thin layers distributed over vast areas and will ultimately result in reduction of silt loads in rivers and will make the agriculture fields in flood plains fertile. This will benefit in multiple ways-

(a) Reduced high flood levels in downstream.
(b) Increased fertility of flood plains. Thus reducing the dependency of farmers on chemical fertilizers.
(c) Recharge of ground water.
(d) Rejuvenation of the water bodies etc.

Here, it may be mentioned that the sluice gates which allow incoming of flood waters in country side will be used for discharging extra water in river again when flood levels in rivers go down. Such sluice gates will also reduce drainage congestion on country side, if any.

3. Floodplain Management

River tends to achieve equilibrium on its own given the hydrology, sediment and natural bed and bank disposition. It is necessary to provide the river sufficient flood plain areas and lakes along the river to

moderate the flood level. Any encroachment of flood plain, reclamation of lakes or disconnection of lakes from river should be avoided. Rather, adjoining lakes/depressions may be de-silted to increase their storage capacities. The de-silting of lakes, etc., should be in such a manner that the sediment continuity is maintained and should not lead to head cut that creates safety issues for the river crossings, water intakes or river training works locally or upstream.

To maintain the hydrological and ecological balance, regulation of different activities in the river bed and different zones of flood plain is essential. The River Regulation Zoning for demarcating necessary zones should be implemented as early as possible. Central Water Commission in 1975 has already prepared a draft Flood Plain Zoning Bill in this regard.

4. Solid Waste Management

Solid waste from community including garbage, rubbish, agricultural waste, toxic Industrial discharge, construction debris, landfills in the catchment area etc. all contributes to pollution in rivers which damages highly sensitive and fragile river ecosystem. Such anthropogenic activities cause aggradations and morphological changes in the river. The disposal of solid waste needs to be controlled by the community, local municipal bodies and government bodies.

Special care should be taken for solid waste generated out of industrial processes. Many times, the same contains toxic materials and intermixing with other silt may render the same unusable for food chain use. Such waste should not be allowed to be dumped in the river.

5. River rejuvenation / Environmental flow

There is need to construct storages with sufficient flood cushion. The stored water needs to be released during the non-monsoon period in such a way that environmental flow and silt carrying capacity of river is by and large maintained. This will also improve the ecology of river. In this regard, DoWR, RD & GR, Ministry of Jal Shakti, GoI has issued guidelines on e-flow for river Ganga in 2018 vide notification dated 09.10.18

6. Bed-load management

Bed-load relocation (dredging) and artificial bed load supply, etc. Flood Control Programs-Detention basins (holding ponds), energy dissipaters in channels (culvert outlet controls, forced hydraulic jumps, drop structures, stilling wells, etc. Land use controls: these are used to reduce storm runoff), Embankments/dyke/levee construction, Periodic flushing of rivers, etc may be used to control the sediments.

7. Land Management and Soil Conservation Techniques

Check dams, settling basins, vegetation covers, agricultural practices, etc. may be adopted to control sedimentation.

8. Artificial Nourishment (with sediments) in the River

Due consideration has to be given for artificial nourishment (with sediment) in River stretches/ Reaches that contain inadequate quantity of bed sediments. This is very important to protect psammophilc/ lithophilic organism that are inhibiting in river stretches devoid of adequate supply of sediments.

Further, artificial sediment nourishment is required, in certain cases, to contain the adversities of hungry water effect in river environment. This will also minimise the ill-effect on coastal and near shore environment as well.

9. Application of Multi-Temporal High-resolution Satellite Imagery

Multi-temporal high-resolution satellite imagery may be used for identification of hotspots (heavily sediment-laden stretches). However, there are some limitations for monitoring suspended sediment concentration using remote sensing such as availability of satellite data for the study period as sediment yield is time-dependent and simultaneous satellite imagery might not be available. Therefore, more research is necessary to harness the advancements in satellite remote sensing for studying the suspended sediment dynamics and sediment management in river stretches.

DREDGING/DE-SILTING/ MINING RESTRICTIONS

The dredging/ de-silting/ mining restrictions are intended to limit the adverse impacts associated with it. They are intended to limit those impacts to a level which will have limited and manageable minor effect on the morphology and ecology of the river. These are guiding principles and de-silting works should be done only and after detailed studies are undertaken. If the State Government/local bodies have any regulatory law in this regard, conservative restriction shall be followed. However, dredging by Government agencies like IWAI, PSUs etc. for maintaining the necessary draft for maintaining the navigation may be done as and where required.

1.0 Restriction on River Bed Degradation

The magnitude of dredging-induced river bed degradation is a key factor influencing the degree of instability of the river channel. This may result in secondary impacts such as bank erosion, channel widening, lowering of water surface elevations adjacent to the river, alteration of aquatic and terrestrial habitat, and a reduction in the structural integrity of man-made structures. Since secondary impacts increase as riverbed degradation increases, the degree of dredging/ de-silting/ mining induced river channel instability can be limited by identifying and selecting appropriate reaches for suitably controlling the amount of dredging related degradation. The dredging /de-silting / mining of the river reach shall be altered or terminated if the average river bed degradation over a10 km reach length is more than 1 meter. A reach of river which has been dredged / de-silted /mined out and closed for further dredging will not be reopened until sufficient materials have accumulated to support renewed dredging activities for a reasonable period of time.

2.0 Restrictions Concerning Man-made Structures

2.1 Barrage or weirs or jetties

The barrages or weirs act as a river bed control structures across river and have huge influence on the river bed. If they fail, it could induce unintended severe riverbed degradation, bank erosion and channel widening due to design and other related issues. The unregulated dredging/ de-silting can result in Structural/functional failure of the structure in addition to the ill effects on river regime. To safeguard the structural integrity of the barrage or a weir, following restrictions shall apply:-

a) Dredging/ de-silting/ mining activity upstream of structure will be allowed only beyond 200 m or L/5 whichever is more (Where L is the length of barrage/weir).

b) Dredging/de-silting/ mining activities downstream of the structures will be allowed only beyond a distance of 800 m or L whichever is less (Where L is the length of barrage/weir).

c) The region of extraction shall be decided in upstream so as to have a positive effect on hydraulics of the pond and channel.

d) Maximum volume of extraction on downstream shall be decided by proper monitoring so that it will not have any effect on the integrity of the structure.

2.2 Water Intake Structures

No dredging below the natural bed level will be allowed within 150 m distance from the intake structures for safeguarding structural integrity. However, dredging can be carried out, if the water flow to the intake structures has been obstructed by excessive sedimentation. The dredging activity shall be restricted so that the water level reduction will not lead to functional difficulties in diverting water in to the intakes.

2.3 Bridges

No dredging will be allowed below the level of top of raft/bottom of pier within 150 m of any bridge crossing to safeguard the structural integrity of the bridge. This shall not be applied where water way has been obstructed by excessive sediment deposit and is causing flooding of upstream reaches.

2.4 Pipelines

2.4.1 Pipelines buried in the riverbed have a high potential to be adversely impacted by dredging activities. If degradation of the riverbed exposes pipelines, damage could occur through sagging, buoyancy or displacement of the line downstream due to an accumulation of debris. The following restrictions will limit the potential for dredging/ de-silting/ mining induced localized degradation to expose buried pipelines:

a) No dredging will be allowed within 60 m of any pipelines that is buried 3 m or below the river bed.

b) No dredging will be allowed within 150 m from any pipeline that is buried less than3 m below the river bed. Additional restrictions may be required for any pipeline located on or above the river bed. Such restrictions could be developed on a case by case basis.

2.4.2 Laying of pipelines/telecommunication lines/internet cables etc. below the bed of any river should be done only after the approval of the concerned competent authority.

2.5 Bank Stabilization Structures

No dredging will be allowed within 60 m of the most upstream and downstream point of the bank stabilization structure. Dredging/ de-silting/ mining restrictions as shown in Figure 1 & 2 and the limit given in Guidelines/Notification 2020 of MoEF&CC shall apply for the bank stabilization structures. The same restrictions shall apply to levees or embankments also.

2.6 Other structures

The support structure for high tension lines passing over the river shall also be treated as bridge piers and relevant restrictions as provided in clause.2.3 for bridges shall apply. Restrictions regarding other man-made structures not identified in this section may be determined on a case to case basis.

3.0 Restrictions Concerning Natural Formations

3.1 Natural Rock or Hard Deposits in River Channel

Natural rock or hard deposits located on or in the riverbed may act as riverbed controls and/or may increase aquatic habitat diversity. The importance of rock or hard deposit is dependent upon extent of its area, its thickness and other relevant factors. Based on these hard deposits, river is restrained to flow along a predefined alignment. Dredging/ de-silting/ mining shall not dislodge such hard deposits or dredging of collected silt upstream or downstream of such hard stratum shall not in turn displace it, whereby the river loses its control. Therefore, restrictions concerning natural rock deposits will have to be dealt case by case basis. River Ganga flows along important ghats of Varanasi and other such places, where people gather in large numbers. It is held to flow along these ghats due to peculiar alignment formed by rock or hard strata and silt deposits together. Hence, dredging / de-silting / mining shall be avoided at these places entirely along the width and at least 5 km upstream and downstream of such congregational areas. However, for navigational purpose, limited dredging will be allowed in such shallow reaches as recommended in DPR.

3.2 River Banks

Dredging/ de-silting/ mining close to riverbanks have a high potential to adversely impact the stability of those banks, especially when dredging/ de-silting/ mining occurs near the outside of sharp river bends. Bank erosion induced by such dredging can result in the loss of land, damages to man-made structures, and adverse impact to environmental resources. Therefore, to limit the potential bed/bank degradation, restrictions as per notifications and guidelines being notified under Environment (Protection) Act, 1986 (latest Guidelines/Notification 2020 of MoEF&CC) shall apply on Dredging/ de-silting/ mining. The restrictions as shown in Figures 1 and 2 may be used as a guide as documented for river Ganga in the report of the Committee constituted for preparation of guidelines for works on de-siltation from Bhimgauda (Uttarakhand) to Farakka (West Bengal) prepared in 2017. Such restrictions for other rivers need to be derived by studies.

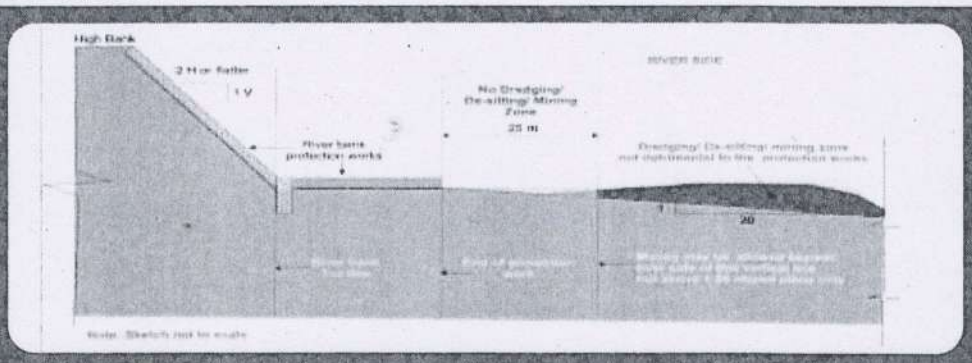

Figure 1: Typical Dredging / De-silting / Mining Restrictions for protecting river bank with bank protection works

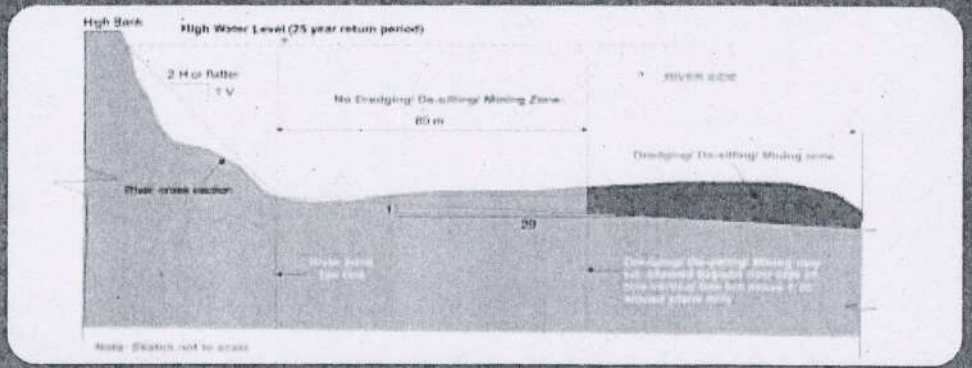

Figure 2: Typical Dredging / De-silting / Mining Restrictions for protecting natural river banks