# ACTION PLAN FOR

# REJUVENATION OF RIVER YAMUNA

## (WAZIRABAD TO ASGARPUR VILLAGE- 22 KM, PRIORITY-I STRETCH)

(***In compliance to the directions of the Hon'ble National Green Tribunal issued vide orders Dated 20.09.2018, 19.12.2018, 08.04.2019 and 06.12.2019 in O.A. No. 673/2018 in the matter of : News item published in 'The Hindu' Authored by Shri Jacob Khoshy Titled "More river stretches are now critically polluted: CPCB")***

# BY

## RIVER REJUVENATION COMMITTEE (RRC)

## GOVT. OF NCT OF DELHI

## (February, 2020)

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# CHAPTER:I

## 1.0 Orders of Hon'ble NGT in OA No. 673/2018 in the matter of : News item published in 'The Hindu' Authored by Shri Jacob Khoshy Titled "More river stretches are now critically polluted: CPCB"

### 1.1 Orders of Hon'ble National Green Tribunal (NGT)and Formation of River Rejuvenation Committee (RRC) for Delhi

Hon'ble National Green Tribunal (NGT) in its order dated 20.09.2018 in OA No. 673/2018in the matter of: News item published in 'The Hindu' Authored by Shri Jacob Khoshy Titled "More river stretches are now critically polluted: CPCB"issued specific directions**.** Vide para 50 (ii) of said order, Hon'ble NGT has directed for constitution of a River Rejuvenation Committee (RRC). The River Rejuvenation Committee (RRC)for Delhi has been constituted vide office order dated 22.10.2018and given at **ANNEXURE–1**.The RRC to function under the overall supervision and coordination of Principal Secretary, Environment, Department of Environment, Government of National Capital Territory, Delhi (GNCTD).

As per the Hon'ble NGT order, in case of Delhi, *the* ***polluted stretch of River Yamuna have been identified from Wazirabad to Asgarpur village (22 km) which is a Priority I Stretch.***As per the directions of the Hon'ble NGT in OA 673/2018 dated 20.09.2018, RRC has to prepare action plan for bringing the polluted river stretches to be fit at least for bathing purposes (i.e. BOD < 3 mg/L and FC < 500 MPN/100 ml) within six months from the date of finalisation of the action plan.

As per the Hon'ble NGT directions, the action plan should be prepared covering aspects (i) Identification of polluting sources, including:functioning/ status of STPs/ETPs/CETPs; (ii) solid waste management and processing facilities; (iii) quantification and characterisation of solid waste, (iv) Trade and sewage generated in the catchment area of polluted river stretch; (v) Ground water extraction; (vi) Adopting good irrigation practices, (vii) Protection and management of Flood Plain Zones (FPZ), (viii) Rain water harvesting, (ix) Ground water charging, (x) Maintaining minimum environmental flow of river, (xi) Plantation on both sides of the river; (xii) Setting up of biodiversity parks on flood plains by removing encroachment shall be considered as an important component for river rejuvenation.; (xiii) The action plan should focus on proper interception and diversion of sewage carrying drains to the Sewage Treatment Plant (STP) and (xiv) Emphasis should be on utilization of treated sewage so as to minimize extraction of ground or surface water.

Other directions of Hon'ble NGT are

- The RRCs will have the authority to recover the cost of rejuvenation in Polluter Pays Principle from those who may be responsible for the pollution, to the extent found necessary. In this regard, principle laid down by this Tribunal in order dated 13.07.2017 in O.A No. 200 of 2014; M.C Mehta vs. U.O.I will apply. Voluntary donations, CSR contribution, voluntary services and private participation may be considered in consultation with the RRC.

- The State Pollution Control Boards or other authorities are having funds deposited under the order of the Tribunal besides funds available under Consent Mechanism. The said funds may be utilized for the purpose of expenditure for the Committees,

including preparation and execution of action plans in accordance with the provisions contained in the Water Act, 1974.

## NGT Order Dated19.12.2018

*The operative part of the order is reproduced below:*

- The State Pollution Control Boards (SPCBs) and Pollution Control Committees (PCCs) of UTs may display the quality of the water of polluted river stretches on their respective websites within one month from today, along with action taken, if any, which may be revised every three months. The CPCB may also display the water quality of the river stretches and action/inaction by such States on its websites. It is made clear that BOD will not be the sole criteria to determine whether a particular river stretch is a polluted river stretch. Other parameters including Faecal Coliform (FC) bacteria will also be the criteria for classifying a stretch as polluted or otherwise. CPCB may devise within two weeks a mechanism for classification wherein two criteria pollutants that is BOD and FC shall henceforth be basis of classification in Priority Classes.
- Any incomplete action plan will be treated as non-compliance. Performance guarantees are to be furnished for implementation of action plans within the above stipulated time to thesatisfaction of Central Pollution Control Board in the sum of:

  (i) Rs. 15 Crore for each of Priority I & II stretches.
  (ii) Rs. 10 Crore for each of Priority III stretches.
  (iii) Rs. 5 Crore for each of Priority IV & V stretches.

***As directed by Hon'ble National Green Tribunal an action plan was submitted to CPCB on 22.02.2019. In pursuance of orders dated 19.12.2018, Performance Guarantee of Rs. 5 Crore was submitted to CPCB vide letter dated 29.04.2019.***

Vide letter dated 28.02.2019 CPCB informed that action plan submitted in respect of River Yamuna (P-I) is based on the action plan being implemented since 1993 as a part of Yamuna Action Plan. Further, it was informed that the submitted action plan do not cover detailed aspects relating to sector-wise industries, segment-wise water consumption, total industrial effluent generation, waste which include solid, hazardous waste and the existing infrastructure for management with detailed gap analysis. CPCB also conveyed that action plan are required to be prepared based on the detailed gap analysis w.r.t the sewage, industrial effluent and waste management in the catchment of identified polluted river stretch covering all the aspects as directed by Hon'ble NGT vide orders dated 20.09.2018 and 19.12.2018.

## Hon'ble NGT Order Dated 08.04.2019

*The operative part of the order is reproduced below:*

*"_ _ _It has also been stated that water quality of polluted river stretches has not been displayed by Manipur, Sikkim, Tamil Nadu and Delhi UT on their respective websites. CPCB has suggested that as against the timeline laid down by this Tribunal, longer timeline may be required where infrastructure has to be set up and where no infrastructure was possible, the polluted river stretches be diluted by using fresh water, preventing disposal of waste or adoption of bio-remediation/provision of green*

*bridges/proper O&M of existing STPs, ensuring proper disposal of STP sludges, ODF, etc. In case of industries, 100 % strict compliance to the discharge norms by the industries should be ensured and in case of non-compliance, penalty or environmental compensation as per guidelines of CPCB on such industries should be levied in addition to prosecution under various provisions of Rules, as necessary. CPCB has further suggested that scale of performance guarantee should be as follows:*

*No.of Polluted River Stretches in a State/UT Suggested Performance Guarantee*

*(in Rupees)*

*> 10 15 Crore*

*5 to 1010 Crore*

*< 5 5 Crore.*

*These are substantial questions relating to the environment. For enforcing legal right to clean environment, which is also a fundamental right, this Tribunal has to pass appropriate orders for relief to the victims of pollution and for restoration of the environment even in absence of an identified victim. All the States and UTs have been duly put to notice of the present case.*

*The report of the CPCB further shows that 6 States have furnished incomplete action plan as given in Table 3 quoted above. The said six states i.e. Delhi, Meghalaya, Nagaland, Tamil Nadu, Uttar Pradesh and Uttarakhand are liable to pay compensation as per order dated 19.12.2018 for delay after 31.1.2019 at the scale of 50% of the compensation payable by the States who have failed to submit any action plan. None of the above defaulting States except the State of Uttarakhand is represented before this Tribunal. There is no satisfactory explanation by any of the States, including the State of Uttarakhand who is represented by an officer. This part of order will be governed by earlier para for interest and enforcement. The requirement to pay compensation will continue till action plans are furnished or completed. The action plans may be uploaded on the websites of the CPCB as well as respective States/UTs and the MoEF&CC after former approval by the CPCB. We direct that CPCB with SPCBs and PCCs to launch nationwide programme on biodiversity monitoring and indexing of the rivers to assess the efficacy of river cleaning programme.*

## *Action Taken w.r.t. order dated 08.04.2019*

Vide letter dated 06.07.2019, CPCB was requested to waive off the compensation amount of Rs. 2 crores asked by CPCB vide letter dated 21.05.2019 since action plan of RRC was submitted to CPCB on 30.01.2019 and revised action plan was submitted on 04.04. 2019.Performance guarantee of Rs. 5 Crore was submitted to CPCB vide letter dated 29.04.2019.

A power Point Presentation was made before the Task Team of CPCB in its 7th Meeting held on 16.07.2019 and representatives of Environment Department, DPCC, DJB, DDA, DSIIDC, I&FCD and Municipal Corporations were present during the presentation.CPCB vide letter dated 23.07.2019 has informed that task team has not recommended the action plan of RRC Delhi as “Action Plan is required to be prepared based on detailed gap analysis covering all aspects as per Hon’ble NGT orders dated 20.09.2018, 19.12.2018 & 08.04.2019. Also, proposed action plan does not target to achieve notified outdoor bathing water criteria”.Observations of the Task Team mentioned in the minutes of the 7$^{th}$ Meeting of the Task Team held on 16.07.2019 and communicated by CPCB vide letter dated 23.07.2019 are reproduced :

1) Delhi State Govt. yet to submit revised and RRC approved action plan in response to CPCB recommendations communicated vide CPCB letter dated 12.04.2019.
2) Achievable goals for restoration of Yamuna River to meet bathing criteria need to be included.
3) Ground water quality for all parameters at least for last 3 years near landfill sites to be included.
4) If there is a contamination of MSW dumpsites, action plan also should indicate remediation of GW.
5) Capping of all the dumpsites (exhauster) as per SWM Rules 2016 to be included
6) Feasibility of adopting in-situ remediation for bringing BOD to <10mg/ml can also be included.
7) For improving the ground water level action plan for rejuvenating all the water bodies be included.
8) Measures for illegal transportation of sewage/industrial effluent, sledges from septic tank/ STPs/CETPs also be included.
9) Bio-digesters/methane recovery plants as seepage management to be included
10) Action plan for development of HWTSDF also be included as the CETP sludge & industrial HW is presently stored at various places.
11) Other aspects as per Hon'ble NGT orders dated 20.09.2018, 19.12.2018 and 08. 04.2019.
12) While estimating total sewage generation, floating population factor also be included.
13) Action plan for development of HW TSDF also be included as the generated CETP sludge & industrial HW reported to be presently stored at various places.
14) Action plan for connecting 11 industrial area not connected with CETP also be included.
15) Action plan for I& D sewage from all the drains presently carrying domestic sewage, industrial effluent and contributing to Yamuna pollution should be included apart from 3major drain (Najafgarh drain, Shahdara drain and supplementary drain).
16) Issues relating to flow from drains contributing to Yamuna pollution in Delhi jurisdiction also be included for control of such pollution.

The River Rejuvenation Committee for Delhi in its 5$^{th}$ meeting held on 26.07.2019 discussed directions of the Hon'ble National Green Tribunal and above mentioned observations of the Task Team of CPCB. After discussions on each point, theRiver Rejuvenation Committee for Delhi approved the Revised Action Plan for River Yamuna and the same was submitted to CPCB on 01.08.2019

Revised Action Plan approved by RRC Delhi was further amended by incorporating the latest information/ Revised Timelines etc. as received from Delhi Jal Board and same was presented before Task Team of CPCB in its 8$^{th}$ Meeting held on 06.09.2019. *CPCB vide letter dated 18.09.2019 communicted Minutes of 8$^{th}$ Meeting of the CPCB Task Team held on 06.09.2019. As per the said minutes, in case of Delhi Task Team has recommended that Action Plan of Delhi "Needs revision and approval of RRC for consideration of approved action plans in next meeting of Task Team".*

**Hon'ble National Green Tribunal order dated 11.09.2019 passed in OA No. 06 / 2012 in the matter of Manoj Mishra vs. Union of India & Ors.:**

*Hon'ble NGT has passed detailed order giving various directions & Timelines in respect of NCT Delhi (including Directions to Delhi Jal Board (DJB), Delhi Development Authority (DDA), Delhi Pollution Control Committee (DPCC), Municipal Corporations etc), State of Haryana and State of Uttar Pradesh and also directed that timelines have to be compressed so as to complete every action by December, 2020 ( except where shorter*

*timelines are specified in the order or are otherwise possible). DJB has been directed to complete the task of setting up of STPs by 31.12.2020.*

The River Rejuvenation Committee for Delhi (RRC Delhi) in its 6th Meeting held on 26.09.2019 discussed the various issues and observations of Task Team of CPCB in the meeting held on 06.09.2019. *The River Rejuvenation Committee for Delhi in its 7th Meeting held on 04.11.2019 approved the Revised Action Plan for River Yamuna and the same was submitted to CPCB vide letter dated 22.11.2019.*

*Further, a presentation was given before the task team of CPCB in its 9th meeting held on 27.12.2019 however the Action Plan was not approved by the Task Team of CPCB and Minutes of said Meeting / Observations of the Task Team of CPCB has been communicated vide letter dated 16.01.2020.* As per said Minutes, Action Plan submitted by Delhi Govt. should also review covering following aspects:

- Sewage generation stated in the action plan is calculated only on the basis of water Supply by DJB but not considering ground water consumption, projected population, floating population into account.(*Sewage generation fixedby DJB as 3273 MLD (720) MGD till Dec 2022 based on the water supply by DJB which needs to be revised considering increase in population over the years and ground water drawn by the population over the years and ground water drawn by the population on their own).*
- Till proper facilities commissioned, interim measures for providing in-situ remediation of drains may be initiated in line with Hon'ble NGT order.
- DJB's Sewerage action plan of 2031 may be divided into 5 years plans for better monitoring.
- Provisions to be included for 100% utilization of installed CETPs.
- For solid waste management, door-to-door collection, segregation, transportation, treatment, disposal, remedial aspects such as bio-mining to be included.
- In cases where plastic waste, hazardous waste, C&D waste, e-waste treatment facilities are unavailable, use of facilities available in neighbouring states may also be included till the facilities become operational in Delhi.
- For Plastic waste management, details of recyclable and non- recyclable waste be quantified along with facilities available for disposal.
- A map showing all interceptor drains also be included & detailed elaborately.
- All existing STPs should be ensured to operate at 100% utilization by way of proper I&D provision.
- Industrial areas where dry units are located, such areas may be declared that only dry units are allowed with captive STPs only & no need for CETPs.
- 24 areas notified as redevelopment areas for which action plans to be included.
- All natural drains to be ensured to carry only storm water but not sewage/ industrial effluent.
- Actions plans covering all aspects as per Hon'ble NGT order passed in O.A No. 673/2018 & O.A. No. 6/2012 to be included.

**Hon'ble NGT Order dated 06.12.2019 passed in OA No. 673 of 2018: -**

Following directions have been given by Hon'ble NGT Order dated 06.12.2019:

i. 100% treatment of sewage may be ensured as directed by this Tribunal vide order dated 28.08.2019 in O.A. No. 593/2017 by 31.03.2020 atleast to the extent of in-situ remediation and before the said date, commencement of setting up of STPs and the work of connecting all the drains and other sources of generation of sewage to the STPs must be ensured. If this is not done, the local bodies and the concerned departments of the States/UTs will be liable to pay compensation as already directed vide order dated 22.08.2019 in the case of river Ganga i.e. Rs. 5 lakhs per month

per drain, for default in in-situ remediation and Rs. 5 lakhs per STP for default in commencement of setting up of the STP.

ii. Timeline for completing all steps of action plans including completion of setting up STPs and their commissioning till 31.03.2021 in terms of order dated 08.04.2019 in the present case will remain as already directed. In default, compensation will be liable to be paid at the scale laid down in the order of this Tribunal dated 22.08.2019 in the case of river Ganga i.e. Rs. 10 lakhs per month per STP.

iii. We further direct that an institutional mechanism be evolved for ensuring compliance of above directions. For this purpose, monitoring may be done by the Chief Secretaries of all the States/UTs at State level and at National level by the Secretary, Ministry of Jal Shakti with the assistance of NMCG and CPCB.

iv. For above purpose, a meeting at central level must be held with the Chief Secretaries of all the States/UTs atleast once in a month (option of video conferencing facility is open) to take stock of the progress and to plan further action. NMCG will be the nodal agency for compliance who may take assistance of CPCB and may give its quarterly report to this Tribunal commencing 01.04.2020.

v. The Chief Secretaries may set up appropriate monitoring mechanism at State level specifying accountability of nodal authorities not below the Secretary level and ensuring appropriate adverse entries in the ACRs of erring officers. Monitoring at State level must take place on fortnightly basis and record of progress maintained. The Chief Secretaries may have an accountable person attached in his office for this purpose.

vi. Monthly progress report may be furnished by the States/UTs to Secretary, Ministry of Jal Shakti with a copy to CPCB. Any default must be visited with serious consequences at every level, including initiation of prosecution, disciplinary action and entries in ACRs of the erring officers.

vii. As already mentioned, procedures for DPRs/tender process needs to be shortened and if found viable business model developed at central/state level.

viii. Wherever work is awarded to any contractor, performance guarantee must be taken in above terms.

ix. CPCB may finalize its recommendations for action plans relating to P-III and P-IV as has been done for P-I and P-II on or before 31.03.2020. This will not be a ground to delay the execution of the action plans prepared by the States which may start forthwith, if not already started.

x. The action plan prepared by the Delhi Government which is to be approved by the CPCB has to follow the action points delineated in the order of this Tribunal dated 11.09.2019 in O.A. No. 06/2012.

xi. Since the report of the CPCB has focused only on BOD and FC without other parameters for analysis such as pH, COD, DO and other recalcitrant toxic pollutants having tendency of bio magnification, a survey may now be conducted with reference to all the said parameters by involving the SPCB/PCCs within three months. Monitoring gaps be identified and upgraded so to cover upstream and downstream locations of major discharges to the river. CPCB may file a report on the subject before the next date by e-mail at judicial-ngt@gov.in.

xii. Rivers which have been identified as clean may be maintained.

For ensuring compliance to Hon'ble NGT orders, meetings of RRC Delhi conducted meetings and the details of meetings of RRC arebriefed in**Table 1**below:-

**Table 1**:**Meetings of RRC Delhi**

| RRC Meeting No | Date of Meeting | Minutes of Meeting |
|---|---|---|
| 1st Meeting | 01.11.2018 | **ANNEXURE – 2** |
| 2nd Meeting | 20.11.2018 | **ANNEXURE – 3** |
| 3rd Meeting | 17.01.2019 | **ANNEXURE – 4** |
| 4th Meeting | 15.03.2019 | **ANNEXURE – 5** |
| 5th Meeting | 26.07.2019 | **ANNEXURE – 6** |
| 6th Meeting | 26.09.2019 | **ANNEXURE – 7** |
| 7th Meeting | 04.11.2019 | **ANNEXURE – 8** |

## 1.2 Agencies/ Departments involved / responsible for implementation of theAction Plans

Delhi Development Authority (DDA), Delhi Jal Board (DJB), Irrigation and Flood Control Department (IFCD), Delhi Pollution Control Committee (DPCC), Forest Department, Public Works Department (PWD), Industries Department , Delhi State Industrial and Infrastructure Development Corporation (DSIIDC), Urban Development Department, Local Authorities & Municipal Corporations.

## 1.3 Timelines for implementation of Action Plan

***Hon'ble NGT hadearlier directed to achieve the water quality of bathing standard in river Yamuna within 6 months as mentioned in the order dated 20.09.2018 and accepted the revised time line recommended by CPCB i.e. by 31.03.2021 vide order dated 08.04.2019.***

Hon'ble National Green Tribunal vide order dated 11.09.2019 in OA No. 06 / 2012 in the matter of Manoj Mishra vs. Union of India & Ors. has passed detailed order giving various directions & Timelines in respect of NCT Delhi and also directed that timelines have to be compressed so as to complete every action by December, 2020 ( except where shorter timelines are specified in the order or are otherwise possible). DJB has been directed to complete the task of setting up of STPs by 31.12.2020.

However as per the Action Plan of Delhi Jal Board submitted vide letter dated 14.10.2019, some of the timelines given by Delhi Jal Board particularly in respect of STPs (timeline given to complete some of the projects of STPs is 31.12.2022) are falling beyond the said time line of 31.12.2020. It is mentioned in the said letter that task of setting up of New STPs can not be completed by 31.12.2020due to constraint of availability of land and funds.A Copy of the Delhi Jal Board letter dated 14.10.2019 is at **ANNEXURE-9.**

## 1.4 Limitations

The task of bringing the BOD of River Yamuna in Delhi to reach within 3 mg/l is a very tough task because of the reasons (i) There is no flow in the river downstream of Wazirabad during lean season; (ii) 10 cumecs of flow is being released by the State of Haryana at Hathanikund during lean season. However, most of it evaporates or percolates before it reaches Wazirabad during the lean season; (iii) The oldSewage Treatment Plants (STPs)of DJB are designed for treating the sewage and bringing down BOD up to 30 mg/l (as per thenprescribed standards) and the recent ones are designed for 20 mg/l. Now DJB is constructing the STPs for bringing down the BOD up to 10 mg/l with a view to reuse the treated effluent. The work of up gradation of treatment quality of some of the major STPs is also being taken up by DJB; (iv) As of now, against the desired capacity of about *3273 MLD (720) MGD*, DJB has installed capacity of 2714 MLD (597 MGD)against which the utilisation is around 2273 MLD (500 MGD) DJB is in process of installing the desired capacity by **31.12.2022; (v)** Here, it is pertinent to mention that even if DJB treats the entire sewage being generated in the city, the BOD levels of the treated effluent are likely to be on an average around 15-20 mg/l .This at best can result in an incremental change/ improvement in the present quality parameters of river flow since there are some major drains such as Badshahpur drain coming from Haryana and Shahibabad drain, Indirapuri drain and Loni drain coming from UP which bring seemingly untreated sewage from Haryana and Uttar Pradesh and the same goes directly to river Yamuna within the territory of Delhi.Delhi Govt. has no control over these drains falling under the jurisdiction of Haryana and UP and therefore CPCB may take up this issue with the concerned States i.e. Uttar Pradesh and Haryana; (vi) Yamuna Pollution Monitoring Committee has also mentioned in its Action Plan dated 22.10.2018 submitted to Hon'ble NGT regarding requirement of Environmental Flow to boost the dilution of the river Yamuna in Delhi. In the Action Plan the Monitoring Committee had recommended that an E -Flow study was necessary for the Delhi stretch of river Yamuna. NMCG has asked National Institute of Hydrology (NIH) Roorkee to study to determine Environmental Flow from Hathnikund to Okhla. Interim Report of the NIH has been received.In absence of any environmental flow in the river at present, there is no scope for any dilution downstream of Wazirabad. In the present scenario, therefore, achieving a BOD level of 3mg/L (Bathing Standards) is not possible. Restoration of Yamuna River to meet bathing criteria needs Environmental Flow for which NIH is conducting study. After receiving the Final Report of NIH Achievable goals can be set.As per the directions of the Hon'ble NGT in order dated 11.09.2019 in OA No. 06 of 2012 in the matter of Manoj Mishra vs. UOI & Ors., the study being carried out by the National Institute of Hydrology may be completed as per schedule by March 2020; (vii) The Upper Yamuna River Board (UYRB) needs to look into this aspect and find ways to ensure sufficient environmental flow downstream of Wazirabad during the lean season of 8 - 9 months so that with adequate dilution , the BOD level of the river can be brought down to desired levels i.e 3 mg/l. ***The present environmental flow of 10 cumec is grossly insufficient and needs to be increased manifold after a detailed study of all the related factors for arriving at the required dilution.***

# CHAPTER :II

## 2.0 Orders of Hon'ble NGT in OA No. 06 / 2012 in the matter of Manoj Mishra Vs. UOI & Ors.

### 2.1 Judgment of Hon'ble NGT Dated 13.01.2015

The Hon'ble National Green Tribunal, vide judgment dated 13.01.2015, issued directions which include directions to operationalize existing STPs, construct new STPs, maintain and upgrade existing STPs, prevent discharge of effluents in River Yamuna, operationalize CETPs in the concerned industrial areas of Delhi, UP and Haryana, identify and demarcate flood plains and remove encroachments, prevent dumping of debris , waste and Pooja material, maintain and clean the drains connected to the river, maintain the river fronts, prevent cultivation of crops/fodder on the flood plains, remove the construction debris, recover compensation from anyone dumping the debris, cover fly ash at any site on the river bank, educate all sections of the society for cooperation and rejuvenate the water bodies associated with the river and to maintain the environmental flow.

### 2.2 Constitution of Yamuna Pollution Monitoring Committee

For monitoring of the directions given by Hon'ble NGT vide judgment dated 13.01.2015 and subsequent orders passed by Hon'ble NGT in the said matter, a two members Monitoring Committee comprising Ms. Shailaja Chandra, Former Chief Secretary, Delhi and Mr. B.S. Sajwan, Former Principal Chief Conservator of Forests and former Expert Member of the Tribunal was constituted by Hon'ble NGT vide order dated 26.07.2018. The said Committee known as Yamuna Pollution Monitoring Committee (YPMC) has submitted Action Plan Dated 22.10.2018 followed by First Interim Report Dated 16.01.2019, Second Interim Report Dated 27.05.2019, Supplementary Report to the 2$^{nd}$ Interim Report vide letter dated 28.06.2019 and Supplementary Report II to the Interim Report vide letter 02.07.2019 to the Hon'ble National Green Tribunal.

### 2.3. Action Plan and Interim Reports of Yamuna Pollution Monitoring Committee

The Action Plan Dated 22.10.2018 of Yamuna Pollution Monitoring Committee (YPMC) highlighted issues, present status and future actions. The 17 action points identified are (i) Environmental Flow; (ii) DDA and Demarcation of the Flood Plains and Conservation Activities; (iii) Quality of River water; (iv) Sewage Treatment Plants; (v) Interceptor Sewer Project (ISP); (vi) Repair and maintenance of Drains; (vii)Polluter Pays Principle; (viii) Dredging and desilting; (ix).Industrial Pollution and CETPs, (x).Sewage and Faecal Sludge Management; (xi) Online Monitoring of STPs, CETPs and Yamuna; (xii). Use of treated Waste Water; (xiii) Idol Immersion; (xiv) State of Haryana and pollution of the Yamuna; (xv) State of Uttar Pradesh and Pollution of the River; (xvi) Creating Public Awareness Through Information Dissemination Strategies and Management"

The First Interim Report Dated 16.01.2019 was furnished by the Yamuna Pollution Monitoring Committee and was considered by Hon'ble NGT vide order dated 29.01.2019.

The Yamuna Pollution Monitoring Committee has furnished second report dated 27.05.2019. The report deals with 16 core areas including the progress on projects, enforcement action and new initiatives agreed upon with the key agencies, supplementary cases incidental to the Manoj Mishra matter and specific matters where the Committee seeks intervention of the Tribunal. Apart from the said report, the Committee has also forwarded a supplementary report dated 28.06.2019 and second supplementary report dated 02.07.2019. The supplementary report refers to the e-flow study report. The Committee also suggested flat rate for sewage connection and treatment which may be assessed by the National Institute of Financial Policy and Training.

## 2.4 Order of Hon'ble NGT Dated 11.09.2019

Hon'ble NGT vide order dated 11.09.2019 has passed detailed order in the said matter giving directions in respect of NCT Delhi (at page 30 to 40 of said order including directions to DJB, DDA, Municipal Corporations, DPCC, CPCB etc.), in respect of the State of Haryana (at page 40 to 46 of said order) and in respect of the State of UP (at page 46 to 49 of said order). Vide said order Hon'ble NGT has directed to complete all the projects by 31.12.2020.W.r.t order dated 12.07.2019 of Hon'ble NGT in the said matter DPCC filed its Action Taken Report to Hon'ble NGT on 01.08.2019. Delhi Jal Board also filed its Action Taken Report to Hon'ble NGT. Urban Development Department, Govt. of NCT of Delhi filed affidavit on behalf of Govt. of NCT of Delhi on 21.08.2019. W.r.t order dated 11.09.2019 of Hon'ble NGT in the said matter DPCC filed its Action Taken Report to Hon'ble NGT on 10.12.2019. DPCC, Delhi Jal Board and other Departments have sent their Action Taken Reports for status as on 31.12.2019 to the Yamuna Pollution Monitoring Committee. Yamuna Pollution Monitoring Committee has furnished its third Interim Report dated 05.02.2020 to the Hon'ble NGT chiefly responding to the specific directions given by Hon'ble NGT in the order dated 11.09.2019.

## 2.5. Order of Hon'ble NGT Dated 22.01.2020

Based on the chamber meeting taken by Hon'ble NGT on 03.01.2020, discussions held with various stake holders including CPCB, DJB, YPMC, NEERI etc. and following 2 reports of Yamuna Pollution Monitoring Committee (i.e., (i) Report of the Yamuna Monitoring Committee on the need for a "Yamuna River Front Management Authority for Delhi" , and (ii) Report of the Yamuna Monitoring Committee on "Approach to In-situ Bio-remediation / Phyto-remediation of sewage in drains of Delhi", Hon'ble NGT vide order dated 22.01.2020 has passed detailed order.Hon'ble NGT has summed up the directions given in the said order at Para 27 and Chief Secretary, Delhi; DDA; DSIIDC; PWD, Irrigation and Flood Control Department, Cantonment Board; NDMC; South, East and North Delhi Municipal Corporations have been directed to furnish their response with respect to the issues mentioned in the said order.CPCB has also been asked to furnish a report in terms of Para 25 of the said order. Yamuna Pollution Monitoring Committee is taking review meetings with various stake holders / concerned Departments from time to time for enforcement of its Action Plan and the directions given by Hon'ble National Green Tribunal through various orders.

# CHAPTER: III

## 3.0 ABOUT RIVER YAMUNA AND SOURCES OF POLLUTIONIN DELHI STRETCH: PRESENT SCENARIO

### 3.1 ABOUT RIVER YAMUNA

Yamuna, a major tributary of river Ganga, is a sacred river and supports the livelihoods of millions of people in its basin states. In order to fulfil the growing needs of drinking water and irrigation, several large dams and barrages have been built which divert large volumes of water from the river as it runs its course through the states of Uttarakhand, Haryana, the National Capital Territory of Delhi and Uttar Pradesh. In Delhi, the river is virtually reduced to a trickle and remains completely dry in stretches for almost nine months of the year. Fig. 1 depicts the flow path of river Yamuna and major Drains and STPs in Delhi.

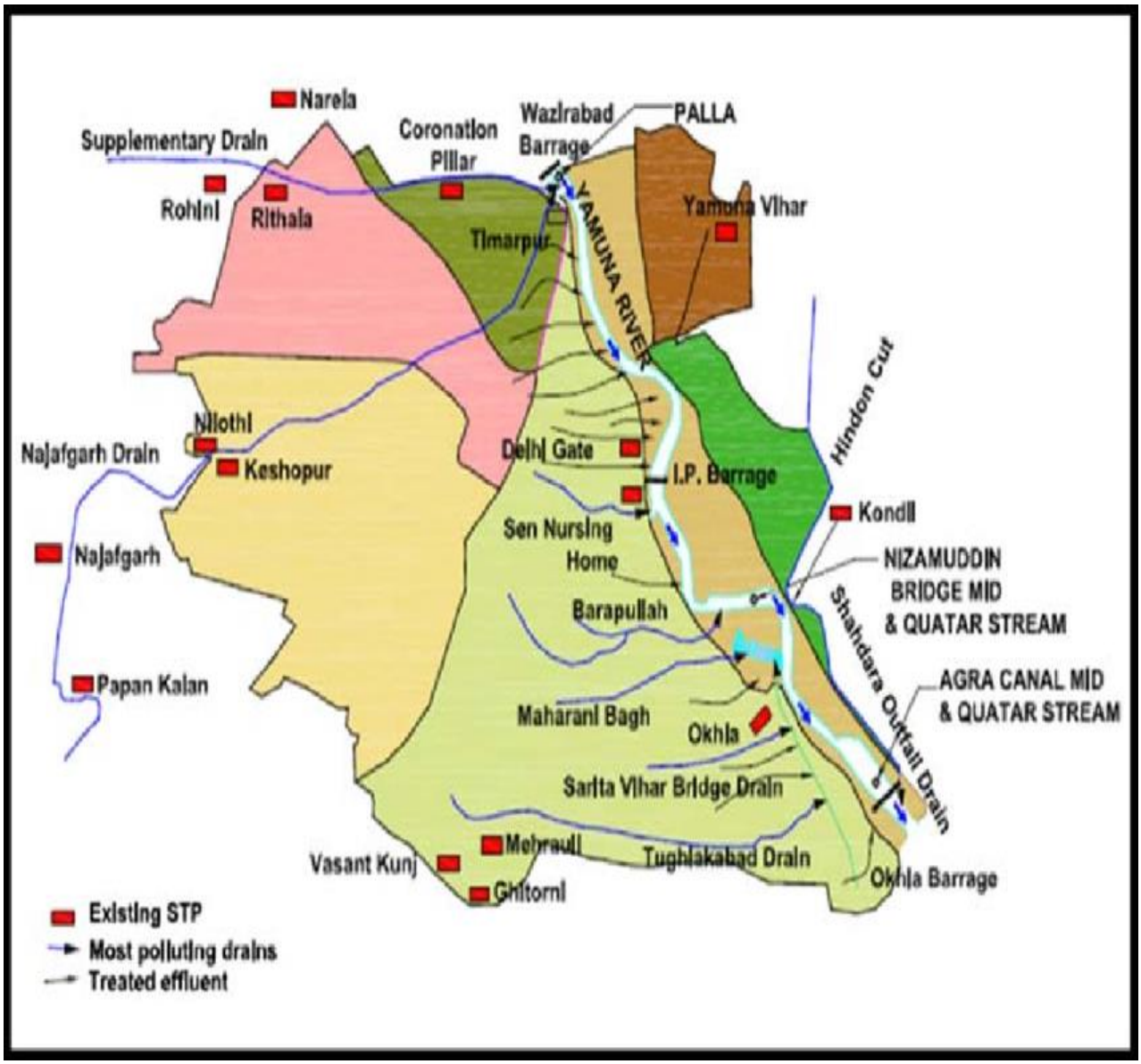



**Fig. 1: Flow Path of River Yamuna and major Drains & STPs in Delhi.**

Although the Yamuna River flows only for 54 KM from Palla to Badarpur in Delhi, the 22 KM stretch from Wazirabad to Okhla, which is less than 2% of the river length, accounts for about 76% of the pollution load in the river? During the dry season, spreading over nearly nine months of the year, the river has no fresh water downstream of Wazirabad and the only flow available is sewage, both treated and untreated, flowing through 18 drains that join the river Yamuna during it journey through Delhi. Yamuna is a perennial river; however, there is no flow in the river downstream of Wazirabad during lean season. 10 Cumecs of flow is being released by the State of Haryana at Hathanikund during lean season. However, most of it evaporates or percolates before it reaches Wazirabad during the lean season.

## 3.2. Drains Outfalling Into the River Yamuna in Delhi Stretch:

There are 18 drains flowing across the entire expanse of Delhi and falling into river Yamuna carrying treated and untreated sewage/ industrial effluents into the river Yamuna. The 18 drains are listed below:

1. Najafgarh Drain:
2. Magazine Road Drain
3. Sweepers Colony Drain
4. Khyber Pass Drain
5. Metcalf House Drain
6. Qudesia Bagh + Mori Gate Drain
7. Tonga Stand Drain
8. Moat Drain (Vijay Ghat)
9. Civil Mill Drain
10. Delhi Gate Drain
11. Sen Nursing Home Nallah + Nallah 12 A
12. Drain No. 14
13. Barapula Drain
14. Maharani Bagh Drain
15. Kalkaji Drain
16. Tehkhand Nalah
17. Tughlakabad Drain
18. Shahdara Outfall Drain

From the discharge quantities of various drains, it is estimated that 3026 MLD (666 MGD) of waste water (both treated and untreated) is released into the river Yamuna with a BOD level in excess of 30 mg/l and DO virtually zero for most part of the year, there is no scope for any dilution. In the short and medium term, therefore, the task of achieving a BOD level of 3 mg/l for a C Class river as categorized by the CPCB is going to be very tough and also may not be accomplished by 31.03.2021. **A Map showing location of major drains, STPs, CETPs and Approved Industrial Areas in NCT of Delhi is at ANNEXURE-18**

Drains out falling into the River Yamuna are presented in **Fig. 2**

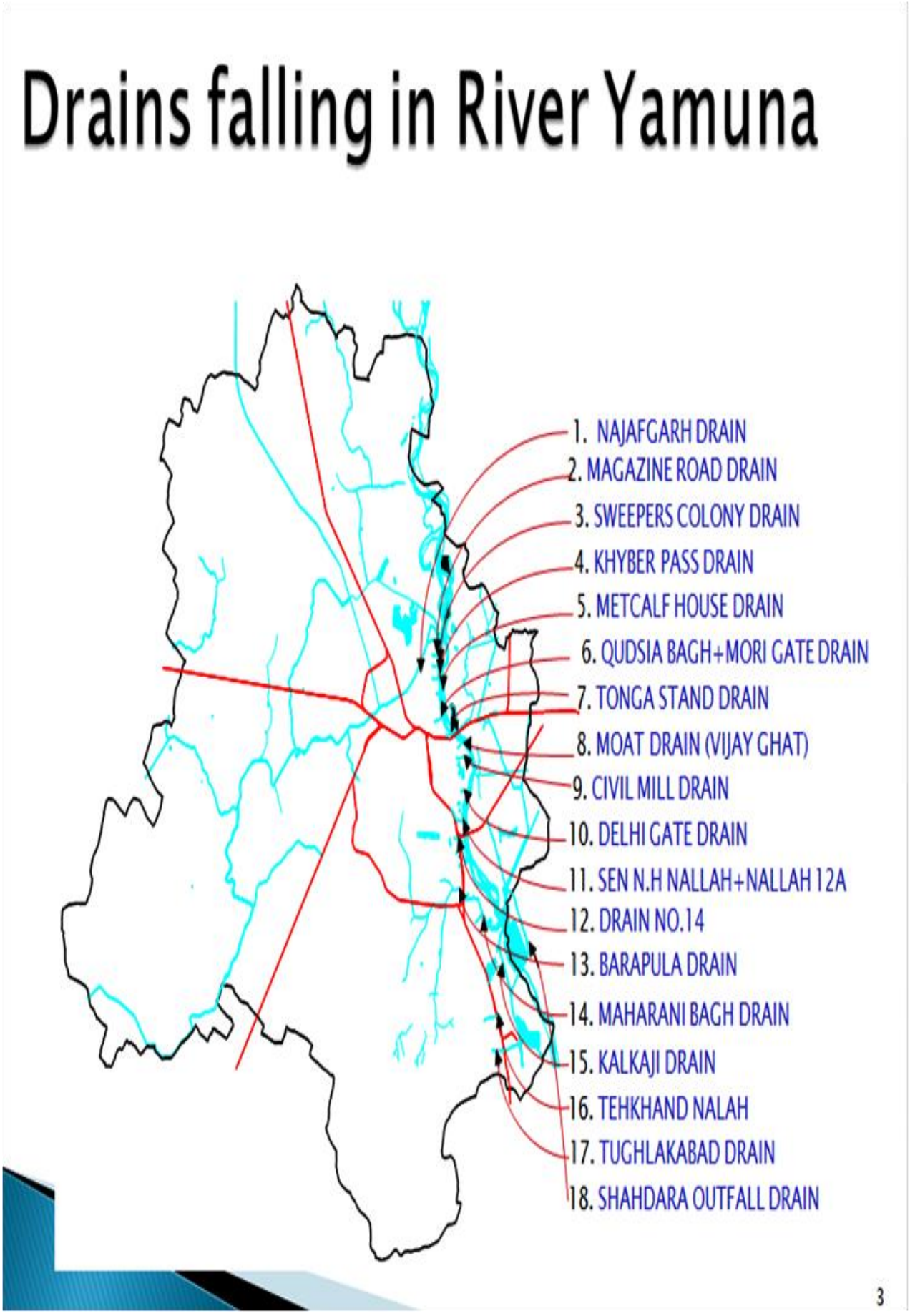



**Fig. 2: Drains out falling into river Yamuna.**

### 3.3. Water Quality of River Yamuna and Drains contributing to River Yamuna Pollution

As per the data of CPCB for waste water discharge and BOD Load from major drains into river Yamuna at Delhi for the year 2019 (as mentioned in the 3rd Interim Report of the Yamuna Monitoring Committee appointed by Hon'ble NGT), about 3026 MLD (about 666 MGD) of waste water is discharged into the River Yamuna and about 264 TPD is the pollution load in terms of BOD.

As per the directions of the Hon'ble National Green Tribunal in the order dated 11.09.2019 in OA No. 06/2012 in the matter of Manoj Mishra Vs. Union of India & Ors,pollution load in the drains entering Delhi from Haryana and Uttar Pradesh is being recorded periodically on quarterly basis. Samples were taken and flow of the drains was measured in November, 2019. Pollution load (BOD load) was calculated based on the analysis reports and flow measurement in respect of following drains:

1. Indrapuri Drain (Loni, UP),
2. Banthala Drain (Loni, UP),
3. Sahibabad Drain (UP),
4. Drain No. 6 (Sonipat Border, Haryana),
5. Badshahpur Drain [coming from Gurugram (L-III), Haryana & falling into Najafgarh Jheel (Haryana Drain)]
6. Leg – II (L-II) Drain [coming from Dharampur, Gurugram (Haryana Border)]
7. Leg – I (L-I) Drain [coming from Bajgera, Palam Vihar]

Laboratory of DPCC is carrying out water quality monitoring of the 24 major drains [including 2 Drains (Sahibabad Drain & Indrapuri Drain) coming from UP] on monthly basis before their outfall into river Yamuna.

The water quality of river Yamuna is monitored both by CPCB and DPCC. Whereas, CPCB monitors water quality of river Yamuna at 5 locations, namely, Palla, Nizamuddin, Okhla Bridge, Okhla (downstream of Shahdara drain) and Agra canal at Badarpur the DPCC monitors water quality of river Yamuna at 9 locations namely,Palla, Surghat (Down stream of Wazirabad Barrage), Khajori Paltoon Pool (Down stream of Najafgarh Drain), Kudesia Ghat, ITO Bridge, Nizamuddin Bridge, Agra Canal(Okhla), After meeting Shahdara Drain (Down stream of Okhla Barrage) and Agra Canal (Jaitpur).

As per the trend analysis of CPCB carried out for the water quality in river Yamuna for the last 5 years using the data collected both by CPCB andDPCC, dissolved oxygen levels in river Yamunaare complying with water quality criteria for outdoor bathing at 2 locations, namely, Palla andSurghat. However, at other locations the water quality is non-compliant withthe dissolved oxygen standards. So far as BOD concentration is concerned, the water quality iscomplying with the standard at only 2 locations, namely, Palla and Surghat. At other locations the BOD concentration varies from highest levels of 98mg/litre at Khajuri Paltoon Pool and 97 mg/litre at Okhla after meeting Shahdara drain. The high concentrationof BOD and COD levels at these locations is due to discharge of untreated waste water andjoining of various drains at points between Nizamuddin and Okhla.

The Bacteriological analysisof water samples of river Yamuna has also shown an increased level of Total Coliform and FecalColiform during the period 2015-2019 at all the stations.

DPCC is carrying out water quality monitoring of River Yamuna at above mentioned 9 locations for the parameters pH, BOD, COD & DO on monthly basis. At present DPCC undertakes thebacteriological tests through CPCB laboratory. However, DPCC is under the process of developing its own facility for analysis of Bacteriological Parameters including Faecal Coliform and the same is expected to be developed by March,2020. Monthly reports on the water quality of river Yamuna are being sent by DPCC to Yamuna Monitoring Committee. Water quality monitoring reports of river Yamuna are being placed on thewebsite of DPCC and link has been given to CPCB.

DPCC has taken over the Online Monitoring System at Wazirabad and Okhla from Central Pollution Control Board w.e.f 15.02.2019 and Delhi Jal Board has been given link to receive the data.

As per the directions of Yamuna Monitoring Committee, Online Monitoring System for measuring the concentration of Ammonia in river Yamuna at Palla has been installed by DPCC. This will help in issuing early alerts to the DJB water treatment plant at Wazirabad in the event of deterioration in water quality received at Palla due to discharge of sewage/industrial effluent from Haryana.

Discharge of waste water and BOD Load from major drains into river Yamuna at Delhi based on the CPCB data for the years 2017, 2018 & 2019 are presented in **Table 2**

**Table 2: Discharge of Waste Water and BOD Load from Major Drains into river Yamuna at Delhi (Based on the CPCB Data for the years 2017, 2018 & 2019 as mentioned in the 3rd Interim Report of the Yamuna Monitoring Committee appointed by Hon'ble NGT)**

| S. No. | Name of Drain | Flow (in MLD) 2017 | Flow (in MLD) 2018 | Flow (in MLD) 2019 | BOD Load (in TPD) 2017 | BOD Load (in TPD) 2018 | BOD Load (in TPD) 2019 |
|---|---|---|---|---|---|---|---|
| 1 | Najafgarh Drain | 2042.3 | 2066.7 | 1938.38 | 132.55 | 101.29 | 133.82 |
| 2 | Shahdara Drain | 513.9 | 473.5 | 500.97 | 41.26 | 38.95 | 61.44 |
| 3 | Waste water input into abandoned Agra Canal | 260 | 218 | 117.93 | 33.5 | 30.63 | 21.54 |
| 4 | Barapulla Drain | 136.3 | 151.2 | 151.77 | 10.3 | 9.06 | 10.46 |
| 5 | Tuglakabad Drain | 88.9 | 45.8 | 22.10 | 9.12 | 3.25 | 3.42 |
| 6 | Delhi Gate (Power House) Drain | 84.8 | 47.5 | 39.02 | 6.26 | 3.31 | 3.43 |
| 7 | Sen Nursing Home Drain | 64.4 | 41 | 31.53 | 9.45 | 5.29 | 4.69 |
| 8 | Abu Fazal | 50.9 | 35 | 28.94 | 1.54 | 1.08 | 0.88 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Drain | | | | | | |
| 9 | ISBT + Mori Gate Drain | 45.2 | 51 | 37.94 | 2.89 | 3.06 | 2.67 |
| 10 | Sarita Vihar Drain | 40.8 | 26 | 35.68 | 9.9 | 6.02 | 7.73 |
| 11 | Maharani Bagh Drain | 26.5 | 24.2 | 30.16 | 3.03 | 2.43 | 3.51 |
| 12 | Jaitpur Drain | 16.6 | 23.3 | 19.58 | 2.28 | 3.39 | 3.07 |
| 13 | Molar Bandh Drain | 14 | 19 | 22.17 | 1.98 | 2.07 | 2.36 |
| 14 | Kailash Nagar Drain | 11.9 | 7.8 | 9 | 3.15 | 2.82 | 2.70 |
| 15 | Tonga Stand Drain | 11.4 | 7.8 | 4.46 | 1.75 | 1.18 | 0.59 |
| 16 | Shastri Park Drain | 7.6 | 4.3 | 5.76 | 0.84 | 0.46 | 0.75 |
| 17 | Drain No.14 | 7.3 | 4.3 | 6.54 | 0.13 | 0.05 | 0.07 |
| 18 | Magazine Road Drain | 7.1 | 6 | 4.32 | 0.54 | 0.44 | 0.30 |
| 19 | Civil Mill Drain | 6.3 | 8.6 | 11.14 | 0.5 | 0.57 | 0.67 |
| 20 | Metcalf House Drain | 6.1 | 4.3 | 3.45 | 0.2 | 0.12 | 0.11 |
| 21 | Sweeper Colony Drain | 6 | 6 | 5.4 | 0.16 | 0.18 | 0.10 |
| 22 | Khyber Pass Drain | 1.3 | - | No Flow | 0.03 | - | No Flow |
| | **Total** | **3449.6** | **3271.3** | **3026.24** | **271.36** | **215.65** | **264.31** |

The above Table shows that although the discharge into river Yamuna from various drains has reduced from 3450 MLD in 2017 to 3026 MLD in 2019, the reduction in BOD load per day is only marginal though there was substantial decline of 20.53% TPD during 2018 in comparison to 2017.

Water quality of river Yamuna for the months of June, 2019, December, 2019 and January, 2020 are given in **Table 3, Table 4 and Table 5** respectively.

**Table 3: Water Quality of River Yamuna at 9 Locations in Delhi for Month of June, 2019**

**DELHI POLLUTION CONTROL COMMITTEE**
**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/19-20/19-27**

**Date of Sampling 13.06.19**

| S. No | Locations | pH | COD (mg/l) | BOD (mg/l) | DO (mg/l) | Total Coliform (MPN/100ml) |
|---|---|---|---|---|---|---|
| **Water Quality Criteria ('C' Class)** | | **6.0- 9.0** | **-** | **3(max)** | **4(min)** | **5000** |
| **1** | Palla | 8.2 | 8 | 1.8 | 7.8 | - |
| **2** | Surghat (Down stream of Wazirabad Barrage) | 7.1 | 12 | 2.2 | 5.7 | - |
| **3** | Khajori Paltoon Pool (Downstream Najafgarh Drain) | 8.0 | 68 | 21 | NIL | - |
| **4** | Kudesia Ghat | 8.1 | 80 | 24 | NIL | - |
| **5** | ITO Bridge | 8.0 | 96 | 28 | NIL | - |
| **6** | Nizamudin Bridge | 7.4 | 68 | 22 | NIL | - |
| **7** | Agra Canal (Okhla) | 7.8 | 72 | 22 | NIL | - |
| **8** | After meeting Shahdara Drain (Downstream Okhla Barrage) | 7.6 | 108 | 29 | NIL | - |
| **9** | Agra Canal (Jaitpur) | 7.9 | 84 | 24 | NIL | - |

SR. SCIENTIST

SR. SCIENTIFIC ASSISTANT

**Table 4: Water Quality of River Yamuna at 9 Locations in Delhi for Month of December, 2019**

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

**REPORT NO: DPCC/W/D/19-20/193-** **Date of Sampling– 3/12/19**

| S.No | Locations | pH | COD (mg/l) | BOD (mg/l) | DO (mg/l) | Fecal Coliform /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 | 8.1 | 12 | 3 | 7.3 | $33\times10^2$ |
| 2 | Surghat (Down stream of Wazirabad Barrage) | 7.9 | 20 | 4.5 | 6.8 | 140 |
| 3 | Khajori Paltoon Pool (Downstream Najafgarh Drain) | 8.0 | 84 | 26 | NIL | $11\times10^6$ |
| 4 | Kudesia Ghat | 7.9 | 106 | 30 | NIL | $11\times10^6$ |
| 5 | ITO Bridge | 8.0 | 76 | 22 | NIL | $35\times10^6$ |
| 6 | Nizamudin Bridge | 7.9 | 68 | 20 | 3.3 | $70\times10^4$ |
| 7 | Agra Canal (Okhla) | 7.8 | 84 | 21 | NIL | $24\times10^4$ |
| 8 | After meeting Shahdara Drain (Downstream Okhla Barrage) | 7.6 | 96 | 24 | NIL | $13\times10^5$ |
| 9 | Agra Canal (Jaitpur) | 7.9 | 112 | 26 | NIL | $12\times10^5$ |

**REMARKS** :- Fecal Coliform Analysis done by CPCB.

SR.SCIENTIST SR.SCIENTIFIC ASSISTANT

**Table 5: Water Quality of River Yamuna at 9 Locations in Delhi for Month of January, 2020**

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

**REPORT NO: DPCC/W/D/20-21/83-92** **Date of Sampling - 6/01/20**

| S.No | Locations | pH | COD (mg/l) | BOD (mg/l) | DO (mg/l) | Fecal Coliform /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 | 7.4 | 10 | 3 | 7.3 | 78 |
| 2 | Surghat (Down stream of Wazirabad Barrage) | 7.3 | 12 | 4 | 4.2 | $49\times10^2$ |
| 3 | Khajori Paltoon Pool (Downstream Najafgarh Drain) | 5.6 | 120 | 34 | Nil | $54\times10^5$ |
| 4 | Kudesia Ghat | 7.0 | 92 | 32 | Nil | $47\times10^5$ |
| 5 | ITO Bridge | 7.3 | 72 | 28 | Nil | $49\times10^5$ |
| 6 | Nizamudin Bridge | 7.5 | 76 | 28 | 1.9 | $22\times10^4$ |
| 7 | Agra Canal (Okhla) | 7.9 | 108 | 38 | Nil | $31\times10^5$ |
| 8 | After meeting Shahdara Drain (Downstream Okhla Barrage) | 8.0 | 184 | 65 | Nil | $79\times10^5$ |
| 9 | Agra Canal (Jaitpur) | 7.9 | 72 | 23 | Nil | $94\times10^5$ |

**REMARKS** :- Fecal Coliform Analysis done by CPCB.

SR.SCIENTIST SSA/JLA/ANALYST

Waste water characteristics of the Drains before their out fall into river Yamuna at various locations in Delhi for the Month of June,2019 and January,2020 are given in **Table 6 and Table 7 respectively.**

**Table 6 : Waste Water Characteristics of the Drains before their Out Fall into river Yamuna at Various Locations in Delhi for the Month of June,2019**

DELHI POLLUTION CONTROL COMMITTEE
(Government of N.C.T. of Delhi)
4th Floor, I.S.B.T. Building, Kashmere Gate, Delhi - 110006
Website : http://www.dpcc.delhigovt.nic.in

## WATER QUALITY STATUS OF DRAIN

Report No : DPCC/W/D/19-20/49-72

Date of Sampling 13-06-2019

| S. No | Name of Sample | pH | TSS (mg/l) | COD (mg/l) | BOD (mg/l) |
|---|---|---|---|---|---|
| **General Standard** | | **5.5- 9.0** | **100** | **250** | **30** |
| **1** | Najafgarh Drain | 7.6 | 116 | 72 | 26 |
| **2** | Metcalf House Drain | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| **3** | Khyber Pass Drain | 8.0 | 24 | 24 | 6 |
| **4** | Sweeper Colony Drain | 7.7 | 10 | 28 | 10 |
| **5** | Magazine Road Drain | 7.6 | 70 | 136 | 45 |
| **6** | ISBT Drain | 7.5 | 74 | 124 | 42 |
| **7** | Tonga Stand Drain | 8.2 | 30 | 96 | 39 |
| **8** | Moat Drain | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| **9** | Civil Mill Drain | 7.9 | 188 | 112 | 45 |
| **10** | Power House Drain | 7.9 | 120 | 168 | 54 |
| **11** | Sen Nursing Home Drain | 7.9 | 244 | 320 | 130 |

| | | | | | |
|---|---|---|---|---|---|
| **12** | Drain No. 12A | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| **13** | Drain No. 14 | 8.2 | 44 | 56 | 17 |
| **14** | Barapulla Drain | 7.7 | 90 | 248 | 82 |
| **15** | Maharani Bagh Drain | 7.6 | 96 | 324 | 106 |
| **16** | Kalkaji Drain | 7.7 | 234 | 240 | 82 |
| **17** | Sarita Vihar Drain (Mathura Road) | 7.8 | 180 | 324 | 135 |
| **18** | Tehkhand Drain | 8.0 | 180 | 344 | 110 |
| **19** | Tuglakabad Drain | 8.0 | 160 | 280 | 74 |
| **20** | Drain Near LPG Bottling Plant | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| **21** | Drain Near Sarita Vihar Bridge | 7.8 | 74 | 188 | 55 |
| **22** | Shahdara Drain | 7.8 | 144 | 252 | 80 |
| **23** | Sahibabad Drain | 7.7 | 420 | 524 | 175 |
| **24** | Indrapuri Drain | 7.5 | 106 | 436 | 145 |

SR. SCIENTIST

SR. SCIENTIFIC ASSISTANT

**Table 7 : Waste Water Characteristics of the Drains before their Out Fall into river Yamuna at Various Locations in Delhi for the Month of January,2020**

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

## WATER QUALITY STATUS OF DRAIN

## REPORT NO: DPCC/W/D/19-20/217-240

## Date of Sampling– 6/01/20

| S.No. | Name of Sample | pH | TSS (mg/l) | COD (mg/l) | BOD (mg/l) |
|---|---|---|---|---|---|
| | **Standards** | 5.5- 9.0 | 100 | 250 | 30 |
| 1 | **Najafgarh Drain** | 7.4 | 136 | 220 | 72 |
| 2 | **Metcalf House Drain** | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| 3 | **Khyber Pass Drain** | 7.7 | 26 | 52 | 16 |
| 4 | **Sweeper Colony Drain** | 7.9 | 124 | 184 | 65 |
| 5 | **Magazine Road Drain** | 7.4 | 284 | 420 | 180 |
| 6 | **ISBT Drain** | 7.9 | 180 | 390 | 132 |
| 7 | **Tonga Stand Drain** | 7.2 | 128 | 240 | 90 |
| 8 | **Moat Drain** | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| 9 | **Civil Mill Drain** | 7.3 | 190 | 360 | 120 |
| 10 | **Power House Drain** | 7.3 | 180 | 340 | 120 |
| 11 | **Sen Nursing Home Drain** | 7.2 | 102 | 260 | 84 |
| 12 | **Drain No. 12A** | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| 13 | **Drain No. 14** | 7.3 | 104 | 220 | 72 |
| 14 | **Barapulla Drain** | 7.5 | 104 | 210 | 78 |
| 15 | **Maharani Bagh Drain** | 7.6 | 172 | 340 | 120 |
| 16 | **Kalkaji Drain** | 7.6 | 132 | 210 | 80 |
| 17 | **Sarita Vihar Drain (Mathura Road)** | 7.6 | 280 | 480 | 180 |
| 18 | **Tehkhand Drain** | 7.7 | 218 | 392 | 130 |
| 19 | **Tuglakabad Drain** | 7.8 | 396 | 672 | 230 |
| 20 | **Drain Near LPG Bottling Plant** | NO FLOW | NO FLOW | NO FLOW | NO FLOW |
| 21 | **Drain Near Sarita Vihar Bridge** | 7.8 | 364 | 636 | 210 |
| 22 | **Shahdara Drain** | 8.0 | 392 | 724 | 240 |
| 23 | **Sahibabad Drain** | 8.0 | 360 | 576 | 190 |
| 24 | **Indrapuri Drain** | 8.2 | 280 | 488 | 160 |

Sd/-

SR. SCIENTIFIC ASSISTANT

Sd/-

SR.SCIENTIST

## 3.4 Prevention of Dumping of Solid Waste in the Drains

For preventing the dumping of solid waste in the drains, all the concerned Departments / Agencies have been directed vide order dated 09.01.2019 of Chief Secretary and Order dated 15.01.2019 of UD Department, GNCTD initiatied following actions as detailed below:-

i. All field officers of North DMC, East DMC, South DMC, New Delhi Municipal Council, Delhi Cantonment Board, Delhi Urban Shelter Improvement Board (DUSIB), Delhi Jal Board(DJB), Public Works Department (PWD), GNCTD & Irrigation & Flood Control Department (I&FC), GNCTD and Delhi State Industrial and Infrastructure Development Corporation (DSIIDC) are to ensure that 'Environmental Compensation' of Rs. 50,000/- belevied on those found dumping Solid Waste into drains in their respective jurisdiction and in respect of those drains being maintained by their respective Urban Local Body (ULB)/ Department / Organization. The levy of environmental compensation on the defaulters will be the prime responsibility of the EE/AE/JE of the concerned ULB/ Department / Organization which is responsible for maintaining the said drain.

ii. In addition to this, appropriate action as per provisions of Delhi Municipal Corporation Act 1957 / New Delhi Municipal Council Act, 1994, Cantonment Act 2006, Solid Waste management Rules 2016 and Solid Waste Management Bye-Laws framed by respective Urban Local Body in exercise of powers under Solid Waste Management Rules, 2016 will also be initiated for challenging the prosecuting of the defaulters by the EE/AE/JE of the concerned Urban Local Body.

iii. This action needs to be taken in respect of all drains owned / maintained by the respective Urban Local Body / DJB/ DSIIDC/ PWD/ I&FC / DUSIB etc.

iv. The Executive Engineer of the DSIIDC, PWD, DJB I&FC and DUSIB who is responsible for maintaining the said drain shall liaise on a regular basis with the concerned Executive Engineer of the ULB to ensure proper and regular action.

v. Negligence on the part of individual officer in enforcing the above instructions shall attract disciplinary proceedings. The Executive Engineer in-charge of maintenance of that particular section of the drain of the DJB/PWD/I&FC/DUSIB and DSIIDC and the area Executive Engineer of the concerned Urban Local Body would be held jointly accountable in case Solid Waste is found dumped in the drain and / or on its embankment.

### 3.5. Delhi's Population and Water Consumption

Delhi has been experiencing phenomenal growth of population since 1951 recording decennial growth rate of 52.44%, 52.91%, 52.98%, 51.45% and 47.03% during 1951-61, 1961-71, 1971-81 and 1991-01 decades respectively. One of the main causes for this spurt in the growth of population is migration into the city not only from the adjacent States but also from far away States.Delhi's population grew from 13.9 Million in 2001 to 16.8 Million in 2011, almost by 22%. But, being potential growth centre, Delhi attracts in-migration as well. Population of Delhi at present is about 20 Million (2 Crores). It is estimated that the population of Delhi would be ~29Million by 2031. The growth puts pressure on infrastructure and services, causing increase in pollution. About 21% population lives without sewerage. There is absence of sewer network in unauthorized colonies and slums. There is population of 40 lakhs in 1799 unauthorized colonies and the population is growing. As per Delhi Jal Board (DJB) estimates, total water consumption is 4091 MLD (900 MGD) from both surface and ground water sources and total sewage generation is *3273 MLD (720MGD)* reckoned at 80% of the fresh water used. Details of waer consumption and sewage generation in Delhi in 2031 is given in **Table 8** below:-

**Table 8. Water Consumption and Sewage Generation in Delhi**

| 2020 | | | 2025 | | | 2031 | | |
|---|---|---|---|---|---|---|---|---|
| **Population (in Million)** | **Total Water Consum-ption** | **Total Sewage Generation (80 % of Consum-ption)** | **Population (in Million)** | **Total Water Consum-ption** | **Total Sewage Generation (80 % of Consum-ption)** | **Population (in Million)** | **Total Water Consum-ption** | **Total Sewage Generation (80 % of Consum-ption)** |
| 20 | 4091 MLD (900 MGD) | 3273 MLD (720 MGD) | 25 | 4546 MLD (1000 MGD) | 3637 MLD (800 MGD) | 29 | 6033 MLD (1327 MGD) | 4828 MLD (1062 MGD) |

About 80% source of water pollution in river Yamuna is domestic sewage flow through drains from authorized / unauthorized areas. Besides Apart from Delhi, large volumes of treated /untreated sewage and industrial effluent are discharged into the river Yamuna from townships in Haryana and Uttar Pradesh and later through 18 drains within Delhi.

## 3.6 Sources of River Pollution

Geometric increase in population coupled with rapid urbanization& industrialization has resulted in high impact on quality and quantity of water in Delhi. Water pollution sources are ofmainly two types i.e., Municipal Sewage and Solid Waste and Industrial Wastewaterand Waste Disposal. Various sources of water pollution in river Yamuna like dairy operation, dumping of solid waste including puja material,effluent from Hotels,Hospitals & Industries is given in **Table 9.**

**Table 9: Main Sources of Water Pollution, Location, Nature and Extent of Pollution**

| S. No. | Source | Location | Nature | Extent of Pollution |
|---|---|---|---|---|
| **1** | Sewage from Domestic Sector including Unauthorized Human Settlements / Commercial Centers | Residential / Commercial Areas | Organic matter, SS,Detergents, O& G etc.,. | About 80 % of total waste water discharge into river Yamuna |
| **2** | Cattle Wading and Dairy Waste | Rural Areas & Dairy Colonies | Organic matter, SS, Detergents,O& G etc., | About 20% of total waste water water discharge into river Yamuna |
| **3** | Dumping of Solid Waste / Pooja material | Storm Water Drains, Bridges at Wazirabad, ISB,Loha Bridge ITO,Nizamuddin, Okhla | Organic matter, SS, etc | |
| **4** | Hotels/Restaurants / Banquet Halls/ Dhabas/EatingHouse Establishments | Commercial Areas / Mixed Land Use | Organic matter, SS,Detergents, O& G etc., | |
| **5** | Hospitals / Health Care Establishments | Commercial Areas / Mixed Land Use | Organic matter, SS, Detergents, O & G etc., and Inorganic matter Etc | |
| **6** | Industries | 28 Approved Industrial Areas,24 Redev elopment Areas & Non Conforming Areas | Organic matter, Inorganic matter including Heavy Metals, SS, Oil & Grease etc. | |

### 3.6.1 Municipal Sewage Management Scenario

At present water in Delhi is supplied by Delhi Jal Board from surface as well as from ground water at 4010 MLD (900 MGD) including 364 MLD (80 MGD) of ground water. NCT of Delhi generates about 3273 MLD (720 MGD) of sewage while the total sewage treatment capacity available is for 2714MLD(597 MGD) and sewage treatment is about 2273 MLD (500 MGD).In the absence of seamless conveyance system and proper upkeep, the discharge of untreated/partially treated sewage enters into river Yamuna through 18 major drains thereby adversely impacting the water quality of river Yamuna and increasing the pollution load in terms of BOD which ranges between 3-79 mg/l as against the desired water quality criterion of 3 mg/l as developed by Central Pollution Control Board (CPCB). Total sewage treatment capacity of DJB is 2714 MLD (597 MGD) leaving a gap of 559 MLD (123 MGD).

Apart from STPs, there are drains discharging significant volume of sewage/wastewater to River Yamuna. Water pollution from Haryana (Sonipat through Drain No. 6A, Bahadurgarh and Gurgaon though Najafgarh Drain) is received in river Yamuna in Delhi, downstream of Wazirabad barrage.As per 3rd Interim Report of Yamuna Monitoring Committee dated 05.02.2020 about 3026 MLD (666 MGD) of mixed waste water is being outfalling in River Yamuna through various drains between Wazirabad Barrage to Okhla Barrage, out of which about 500 MLD (110 MGD)is from Haryana and about65 MLD (14 MGD)from U.P. Accordingly, the actual wastewater out falling in river Yamuna from Delhi area is about 2461 MLD (about 542MGD).

At present, there are 41 STPs ( i.e., 35 functional, 2 permanantly closed and rest 4 are under rehavilation) and installed sewage treatment capacity is abouit 2714 MLD (597 MGD). About 2182 MLD (480 MGD) is being treated. The actual treatment is expected to increase to 2273 MLD (500 MGD) after recommissioning of Phase-I at Nilothi by 28.02.2020. Rehabilitation of STPs located at Kondli, Rithala, Coronation, Yamuna Vihar and Okhla are already under progress, which will result in a phased increase in the total wastewater treatment in Delhi to about 3214MLD(707 MGD) by **December 2022**. List of Functioning STPs in Delhiis given in **Table 10**.

**Table 10.List of Functioning STPs in Delhi as on 30.11.2019**

| S. No. | Name of STP | Phase wise Breakup | Design Capacity (in MGD) | Utilization (in MGD) | % Utilization | Design BOD/SS (in mg/l) | Achieved BOD/SS (in mg/l) | Remarks (Whether Meeting Design Parameters) |
|---|---|---|---|---|---|---|---|---|
| 1. | Rithala | Phase-I | 40 | 26 | 65 | 30/50 | 54/86 | No |
| 2. | Rithala | Phase-II | 40 | 40 | 100 | 15/20 | 18/26 | No |
| 3. | Okhla | Phase-II | 12 | 7 | 58 | 30/50 | 16/24 | Yes |
| 4. | Okhla | Phase-III | 37 | 26 | 70 | 30/50 | 14/20 | Yes |
| 5. | Okhla | Phase-IV | 45 | 36 | 80 | 30/50 | 20/30 | Yes |
| 6. | Okhla | Phase-V | 16 | 11 | 69 | 30/50 | 12/20 | Yes |
| 7. | Okhla | Phase-VI | 30 | 29 | 97 | 20/30 | 4/6 | Yes |
| 8. | Kondli | Phase-II | 25 | 20 | 80 | 30/50 | 10/14 | Yes |
| 9. | Kondli | Phase-IV | 45 | 45 | 100 | 20/30 | 18/26 | Yes |
| 10. | Keshopur | Phase-I | 12 | 11.5 | 95.8 | 20/30 | 4/8 | Yes |
| 11. | Keshopur | Phase-II | 20 | 16 | 80 | 30/50 | 32/46 | No |
| 12. | Keshopur | Phase-III | 40 | 38 | 95 | 30/50 | 48/76 | No |
| 13. | Yamuna Vihar | Phase-I | 10 | 8 | 80 | 30/50 | 6/10 | Yes |
| 14. | Yamuna Vihar | Phase-II | 10 | 6.5 | 65 | 30/50 | 8/14 | Yes |
| 15. | Yamuna Vihar | Phase-III | 25 | 18 | 72 | 20/30 | 52/76 | No |
| 16. | Vasantkunj | Phase-I | 2 | 1.5 | 75 | 30/50 | 6/10 | Yes |
| 17. | Vasantkunj | Phase-II | 3 | 1.9 | 63 | 30/50 | 4/8 | Yes |
| 18. | Mehrauli | Mehrauli | 5 | 3.9 | 78 | 20/30 | 8/14 | Yes |
| 19. | Coronation Pillar | Phase-I & II | 20 | 15.5 | 77.5 | 30/50 | 20/28 | Yes |
| 20. | Coronation Pillar | Phase-III | 10 | 7 | 70 | 30/50 | 44/52 | No |
| 21. | Narela | Narela | 10 | 1.4 | 14 | 30/50 | 16/22 | Yes |
| 22. | *Nilothi | Phase-I | 40 | Nil | - | - | - | - |

| S. No. | Name of STP | Phase wise Breakup | Design Capacity (in MGD) | Utilization (in MGD) | % Utilization | Design BOD/SS (in mg/l) | Achieved BOD/SS (in mg/l) | Remarks (Whether Meeting Design Parameters) |
|---|---|---|---|---|---|---|---|---|
| 23. | Nilothi | Phase-II | 20 | 18 | 90 | 10/10 | 8/14 | No |
| 24. | Najafgarh | Najafgarh | 5 | 1.9 | 38 | 30/50 | - | - |
| 25. | Pappankalan | Phase-I | 20 | 16 | 80 | 30/50 | 12/22 | Yes |
| 26. | Pappankalan | Phase-II | 20 | 19.5 | 97.5 | 10/10 | 4/6 | Yes |
| 27. | Dr.Sen Nursing HomeNalla | Dr.Sen Nursing Home Nalla | 2.2 | 2.32 | 105 | 10/15 | 4/6 | Yes |
| 28. | Delhi Gate Nallah | Phase-I | 2.2 | 2.29 | 104 | 10/15 | 6/8 | Yes |
| 29. | Delhi Gate Nallah | Phase-II | 15 | 15.28 | 102 | 10/10 | 4/6 | Yes |
| 30. | Rohini | Rohini | 15 | 5.6 | 37 | 30/50 | 22/30 | Yes |
| 31. | Ghitorni | Ghitorni | 5 | 0.39 | 8 | 30/50 | 21/37 | Yes |
| 32. | Kapashera | Kapashera | 5 | 1.5 | 30 | 10/10 | 2/4 | Yes |
| 33. | Common Wealth Games Village | Common Wealth Games Village | 1 | 0.22 | 22 | 10/10 | 2/4 | Yes |
| 34. | Molar Band | Molar Band | 0.66 | 0.55 | 83 | 30/50 | 14/24 | Yes |
| 35. | Chilla | Chilla | 9 | 9 | 100 | 10/10 | 8/10 | Yes |

***Note:** Due to lack of sewerage network there is short fall in sewage received at various STPs.*

***Nilothi Ph-I STP is stopped due to choking of various units because of excessive silt in sewage trapped from drain through ISP, Plant requires removal of chokage and cleaning of all units/pipelines etc. will be re-commissioned by 28.02.2020*

## A. Online Monitoring System (OLMS) for STPs:-

35 Operational STPs of Delhi Jal Board are having Online Monitoring System (OLMS) and connected to servers of DPCC and CPCB. Calibration of Online Monitoring System installed at STPs (of DJB) is being carried out by DPCC Water Laboratory.

## B. Ongoing Interceptor Sewer Project(ISP) on Trapping of Major Drains: -

DJB has already trapped 11 out of 18 major drains and action is being taken to trap remaining 06 dains. It is further stated that out of 18 drains directly outfalling into river Yamuna, one major drain i.e. Najafgarh drain (including supplementary drain) contributing about 64 % of wastewater is being trapped under Inteceptor Sewer Project being taken by DJB. Further, Out of 11 drains trapped by DJB, some discharge was observed in respect of two drains for which action is being taken by DJB to trap the additional discharge also.

Under Interceptor Sewer Project (ISP), 108 Nos of the sub-drains are to be trapped and provision of trapping of about 1100 MLD (242 MGD) flow is being made. **A map showing Interceptor Drains is at <u>ANNEXURE – 10</u>.** These 108 sub-drains are in command areas of Najafgarh, Supplementary and Shahdara drains. 71 sub-drains have already been trapped under the ISP and balance 37 sub-drains will be trapped by March, 2020 as per commitment of M/s Engineers India Limited (EIL), which is executing the project on behalf of DJB. With the commissioning of all the six packages of Interceptor Sewage Project, the BOD load reduction in the river will be of the order of 165 TPD**.**Brief of 6 Packages of Interceptor Sewer Project in Delhi (Najafgarh & Shahdra Drains) is given in Table 11.

**Table 11: Brief of 6 Packages of Interceptor Sewer Project in Delhi (Najafgarh Drain including Supplementary Drain& Shahdra Drain)**

| S. No | ISP Package No | Flow to be Trapped (in MLD) | Name of STP & Treatment Capacity | Balance Flow Targeted to be Trapped and Treated with Timeline |
|---|---|---|---|---|
| 1 | Package-1 | 62.7 (13.80 MGD) (Dwarka) | Dwarka -40 MGD(182 MLD) | Already Trapped |
| 2 | Package-2 | 190.5 (41.90 MGD) (Nilothi) | Nilothi-60 MGD(273 MLD) | Already Trapped |
| | | 101.4 (22.30 MGD) (Keshopur) | Keshopur – 72 MGD (327 MLD) | 22.27 MLD (4.9 MGD) ***by March 2020*** |
| 3 | Package-3 | 227(50 MGD) (Coronation Pillar) | Coronation Pillar- 70 MGD (318 MLD) (New – under construction & to be completed by Oct 2020) & Existing STP is 30 MGD(336 MLD) | 227.3 MLD (50.00 MGD) ***by March, 2020*** |
| | | 87 (19.2 MGD) (Rithala) | Rithala – 80 MGD(364 MLD) | 87.3 MLD (19.20) MGD ***by March, 2020*** |
| 4 | Package-4 | 61.4 (13.5 MGD) (Rithala) | Rithala–80 MGD(364 MLD) | 16 MLD (3.5 MGD) ***by March, 2020*** |
| | | 57 (12.0 MGD) (Rohini) | Rohini–15 MGD (68 MLD) | Already Trapped |
| 5 | Package-5 | 145 (31.9 MGD) (Yamuna Vihar) | Yamuna Vihar – 35 MGD(159 MLD)& 10 MGD (45.46 MLD) (under Rehabilitation of AMRUT) | 75.46 MLD (16.6 MGD) ***ByMarch, 2020*** |
| 6 | Package-6 | 168 (37 MGD) Kondli) | Kondli-45 MGD (204.6 MLD)New & 45 (10+25+10) MGD(204.6 MLD) to be rehabilitated under YAP-III out of which 25 MGD (113.6 MLD) is still in operation Presently, total operational capacity- 70 MGD(318 MLD) | 25.0 MLD (5.5 MGD) ***by March, 2020*** |
| **Total** | | **1100 (242 MGD)** | | **453.25 (99.7 MGD)** |

**Note – Two small parts (i) Seelampuri stretch and (ii) Brahmpuri stretch are de-scoped from P6 and P5 respectively. The awarded cost of P6 and P5 are considered including these two parts as original. Work will be completed by March, 2020.**

***<u>Trapping of Other 16 Major Drains: On-Going/Completed:-</u>***

Out of remaining 16 drains, 11 drains as mentioned in following **Table 12** have already been trapped and sewage is being treated in nearest STPs. 2 Drains have been partially trapped and status is given in **Table 13**. The remaining 03 drains carry a discharge of about 216 MLD (47.5 MGD) for which action plan has been prepared and the status is given in subsequent paras.

**Table 12. Details of 11 Drains which have already been Trapped.**

| S. No. | Name of Drain | Current Status | Sewage Trapped (in MGD) | Diverted to STP |
|---|---|---|---|---|
| **1** | Magazine Road Drain | Completely trapped | 7.81 MLD (1.72 MGD) | Okhla STP |
| **2** | Sweepers Colony Drain | Completely trapped | 8.59 MLD (1.89 MGD) | Okhla STP |
| **3** | Khyber Pass Drain | Completely trapped | 1.68 MLD (0.37 MGD) | Okhla STP |
| **4** | Metcalf House Drain | Completely trapped | 17.27 MLD (3.80 MGD) | Okhla STP |
| **5** | Moat Drain (Vijay Ghat) | Dry | - | NA |
| **6** | Civil Military Drain | Completely trapped | 14.68 MLD (3.23 MGD) | Okhla STP |
| **7** | Delhi Gate Drain | Completely trapped | 75.23 MLD (16.55 MGD) | Delhi Gate STP Phase-II |
| **8** | Drain No. 14 | Completely trapped | 25.91 MLD (5.70 MGD) | Okhla STP |
| **9** | Tughlakabad drain | Completely trapped | 25.04 MLD (5.51MGD) | Okhla STP |
| **10** | Kalkaji Drain | Completely trapped | 2.5 MLD (0.55 MGD) | Okhla STP |
| **11** | Tehkhand Drain | Completely trapped | 27.05 MLD (6.05 MGD) | Okhla STP |
| | **Total** | | **206.25 MLD (45.37 MGD)** | |

**Table 13. Details of 2 Drains which have been Trapped Partially**

| S. No. | Name of Drain | Approximate Dry Weather Flow (MLD) | Current Status | Trapped sewage sent to STP | Action plan by DJB | Likely date of completion | Command area of Drain |
|---|---|---|---|---|---|---|---|
| 1 | Tonga Stand Drain | 1.72 | Partialy trapped | Okhla STP through Bella Road Trunk Sewer – Nigambodh SPS to the extent of 01-1.5 MLD. | Some discharge at the downstream side has been observed from JJ Cluster and some settlement in O-Zone. It is proposed to construct a small decentralized plant/lift station to treat the local discharge. A piece of land is to be allotted by DDA. | 18 months from the date of allotment of land from DDA. | The additional discharge is coming from the Settlements of down stream side between Ring road and Yamuna bank including JJ Clusters on the bank of the river near Hanuman Prachin Mandir, Yamuna Bazzar. |
| 2 | Dr. Sen N.H. Nallah | 9.51 | Trapped to the extent | Partially treated at Sen | Trapped. However, overflowwere observed from the | March 2020. | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | of 10 MLD | Nursing Home STP (2.2 MGD) and at Ring road trunk sewer (about 10 MLD). | gates on Sen Nursing Home nallah installed.<br><br>It is proposed to construct RCC weir across the drain on the downstream of STP so that overflow into river Yamuna is completely stopped. | | |
| | **Total** | **11.23 MLD** | | **10.73 MLD** | | | |

*Status on the on-going project on 3 major drains (i.e., Barapulla Drain, Qudsia Bagh + Morigate Drain and Maharani Bagh Drain:-*

*Barapulla Drain [145.5 MLD (32 MGD)]:* -The short term & medium term plans have been completed and has resulted in trapping of 79.42 MLD (17.47 MGD**)** of sewage into sewerage system for treatment through Okhla STP. The long term plan is under implementation and is expected to be completed by **30.09.2022** which will further trap 28.18 MLD (6.2 MGD) sewage.

*Qudsia Bagh + Morigate Drain [Flow 40.91 MLD (09 MGD)]:*-STP at the mouth of this drain is proposed to be constructed for which land has again been identified with DDA but same is yet to be allotted to DJB. **Necessary action shall be taken after allotment of land.**

*Maharani Bagh Drain [Flow 29.54 MLD (6.5 MGD)]:*-The work of trapping Maharani Bagh drain has been completed to trap the flow of around 9 MLD (2 MGD) in C.V.Raman Marg Trunk Sewer in all respect.For balance about 20.45 MLD (4.5 MGD) flow, the sewerage system is being provided in Batla House GOC, Phase-II, which will trap the same and pump to Okhla STP. The time lines for the same is **31.12.2021.**

**Sewage from NDMC Areas**:

Sewage from New Delhi Municipal Counicil (NDMC) areas and the areas under the control of DJB was found to be discharging into Barapulla drain through the Sunehri bagh drain &Kushak drain. Sunheri Bagh drain, which largely flows through NDMC areas, is reported to be carrying sewage from NDMC and DJB areas in the upstream of the drain. NDMC has informed that all the sources of sewage from NDMC areas have been plugged and there is no sewage flowing into Sunehri Bagh drain from NDMC areas. DJB has informed that the work of rehabilitation of peripheral sewer line in Saket area has been started, the work of trapping of Kushak Drain at Andrewsganj & Krishi Vihar will be taken up and expected to be completed by December, 2020.

**Punctured Sewers joining Storm Water Drains :**

As per DJB's action taken report, 42 points out of 79 points where sewage was flowing into storm water drains by puncturing sewer line have been plugged , two points pertain to DUSIB and one point to DDA. In the remaining points, the work is in progress and will be completed by 31.12.2020 in a phased manner.

**Controlled Dredging in River Yamuna :**

The study on dredging has been completed by NEERI in collaboration with the Irrigation and Flood Control Department(IFCD). The report is awaited from NEERI. The study was commissioned in pursuanceto Hon'ble NGT's direction for controlled dredging of river Yamuna to remove historical sludgefrom the river bed deposited due to continuous flow of domestic and industrial waste watergoing into the river.The IFCD will take appropriate decision after receiving the report fromNEERI.

## C. Sludge Management at STPs

Sludge management scenario is given at **Table 14** below:-

### Table 14. Status and Timelines of Bio Digester / Methane Recovery Plant and Management of Sludge at STPs

| Name of STP | Phase-Wise Breakup | | Design Capacity | Bio Digesters/ Methane Recovery Plant | Management of Sludge | Remarks / Timelines |
|---|---|---|---|---|---|---|
| **Rithala** | • | Phase – I | 40 MGD (181.8 MLD) | - | - | - |
| | • | Phase - II | 40 MGD (181.8 MLD) | Yes | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Okhla** | • | Phase-I | 30 (12+18) MGD (136.4 MLD) | No | Included in the new 124 | A new 564 MLD (124 MGD) is coming up in place of phase I to IV. The work will be completed by Dec 2022*.Sludgemanagement is included in this project. |
| | • | Phase-II | 12 MGD (54.5 MLD) | No | -Do- | -Do- |
| | • | Phase-III | 37 MGD (168 MLD) | No | -Do | -Do |
| | • | Phase-IV | 45 MGD (204.6 MLD) | No | -Do- | -Do- |
| | • | Phase-V | 16 MGD (72.7 MLD) | No | No | Included in upgradation of plant by Dec 2024* |
| | • | Phase-VI | 30 MGD (136.4 MLD) | Yes | No | Digesters are working |
| **Kondli** | • | Phase-I | 10 MGD | No | No | Under Rehabilitation |

| Name of STP | Phase-Wise Breakup | | Design Capacity | Bio Digesters/ Methane Recovery Plant | Management of Sludge | Remarks / Timelines |
|---|---|---|---|---|---|---|
| | | | (45.46 MLD) | | | |
| | • | Phase– II | 25 MGD (113.6 MLD) | No | No | Running & Under Rehabilitation |
| | • | Phase-III | 10 MGD (45.46 MLD) | No | No | Under Rehabilitation |
| | • | Phase–IV | 45 MGD (204.6 MLD) | Yes | No | Digesters are working Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Keshopur** | • | Phase-I | 12 MGD (54.5 MLD) | Yes | No | |
| | • | Phase-II | 20 MGD (90.9 MLD) | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| | • | Phase-III | 40 MGD (181.8 MLD) | Yes | No | |
| **Yamuna Vihar** | • | Phase – I | 10 MGD (45.46 MLD) | Yes | No | Included in up-gradation of STP likely by Dec, 2024* |
| | • | Phase-II | 10 MGD (45.46 MLD) | No | No | SMS facility shall be included in the up-gradation of Phase-I/III |
| | • | Phase-III | 25 MGD (113.6 MLD) | Yes | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Vasant Kunj** | • | Phase – I | 2 MGD (9 MLD) | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| | • | Phase - II | 3 MGD (13.6 MLD) | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Mehrauli** | • | Mehrauli | 5 MGD (22.7 MLD) | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Coronation Pillar** | • | Phase– I & II | 20 MGD (90.9 MLD) | No | No | The sewage will be diverted to new STP in construction likely by March, 2020 |
| | • | Phase- III | 10 MGD (45.46 MLD) | No | No | |
| **Narela** | • | Narela | 10 MGD (45.46 MLD) | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Najafgarh** | • | Najafgarh | 5 MGD (22.7 MLD) | - | - | Plant is extended aeration |
| **Nilothi** | • | Phase – I | 40 MGD (181.8 MLD) | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| | • | Phase– II | 20 MGD (90.9 MLD) | Yes | Yes | |
| **Pappan** | • | Phase – I | 20 MGD | No | No | Included in up- |

| Name of STP | Phase-Wise Breakup | | Design Capacity | Bio Digesters/ Methane Recovery Plant | Management of Sludge | Remarks / Timelines |
|---|---|---|---|---|---|---|
| **Kalan** | | | (90.9 MLD) | | | gradation of STP by Dec, 2024* |
| | • | Phase– II | 20 MGD (90.9 MLD) | Yes | Yes, under construction | Being constructed likely to be commissioned by Dec, 2019 |
| **Dr. Sen Nursing Home Nalla** | • | Dr. Sen Nursing Home Nalla | 2.2 MGD (10 MLD) | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Delhi Gate Nallah** | • | Phase – I | 2.2 MGD (10 MLD) | No | No | No digesters, plant designed on extended aeration basis |
| | • | Phase - II | 15 MGD (68 MLD) | No | No | Digesters are working |
| **Rohini** | • | Rohini | 15 MGD (68 MLD) | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Ghitorni** | • | Ghitorni | 5 MGD (22.7 MLD) | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Kapashera** | • | Kapashera | 5 MGD (22.7 MLD) | Yes | No | |
| **Common Wealth Games Village** | • | Common Wealth Games Village | 1 MGD (4.54 MLD) | No | No | -- |
| **Molar-Bandh** | • | Molar Bandh | 0.66 MGD (3 MLD) | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Chilla** | • | Chilla | 9 MGD (40.9 MLD) | Yes | No | -- |
| | | **Total** | **667.06 MGD (3031.2 MLD)** | | | |

* *Timeline given by DJB however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.*

## D. Sewage and Faecal Sludge Management (Septage Management)

The Septage Management Regulations have been notified on 21.11.2018 and the main features of the Regulation are as under:

(i) Septic Tank Waste (Septage) shall be collected and transported only by vendor(s) having a valid License for this purpose issued by the Delhi Jal Board

(ii) The Septage shall be transported only in the Vehicles approved for these purposes by the Designated officer of Delhi Jal Board.

(iii) The Licensee shall dispose of Septage only at the locations notified by the Delhi Jal Board from time to time.

(iv) The worker(s) deployed by the Licensee shall be insured to cover compensation to be paid to the victims /their legal.

(v) Public Notice was issued for inviting applications from vendors/individuals engaged in the activity of cleaning of Septic Tank Waste for licensing. DJB has issued 156 Nos. of Licenses.

(vi) The work of collection, transportation and disposal of septic tank waste by the licensed vendors began from April, 2019.

(vii) Around 90 Million Litres of Septic Tank Waste has been collected/ treated till 15.12.2019 from the un-sewered/ un-authorized areas by DJB.

(viii) Concerned District Magistrates to enforce the provisions of the regulation to prevent unauthorised disposal of septage in drains etc. and to form a Committee in this regard. DJB member will be Member Secretary of the Committee.

### E. Utilization of Treated Wastewater

At present out of 2273 MLD (500 MGD) treated effluent, Delhi returns 1212 MLD (267 MGD)as a return flow to River Yamuna as per MOU of 1994 and 409 MLD (90 MGD) is being used for Irrigation/ Horticulture/Industrial purposes.

## 3.6.2. Industrial Wastewater Management Scenario

There are 28 Approved Industrial Areas (Existing Planned Industrial Areas)in Delhi as per Master Plan of Delhi-2021(MPD-2021). Besides 28 Approved Industrial Areas, there are 24 Areas Notified for Re-development under MPD-2021(non-conforming clusters of industries for redevelopment). Information regarding no. of industries/units in these 24 redevelopment areas is not available. However, by rough estimate these redevelopment areas may be having about 10,000 industries/units in these areas.

### A. Industrial Areas Located in Delhi & No. of Industries:

There are 28 Approved Industrial Areas in Delhi and 28117 industries/units are in these industrial areas as per online consent record of DPCC. Out of 28117 industries/units **(Table.15)** , 1516 industries/units are water polluting and have installed captive Effluent Treatment Plants (ETPs). Total waste water generation from these industrial areas is 35.98 MLD. There are 13 CETPs to cater the waste water generated from 17 Approved Industrial Areas with total capacity of 212.3 MLD.

**Table 15. Industries / Units in 28 Approved Industrial Areas of Delhi**

| S. No. | Name of Industrial Area | No. of Industries / Units | No. of Water Polluting Industries / Units | No. of Captive ETPs | Waste Water Generation (in MLD) | Connected to CETP |
|---|---|---|---|---|---|---|
| 1 | Badli | 663 | 71 | 71 | 0.64914 | Badli CETP |
| 2 | Bawana | 5612 | 138 | 138 | 2.486516 | Bawana CETP |
| 3 | Friends Colony | 1146 | 12 | 12 | 0.277576 | Jhilmil CETP |
| 4 | GT Karnal Road | 461 | 48 | 48 | 0.011373 | GT Karnal Road CETP |
| 5 | Jhandewalan FFC | 602 | 0 | 0 | 0.513734 | **CETP not required** |
| 6 | Jhilmil | 888 | 23 | 23 | 0.371286 | Jhilmil CETP |
| 7 | Keshopur | 36 | 4 | 4 | 0.015996 | **CETP not required** |
| 8 | Kirti Nagar | 649 | 39 | 39 | 0.857387 | **CETP not required** |
| 9 | Lawrence Road | 803 | 45 | 45 | 0.548615 | Lawrence Road CETP |
| 10 | Mangolpuri | 1311 | 12 | 12 | 0.36728 | Mangolpuri CETP |
| 11 | Mayapuri | 1826 | 178 | 178 | 2.184367 | Mayapuri CETP |
| 12 | Mohan Cooperative | 227 | 29 | 29 | 1.999784 | **CETP not required** |
| 13 | Moti Nagar DLF | 182 | 8 | 8 | 0.068723 | **CETP not required** |
| 14 | Najafgarh Road | 814 | 67 | 67 | 1.44001 | **CETP not required** |
| 15 | Nangloi | 397 | 12 | 12 | 0.168132 | Nangloi CETP |
| 16 | Naraina | 1028 | 40 | 40 | 1.149645 | Naraina CETP |
| 17 | Narela | 3552 | 204 | 204 | 2.281569 | Narela CETP |
| 18 | Okhla FFC | 192 | 0 | 0 | 0.009151 | **CETP not required** |
| 19 | Okhla | 2605 | 279 | 279 | 7.112682 | Okhla CETP |
| 20 | Okhla Estate | 190 | 13 | 13 | 0.698879 | **CETP not required** |
| 21 | Patparganj | 830 | 39 | 39 | 2.048773 | No CETP. Proposal for CETP under consideration. |
| 22 | Rajasthani Udhyog Nagar | 146 | 16 | 16 | 0.198235 | SMA CETP |
| 23 | SMA | 228 | 45 | 45 | 0.439401 | |
| 24 | SSI | 166 | 20 | 20 | 0.307855 | |
| 25 | Shahzada Bagh | 1169 | 84 | 84 | 0.204183 | **CETP not required** |
| 26 | Tilak Nagar | 68 | 5 | 5 | 0.089634 | **CETP not required** |
| 27 | Udyog Nagar | 674 | 35 | 35 | 9.121651 | Nangloi CETP |
| 28 | Wazirpur | 1652 | 50 | 50 | 0.359225 | Wazirpur CETP |
| | **Total** | **28117** | **1516** | **1516** | **35.9808** | |

There are 13 CETPs to cater the wastewater generated only from 17 Approved Industrial Areas with total treatment capacity of 212.3 MLD. CETPs have been designed to treat mix waste i.e. sewage and industrial effluent generated from the Industries / Units in their respective Industrial Areas.*Rest of the 11 Approved industrial areas out of 28 Approved Industrial Areas are not having CETPs as they are not generating substantial liquid waste. Henceforth, no water polluting industries will be allowed either in these 11 approved industrial areas or industries having captive treatment facilities only be allowed. List of CETPs their Treatment Capacities, Mode of Discharge and Gap is given in the* ***Table 16****.*CETP-wise sludge generation and stored at CETPs is given in**Table 17.**

***Table 16.List of CETPs, their Treatment Capacities, Mode of Discharge and Gap***

| S. No | Name of CETP | Industrial Areas connected with CETP | Total Waste Water Generation (in MLD) | Installed Capacity (in MLD) | Average Flow (in MLD) | Mode of Discharge | Gap (in MLD) |
|---|---|---|---|---|---|---|---|
| **1** | Jhilmil CETP | Jhilmil and Friends Colony Industrial Areas | 0.648862 | 16.8 | 5.5 | PWD Drain leading to Shahdara Drain | -11.3 MLD |
| **2** | Badli CETP | Badli Industrial Estate | 0.64914 | 12 | 1.92 | Supplementary Drain leading to Najafgarh Drain | -9.99 MLD |
| **3** | Mayapuri CETP | Mayapuri Industrial Area | 2.184367 | 12 | 2.25 | PWD Drain leading to Najafgarh Drain | -8.35 MLD |
| **4** | Mangolpuri CETP | Mangolpuri Industrial Area | 0.36728 | 2.4 | 1.5 | Supplementary Drain leading to Najafgarh Drain | -0.42 MLD |
| **5** | Wazirpur CETP | Wazirpur Industrial Area | 0.359225 | 24 | 2 | Najafgarh Drain | -21.39 MLD |
| **6** | Nangloi CETP | Nangloi & Udyog Nagar Industrial Areas | 9.289783 | 12 | 2.71 | Supplementary Drain leading to Najafgarh Drain | -9.06 MLD |
| **7** | SMA CETP | SMA,Rajasthani Udyog Nagar & SSI Industrial Areas | 0.945491 | 12 | 1.5 | Najafgarh Drain | -9.4 MLD |
| **8** | Okhla CETP | Okhla Industrial Area | 7.112682 | 24 | 2.715 | Sarita Vihar Drain | -21.42 MLD |
| **9** | Narela CETP | Narela Industrial Area | 2.281569 | 22.5 | 10.8 | Supplementary Drain leading to Najafgarh Drain | -15.3 MLD |
| **10** | Bawana CETP | Bawana Industrial Area | 2.486516 | 35 | 19.0 | Supplementary Drain leading to Najafgarh Drain | -12.03 MLD |
| **11** | Naraina CETP | Naraina Industrial Area | 1.149645 | 21.6 | 5.1 | Najafgarh Drain | -16.5 MLD |
| **12** | GTK Road CETP | GTK Road Industrial Area | 0.011373 | 6 | 2.5 | Najafgarh Drain | -3.3 MLD |
| **13** | Lawrence Road CETP | Lawrence Road Industrial Area | 0.548615 | 12 | 1.0 | PWD Drain leading to Najafgarh Drain | -10.8 MLD |
| | | **Total** | **28.03455 MLD** | **212.3MLD (46.7 MGD)** | **53.395 MLD (11.75 MGD)** | | **-149.26 MLD** |

## Table 17 : CETP-Wise Sludge Generation and Stored at CETPs

| S.No | Name of CETP | Industrial Areas Connected with CETP | Installed Capacity (in MLD) | Sludge Generation (TPD) | Total Sludge Stored at CETP site (Till 15.01. 2020 in MT) |
|---|---|---|---|---|---|
| **1** | Jhilmil | Jhilmil and Friends Colony Industrial Areas | 16.8 | 0.0644 | 334.330 |
| **2** | Badli | Badli Industrial Estate | 12 | 0.364 | 1649 |
| **3** | Mayapuri | MayapuriIndustrial Area | 12 | 0.1373 | 622.430 |
| **4** | Mangolpuri | MangolpuriIndustrial Area | 2.4 | 0.01841 | 171.488 |
| **5** | Wazirpur | WazirpurIndustrial Area | 24 | 3.2581 | 12814.936 |
| **6** | Nangloi CETP | Nangloi&Udyog Nagar Industrial Areas | 12 | 0.1740 | 650.295 |
| **7** | SMA CETP | SMA, Rajasthani Udyog Nagar & SSI Industrial Areas | 12 | 0.2794 | 2849.5 |
| **8** | Okhla CETP | Okhla Industrial Area | 24 | 0.1091 | 9792.327 |
| **9** | Narela CETP | Narela Industrial Area | 22.5 | 0.3740 | 4148.609 |
| **10** | Bawana CETP | Bawana Industrial Area | 35 | 0.8850 | 2451.490 |
| **11** | Naraina CETP | Naraina Industrial Area | 21.6 | 0.6094 | 3557.425 |
| **12** | GTK Road CETP | GTK Road Industrial Area | 6 | 0.1062 | 1309.195 |
| **13** | Lawrence Road CETP | Lawrence Road Industrial Area | 12 | 0.1884 | 705.165 |
| | | **Total** | **212.3 MLD (46.7 MGD)** | **6.56771 TPD** | **41056.19 MT** |

CETPs are over designed. Against the 212.3 MLD (46.7 MGD) capacity of all the 13 CETPs 53.4 MLD(11.75 MGD) effluent is reaching to CETPs (Capacity utilization is about 25%). All the 13 CETPs are being monitored by DPCC Laboratory on monthly basis and Analysis Reports are placed on the website of DPCC. Inspections of the CETPs are carried out on quarterly basis and deficiencies observed, if any, during the inspections are conveyed to the CETP Societies/operator of CETPs for rectification of the deficiencies. 11 CETPs are being run by respective CETP Societies and CETPs at Bawana and Narela Industrial Areas are being operated and maintained by DSIIDC through concessionaires engaged for the maintenance of these two industrial areas. CETP Societies are operating and maintaining the CETPs as per the provisions of Delhi Common Effluent Treatment Plants Act, 2000 and Delhi Common Effluent Treatment Plants Rules, 2001. Compliance status of CETPs in Delhi is given in **Table 18.**

## Table 18. Brief of Analysis Reports of DPCC Lab for CETPs for the Month of December, 2019.

| S. No | Name of CETP | Date of Sampling | Influent Quality at Inlet (in mg/l) | Effluent Quality at Outlet (in mg/l | Brief of Analysis Report (For Treated Effluent) |
|---|---|---|---|---|---|
| 1 | **Jhilmil CETP** | 02.12.2019 | pH -6.6<br>TSS - 560<br>BOD - 120<br>COD - 368<br>TDS - 2820<br>Ni- 3.64 | pH -7.3<br>TSS - 58<br>BOD - 32<br>COD - 236<br>TDS -1730<br>Ni- 3.09 | Not meeting the Prescribed Standard in respect of Ni (3.09 mg/l against 3 mg/l) and BOD (32 mg/l against 30 mg/l ). OLMS was not working at the time of DPCC Monitoring. |
| 2 | **Badli CETP** | 04.12.2019 | pH - 6.4<br>TSS - 180<br>BOD - 80<br>COD - 272<br>TDS - 1260 | Ph - 6.8<br>TSS - 64<br>BOD - 56<br>COD - 80<br>TDS - 1090 | Not meeting the Prescribed Standards in respect of BOD (56 mg/l against 30 mg/l ). |
| 3 | **Mayapuri CETP** | 06.12.2019 | pH -7.5<br>TSS -396<br>BOD -240<br>COD -720<br>TDS - 1670 | pH -7.5<br>TSS -52<br>BOD -30<br>COD -92<br>TDS - 1150 | Meeting the Prescribed Standards. |
| 4 | **Mangolpuri CETP** | 06.12.2019 | pH - 7.1<br>TSS - 404<br>BOD - 280<br>COD - 760<br>TDS - 2340<br>Chlorides- 1340<br>Sulphide as S-6.6 | pH -7.3<br>TSS - 68<br>BOD -48<br>COD -148<br>TDS - 1920<br>Chlorides- 1170<br>Sulphide as S-2.4 | Not meeting the Prescribed Standards in respect of BOD (48 mg/l against 30 mg/l ), Chlorides (1170 mg/l against 1000 mg/l) and Sulphide as S (2.4 mg/l against 2 mg/l). |
| 5 | **Wazirpur CETP** | 05.12.2019 | pH - 2.7<br>TSS - 276<br>BOD - 185<br>COD -568<br>TDS - 2450<br>Ni - 7.5 | pH -5.8<br>TSS -56<br>BOD -30<br>COD -92<br>TDS - 2100<br>Ni - 4.4 | Not meeting the Prescribed Standards in respect of Ni (4.4 against 3 mg/l). |
| 6 | **Nangloi CETP** | 06.12.2019 | pH -7.4<br>TSS - 648<br>BOD - 480<br>COD - 960<br>TDS - 2100 | pH -7.2<br>TSS -84<br>BOD -68<br>COD -212<br>TDS - 1890 | Not meeting the Prescribed Standards in respect of BOD (68 mg/l against 30 mg/l). |
| 7 | **SMA CETP** | 05.12.2019 | pH -6.7<br>TSS - 416<br>BOD -175<br>COD -520<br>TDS - 1800<br>Ni - 6.3 | pH -7.2<br>TSS -60<br>BOD -42<br>COD -132<br>TDS - 1520<br>Ni- 4.0 | Not meeting the Prescribed Standards in respect of BOD (42 mg/l against 30 mg/l) and Ni (4.0 mg/l against 3 mg/l). |
| 8 | **Okhla CETP** | 10.12.2019 | pH - 7.4<br>TSS - 620<br>BOD -370<br>COD -960<br>TDS -1940 | pH -7.4<br>TSS -48<br>BOD -30<br>COD -96<br>TDS - 1750 | Meeting the Prescribed Standards. |

| S. No | Name of CETP | Date of Sampling | Influent Quality at Inlet (in mg/l) | Effluent Quality at Outlet (in mg/l | Brief of Analysis Report (For Treated Effluent) |
|---|---|---|---|---|---|
| **9** | **Narela CETP** | 09.12.2019 | pH -7.2<br>TSS -168<br>BOD -90<br>COD - 260<br>TDS -1900 | pH - 7.4<br>TSS - 42<br>BOD -28<br>COD - 84<br>TDS - 1270 | Meeting the Prescribed Standards. |
| **10** | **Bawana CETP** | 09.12.2019 | pH -6.2<br>TSS - 680<br>BOD - 410<br>COD - 860<br>TDS - 2480 | pH - 6.8<br>TSS -46<br>BOD -28<br>COD -120<br>TDS - 1740 | Meeting the Prescribed Standards. |
| **11** | **Naraina CETP** | 06.12.2019 | Plant was non-operational due to electrical fault during the site visit on 06.12.2019 however the CETP is in operational condition. | | |
| **12** | **GTK CETP** | 05.12.2019 | pH - 7.6<br>TSS -740<br>BOD -280<br>COD -800<br>TDS - 1440 | pH - 7.5<br>TSS - 80<br>BOD - 48<br>COD - 130<br>TDS - 1120 | Not meeting the Prescribed Standards in respect of BOD (48 mg/l against 30 mg/l). |
| **13** | **Lawrence Road CETP** | 05.12.2019 | pH - 7.4<br>TSS -356<br>BOD -172<br>COD -480<br>TDS - 2560<br>Chlorides- 2100<br>Oil & Grease - 32.0<br>Sulphide as S - 7.2 | pH - 7.2<br>TSS -146<br>BOD -72<br>COD - 216<br>TDS -1920<br>Chlorides- 1740<br>Oil & Grease - 10.4<br>Sulphide as S -2.4 | Not meeting the Prescribed Standards in respect of BOD (72 mg/l against 30 mg/l), Chlorides (1740 mg/l against 1000 mg/l), Oil & Grease (10.4 mg/l against 10 mg/l) and Sulphide as S (2.4 mg/l against 2 mg/l). |

## B. Regarding upgradation of CETPs to meet the BOD level of 10mg/l in the treated effluent and use of treated effluent from CETPs

DSIIDC has engaged NEERI vide letter dated 05.11.2019 for providing consultancy w.r.t various issues related to CETPs including the upgradation of CETPs as per following scope of work:

(a) Formulating an action plan for the survey of the individual industries in various industrial areas for ensuring their connectivity with the waste water conveyance system of CETPs and identifying industrial units violating environmental pollution norms.

(b) To assess the overall functioning of all 13 CETPs through a physical survey.

(c) To formulate an action plan for 13 CETPs after the study of the survey report in terms of

(i) Required up-gradation and retrofitting of CETPs to make them compatible with the composition of effluent reaching CETP for capacity utilisation (use of CETP as STP) and to conform the effluent discharge standards and to work out cost associated with this task.

(ii) Management of the hazardous sludge being generated by CETPs.

(iii) Maximizing utilisation of treated water from CETPs in order to achieve Zero Liquid Discharge and reducing dependency of greenbelts/parks in and around CETPs on ground water.

(d) Study regarding requirement of CETPs in 11 industrial areas which are presently not having CETP.

**C. Status of work/study given to NEERI regarding upgradation of CETPs and survey in 28 approved industrial areas :**

(a) Out of 13 CETPs, NEERI has started the study for CETP Wazirpur and is in the process of collecting data.

(b) Besides this, Out of 11 Industrial areas, the study of the Tilak Nagar Industrial Area has been also taken up.

Subsequently, as per the recommendation of NEERI, the necessary action for up gradation of CETPs and for carrying out other activities shall be taken.

**D. Operation and Maintenance of REPS and Rising mains of CETPs**

DSIIDC is operating and maintaining Raw Effluent Pumping Stations and Rising mains of the CETPs at Mayapuri, Mangolpuri, Badli, Wazirpur, Okhla Industrial Area, Naraina Industrial Area and Lawrence Road Industrial Area. On this account, DSIIDC has incurred a sum of Rs 13.85 Crore till March 2019 from its own funds and it is expected that a sum of Rs 5.79 Crore shall be spent in 2019-20 for operation and maintenance of REPS and rising main. Rs 19.64 Crorehas been requested by DSIIDC towards operation and maintenance of Raw Effluent Pumping Stations and Rising mains.

## E. Online Monitoring System (OLMS) for CETPs

Online Monitoring Systems have been installed on all the 13 CETPs for measuring the value of pH, TSS, BOD & COD at the outlet of the CETPs. All these OLMS are connected to servers of DPCC and CPCB. Besides this, display boards have also been installed at the gate of each of the CETPs in order to bring the treated water parameters in public domain. Calibration of Online Monitoring System installed at CETPs is being carried out by DPCC Water Laboratory .

## F. Redevelopment Areas

*Besides 28 Approved Industrial Areas, there are 24 Areas Notified for Re-development under MPD-2021(non-conforming clusters of industries for redevelopment). Information regarding no. of industries/units in these 24 redevelopment areas is not available however by rough estimate these redevelopment areas may be having about 10,000 industries/units in these areas.*List of 24 Redevelopment Areas Notified for Re-development under MPD-2021(non-conforming clusters of industries for redevelopment) is given in **Table 19.**

**Table 19.List of 24 Redevelopment Areas in Delhi**

| S. No. | Name of Redevelopment Area |
|---|---|
| **1** | Anand Parbat |
| **2** | Shahdara |
| **3** | Samai Pur Badli |
| **4** | Jawahar Nagar |
| **5** | Sultanpur Mazra |
| **6** | Hastsal Pocket-A |
| **7** | Naresh Park Extension |
| **8** | Libaspur |
| **9** | Peeragarhi Village |
| **10** | Khyala |
| **11** | Hastsal Pocket- D |
| **12** | Shalamar Village |
| **13** | New Mandoli |
| **14** | Nawada |
| **15** | Rithala |
| **16** | Swarn Park Mundka |
| **17** | Haiderpur |
| **18** | Karawal Nagar |
| **19** | Dabri |
| **20** | Basai Darapur |
| **21** | Prehladpur Bangar |
| **22** | Mundka and Mundka Udyog Nagar |
| **23** | Phirni Road, Mundka |
| **24** | Ranhola |

## G. Industries in Non-Conforming Areas

*As per the "Industrial Policy for Delhi 2010-2021" Report of Industries Deptt., Govt. of NCT of Delhi, there are about one-lakh industries in Delhi. Hon'ble Supreme Court vide judgment dated 07.05.2004 in WP (C) 4677 of 1985 and 98 / 2000, M.C. Mehta Vs. UOI & Ors has directed that All Industrial Units that have come up in Residential / Non-conforming areas in Delhi on or after 1st August, 1990 shall close down and stop operating as per the schedule given in the said order.*

As per the "Industrial Policy for Delhi 2010-2021" Report of Industries Deptt., Govt. of NCT of Delhi, there are about one lakh industries in Delhi.

Hon'ble Supreme Court vide judgment dated 07.05.2004 in WP (C) 4677 of 1985 and 98 / 2000, M.C. Mehta Vs. UOI & Ors has directed that All Industrial Units that have come up in Residential / Non-conforming areas in Delhi on or after 1st August, 1990 shall close down and stop operating as per the schedule given in the said order.

Hon'ble Supreme Court vide said Judgment also appointed a Monitoring Committee comprising (i) Chief Secretary of Delhi (ii) Commissioner of Police, Delhi (iii) Commissioner, Municipal Corporation of Delhi (iv) Vice – Chairman of Delhi Development Authority and made this Committee responsible for stoppage of illegal industrial activity. As per the decisions taken in the meetings of Chief Secretary, Govt of NCT of Delhi held on 08.12.2010 and 05.06.2015 regarding implementation of the saidJudgment Dated

07.05.2004 of Hon'ble Supreme Court "Action on industries operating in non- conforming areas and violating Master Plan will be taken under the Delhi Development Act by Delhi Development Authority (DDA) in development areas and Municipal Corporation of Delhi (MCD) in other areas.

As per the decisions taken in the meeting of Chief Secretary, Govt of NCT of Delhi held on13.09.2018, following decisions were taken for effective implementation of said order dated 07.05.2004 of Hon'ble Supreme Court :

**(i)** In **Step- 1**, the Municipal Corporations will ensure that the industrial units under their respective jurisdiction out of the list of 21960 industrial units who have been allotted alternate industrial plots under the Relocation Scheme are closed, if they have not closed down operations. Sealing of premises, disconnection of electricity and water supply should also be ensured where ever required.

**(ii)** In **Step-2**, the Municipal Corporations are required to identify the premises of applicants numbering 51837 less 21960 successful allottees under their respective areas that had applied for allotment of alternate plots under the Relocation Scheme and will ensure that no impermissible industrial activity is carried out from such premises.

**(iii)** In **Step-3**, the Municipal Corporations and the Delhi Development Authority will carry out a comprehensive mapping/ survey to find out details of industries functioning without obtaining prior Municipal Licence in respect of their respective jurisdiction. Once the non- permitted industries are identifiedduring the mapping/survey, notices to close down the industrial activities be issued and effective closure including disconnection of water supply and electricity connection be carried out within 30 days of such detection.

## Progress:-

**Step1 and 2 have been completed and action taken is given in Table 20.**

**Table 20 :Action Taken (Units Sealed under Step-1 & 2)**

| S. No. | AGENCIES | STEP-1 | STEP-2 |
|---|---|---|---|
| 1 | North DMC | 690 | 360 |
| 2 | South DMC | 160 | 210 |
| 3 | East DMC | 233 | 127 |
| 4 | Delhi Cantonment Board | | 12 |
| 5 | New Delhi Municipal Corporation | | 02 |
| | Total | 1083 | 711 |

**Step 3 - Action under Step 3 is under progress and status of action taken is given in Table 21**

**Table 21 : Action Taken under Step 3(Status as on 06.01.2020)**

| Agency | No. of Units Surveyed | No. of Show Cause Notices Issued | No. of Units Sealed |
|---|---|---|---|
| **EDMC** | 3832 | 3592 | 494 |
| **SDMC** | 5445 | 3208 | 304 |
| **North DMC** | 5757 | 4662 | 612 |
| **Total** | **15034** | **11462** | **1410** |

***It is pertinent to mention that DPCC grants Consent to the units in the Approved Industrial Areas / Redevelopment Areas / Units Operating in conformity w.r.t MPD 2021 only.***

## H. Utilization of Treated Wastewater of CETPs

- 1-1.25 Million Litres of treated water of CETP Narela is being used for horticulture purposes per day in 23 parks & 05 green belts in the Narela Industrial Estate.
- Approximate 1 Million Litre of treated water of CETP Bawana is also being used for Horticulture purposes per day in Green belt and parks in Bawana Industrial Area.
- Treated water of CETP Mayapuri was in use for horticulture purposes by DDA but now DDA has stopped taking the treated water on quality issues.

NEERI has been engaged by DSIIDC as Project Management Consultant for upgradation of CETPs and other related issues including re-use of treated water by CETPs in order to achieve Zero Liquid Discharge and reducing dependency of greenbelts/parks in and around CETPs on ground water.

## 3.6.3 Waste Management Scenario

Wastes are produced by human activities and includes 1. Municipal Solid Waste; 2. Industrial Solid Wastes, 3. Hazardous Waste, 4. Biomedical Waste, 5. Construction and Demolition waste, 6. Electronic Waste, and 7. Plastic Waste

## A. Municipal Solid Waste

Municipal Solid Wastes are composed of wastes generated by households and wastes of similar character from shops, market and offices, open areas, and treatment plant sites. Each of these sources of municipal waste is elaborated below:

a) Commercial and Institutional; b) Residential
c) Open areas, and d) Treatment plant sites/sludge.

There are 5 Local Bodies in Delhi responsible for implementation of the Solid Waste Management Rules, 2016. Total Municipal Solid Waste generation in Delhi is **10, 744** tonnes per day (TPD) and there are 3 Dumpsites at Ghazipur, Bhalaswa and Okhla. There is one Integrated Solid Waste Management Facility at Bawana having Waste to Energy Plant, Compost Plant and Engineered Sanitary Land Fill. This Integrated Solid Waste Management Facility is being operated by M/s Delhi MSW Solutions Ltd and proposed to enhance the waste handling from existing 2000 TPD to 4000 TPD since this facility is having Environmental Clearance for 4000 TPD. One Engineered Sanitary Land Fill is proposed to be developed by South Delhi Municipal Corporation (SDMC) at Tehkhand for managing 2000 TPD. An Integrated Solid Waste Management Facility for 2000 TPD is proposed to be developed by East Delhi Municipal Corporation (SDMC) in joint venture with NTPC at Ghonda Gujran. Besides other facilities the said facility will be having Waste to Energy Plant. Site at Sonia Vihar has been indentified for development of Engineered Sanitary Land Fill of capacity 1000 TPD.

After construction / development of proposed SLF by SDMC & EDMC each Municipal Corporation in Delhi will have Engineered Sanitary Land Fill (SLF) in their areas. Municipal Corporation-wise municipal solid waste generation is given in **Table 22.** Three dumpsites, namely Bhalswa, Ghazipur and Okhla are operated and maintained by the North DMC, EDMC & SDMC respectively and the fourth one at Bawana (Engineered SLF) is being operated and maintained by M/s Delhi MSW Solution Ltd. (Ramky Group). Dumpsite-wise municipal waste presently dumped is given in **Table 23.**

**Table 22. Generation of Municipal Solid Waste in Delhi**

| S. No. | Name of Local Body | Quantum of Solid Waste (in TPD in 2020) (Population 20 Million) | Quantum of Solid Waste (in TPD in 2031) (Expected Population 29 Million) |
|---|---|---|---|
| 1 | South Delhi Municipal Corporation (SDMC) | 3600 | **16936** |
| 2 | North Delhi Municipal Corporation(NorthDMC) | 4200 | |
| 3 | East Delhi Municipal Corporation (EDMC) | 2600 | |
| 4 | New Delhi Municipal Council ( NDMC) | 280 | |
| 5 | Delhi Cantonment Board(DCB) | 64 | |
| | **Total** | **10744** | |

**Table 23. Brief of Landfill / Dump Sites in NCT of Delhi**

| S. No. | Name of Landfill / Dump Site | Location | Area (in Acres) | Concerned Local Body | Height of Dump Site (Appx.) (in Meters) | Legacy Waste (in Million Tons) |
|---|---|---|---|---|---|---|
| 1 | Bhalaswa Dump Site | North Delhi | 36 | North DMC | 62 | 8 |
| 2 | Ghazipur Dump Site | East Delhi | 70 | EDMC | 65 | 14 |
| 3 | Okhla Dump Site | South East Delhi | 46 | SDMC | 40 | 6 |
| 4 | Bawana (Engineered SLF) | North Delhi | 100 | North DMC | -- | |
| | **Total** | | | | | **28** |

## Ground Water Quality nearby three (3) dumpsites in Delhi

Ground Water Quality nearby three Dumpsites by DPCC Lab in respect of parameters found exceeding the Prescribed standards for the year 2017 & 2019 is annexed as **ANNEXURE–11 .**Analysis Reports of DPCC Laboratory / FICCI Research & Analysis Centre for Ground Water nearby Ghazipur Landfill / Dump Site , Bhalaswa Landfill / Dump Site and Okhla Landfill / Dump Site for the years of 2017 & 2019 are annexed as **ANNEXURE – 12, ANNEXURE – 13& ANNEXURE – 14**respectively.DPCC carried out ground water monitoring in and around all the Landfill sites in 2019.The Brief status in respect of the parameters not meeting the ground water quality are given in**, Table 24, Table 25, Table 26 and Table 27**below:

**Table 24 : Ghazipur Dump Site (Parameters not meeting the Ground Water Quality)**

| S.No. | Location | Parameters not meeting the Ground Water Quality |
|---|---|---|
| **1.** | Ghazipur Dairy Farm, Gali No.-4 | TDS, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron and Cadmium |
| **2.** | Ghazipur Dairy near Masjid | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron and Cadmium. |
| **3.** | Ghazipur Landfill site near Entry Gate | Total Hardness as $CaCO_3$, Hardness as Ca, Nitrate, Iron, Copper and Cadmium. |
| **4.** | Landfill Site Ghazipur | TDS, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Nitrate, Iron and Cadmium |
| **5.** | FishMarket Landfill Site Ghazipur | TDS, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Nitrate, Iron and Cadmium |

**Table 25 : Bhalswa Dump Site (Parameters not meeting the Ground Water Quality)**

| S.No. | Location | Parameters not meeting the Ground Water Quality |
|---|---|---|
| **1.** | Bhalswa Sanjay Gandhi Transport | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron, Copper and Cadmium. |
| **2.** | Bhalswa Dairy | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron, Copper and Cadmium. |
| **3.** | Bhalswa Landfill Site | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Nitrate, Iron, Copper and Cadmium. |
| **4.** | Bhalswa Janta Colony | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron, Copper and Cadmium. |

**Table 26 :Okhla Dump Site (Parameters not meeting Ground Water Quality)**

| S.No. | Location | Parameters not meeting the Ground Water Quality |
|---|---|---|
| **1.** | Okhla Landfill Site | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron and Cadmium. |
| **2.** | ESI Hospital Okhla | TDS, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron, Copper and Cadmium. |
| **3.** | Okhla Bus Depot | Chloride, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Nitrate, Iron and Cadmium. |
| **4.** | B.P. Singh Camp Colony, Near Shiv Mandir | Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron and Cadmium. |

**Table 27. Bawana Engineered Sanitary Landfill Site (Parameters not meeting the Ground Water Quality)**

| S. No. | Location | Parameters not meeting the Ground Water Quality |
|---|---|---|
| **1.** | Main Gate Bawana | Sulphate, Copper, Iron and Cadmium. |
| **2.** | Store Waste to Energy | TDS, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Iron, Copper and Cadmium |
| **3.** | Sonot Village Bawana | Sulphate, Nitrate, Iron, Copper and Cadmium |
| **4.** | Bawana Village | TDS, Total Hardness as $CaCO_3$, Hardness as Ca, Sulphate, Nitrate, Iron, Copper and Cadmium. |
| **5.** | Sector 5 Bawana | TDS, Hardness as Ca, Sulphate, Nitrate, Iron, Copper and Cadmium. |

## Waste to Energy Plants in Delhi

Delhi has 3 Waste to Energy Plants (WTE Plants) of capacity 5250 TPD at 3 different locations in Delhi namely Okhla, Ghazipur and Bawana. One New Waste to Energy Plants of capacity about 2000 TPD is proposed at Tehkhand and another 1800 TPD in the Integrated Waste Complex at Ghonda Gujran.

**Table 28 : Brief information about operational Waste to Energy Plants in Delhi**

| S.No | Name of Waste to Energy Plant | Existing Capacity | |
|---|---|---|---|
| | | Waste Processing (in TPD) | Electricity Generation (in MW) |
| **1** | Timarpur Okhla Waste Management Company Ltd., Old NDMC Compost Site, Okhla. | 1950 | 16 |
| **2** | East Delhi Waste Processing Company Ltd., Ghazipur | 1300 | 12 |
| **3** | Delhi MSW Solutions LtdNarela Bawana Road, Bawana | 2000 | 24 |
| | **Total** | **5250** | **52** |

## Decentralized Waste Management Facilities (Compost Plants / Bio-Methanation Plants)

### NORTH DMC

**(i)** **Accelerated Composter / Bio-Methanisation Plant 1 TPD Capacity (6 Nos):** 2 Plants commissioned at Bhorgarh Nursery and Rajendra Nagar Nursery. 4 Plants ( at Sector 11 Rohini, Haiderpur Water Treatment Plant ,Maurya Enclave at Pitampura and one at some other location) to be commissioned by 31.03.2020.

**(ii)** **Bio-Methanation Plants 5-TPD Capacity (4 Nos):** 2 Plants commissioned at Roshanara Bagh and MVID Hospital. 2 Plants to be commissioned by 31.03.2020.

**(iii)** **200 TPD Bio-Methanisation Plant (Based on Cow Dung) at Bhalswa Dairy Colony**:: Work awarded, to be commissioned by 31.12.2020.

**EAST DMC**

**(i) Composters of 1 TPD Capacity (10 Nos):** 7 Plants commissioned. 3 Plants to be commissioned by March, 2020.

**(ii) Bio-Methanation Plants 5-TPD Capacity (2 Nos):** One Plant at Geeta Colony commissiond. Another Plant at Shastri Park to be commissioned by March, 2020.

**(iii) 100 TPD Bio-Methanisation Plant at Ghazipur**: Clearance from PESO is awaited. The plant is excepted to be commissioned by 31.07.2020.

**SOUTH DMC**

(i) **Four Compost Plants of 1 TPD each:** Two plants commissioned. Two plants likely to be commissioned by March, 2020.

(ii) **Four Bio-Methanation Plants (5 TPD Each):-** Two plants commissioned. Two plants likely to be commissioned by March, 2020.

### Prevention of Dumping of Solid Waste in the Drains:

For prevention of the dumping of solid waste in the drains, all the concerned Departments / Agencies have been directed vide order dated 09.01.2019 of Chief Secretary and Order Dated 15.01.2019 of Urban Development Department , Govt. of NCT of Delhi and directions issued vide said orders are briefed in Chapter IV of the Action Plan.As per the directions issued vide above mentioned orders all field officers of North DMC, East DMC, South DMC, NDMC, Delhi Cantonment Board, Delhi Urban Shelter Improvement Board (DUSIB), DJB, PWD, & Irrigation & Flood Control Department (I&FCD) and DSIIDC, comprising of Executive Engineer (EE)/ Assistant Engineer (AE)/ Junior Engineer (JE) are to ensure that environmental compensation of Rs. 50,000/- belevied on those found dumping Solid Waste into drains in their respective jurisdiction and in respect of those drains being maintained by their respective Urban Local Body (ULB)/ Department / Organization. The levy of environmental compensation on the defaulters will be the prime responsibility of the EE/AE/JE of the concerned ULB/ Department / Organization which is responsible for maintaining the said drain.

## 3.6.4 Industrial Solid Waste

Industrial process wastes include a very wide range of materials and the actual composition of industrial wastes in NCT of Delhi depends on the nature/ type of the industry. Wastes may occur as relatively pure substances or as complex mixtures of varying composition and in varying physicochemical states. Examples of the materials, which may be found under this heading, are general factory rubbish, organic wastes from food processing, acids, alkalis, metallic sludge and tarry residues. The most important feature of industrial wastes is that a significant proportion is regarded as hazardous or potentially toxic, thus requiring special handling, treatment and disposal. Besides Hazardous waste industries also generate General / Municipal Waste, Plastic Waste , Electronc Waste, etc.

## A. Hazardous Waste Management Scenario

Hazardous waste is generated from the Industries / Units and CETPS in Delhi and dealt as per the provisions of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. Hazardous waste generation scenario in Delhi is given in **Table 29.**

**Table 29. Hazardous waste generation scenario in Delhi**

| S.No | Particulars | Quantity |
|---|---|---|
| 1. | No. of Hazardous Waste Generating units in Delhi | 1781 |
| 2. | Hazardous Waste Generationincluding CETP sludge (in Tonnes per day) | 15.01 TPD<br>(CETP - 6.5677 TPD<br>Industries/ Units - 8.4423 TPD) |
| 3. | Hazardous Waste Generation including CETP sludge (in Tonnes per Annum) | 5478.9 TPA<br>(CETPs - 2400 TPA<br>Industries /Units - 3078.9 TPA) |
| 4. | Landfillable Hazardous Waste including CETP Sludge | 4903.883 TPA<br>(CETP - 2400 TPA<br>Industries /Units - 2503.883 TPA) |
| 5. | Recyclable Hazardous Waste (from Industries/Units) | 541.527 TPA |
| 6. | Incinerable Hazardous Waste (from Industries /Units) | 33.4738 TPA |
| 7. | Total Landfillable Hazardous Waste including CETP Sludge stored within the premises of Industries / Units / CETPs | 41697 MT ( As on 31.03.2019)<br>(CETPs - 35480 Tons<br>Industries /Units - 6217 Tons) |
| 8. | Recyclable Hazardous Waste (from Industries /Units) | 746 Tons ( As on 31.03.2019) |
| 9. | Incinerable Hazardous Waste (from industries/Units) | 23.75 Tons ( As on 31.03.2019) |
| 10. | Treatment Storage and Disposal Facility (TSDF) | Nil (at present)<br>(TSDF proposed to be developed at Bawana) |

## B. Existing Practices for Disposal of Incinerable Hazardous Waste

Since at present there is no Treatment, Storage and Disposal Facility (TSDF) for Hazardous Waste (TSDF) in Delhi, Industries / Units and CETPs are storing their Hazardous Waste (ETP/CETP Sludge etc.) at the site. Authorization has been given by DPCC to following two Operators of TSDF for Hazardous Waste in Uttar Pradesh (Kanpur Dehat) for Collection,Reception, Trasnportation and Disposal of incinerable hazardous waste generated by the units operating in NCT of Delhi :

(i) M/s Bharat Oil and Waste Management Ltd (TSDF at Gata No. 672, Village Kumbhi, Tehsil-Akbarpur, District- Kanpur Dehat, Uttar Pradesh- 209101).

(ii) M/s Uttar Pradesh Waste Management Project (a division of M/s Ramky Enviro Engineers Ltd.) (TSDF at Plot No. 672, Village Kumbhi, Tehsil-Akbarpur, District-Kanpur Dehat, Uttar Pradesh- 209101.

Besides above, Authorisation under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 has been granted to Gujrat Enviro Protectoin & Infrastructure Limited, for collection, transportation, pre-processing, co-processing and disposal of sludge from CETPs in Delhi to its facility at Chittorgarh in Rajasthan.

## C. Storage of Generated Hazardous Waste by the Closed Industries / Units

Wherever, hazardous waste generating industries are closed, safe storage of generated Hazardous Waste will be ensured by DPCC through directions to such industries till TSDF becomes operational in Delhi.

## D. Development of Treatment, Storage and Disposal Facility (TSDF) For Hazardous Waste at Bawana:

At present there is no Treatment, Storage and Disposal Facility (TSDF) for Hazardous Waste (TSDF) in Delhi. In the matter of Balam Singh Rawat vs Govt. of NCT of Delhi & Ors, Hon'ble NGT directed vide its order dated 30.03.2015 that the TSDF Project is to be developed by DSIIDC in collaboration with DPCC. Accordingly, 14 Acres of land for development of TSDF at Bawana was handed over to DSIIDC by Department of Environment after obtaining it from North Delhi Municipal Corporation (North DMC). Subsequently the approval of Delhi Cabinet was also sought for setting up of TSDF at Bawana.DPCC has made a payment of Rs. 44.10 Crore to North DMC on account of cost of Land for setting up of TSDF at Bawana. An amount of Rs. 8.05 Crores has also been given to DSIIDC as grant in aid towards 50 % of Capital cost of TSDF.

DSIIDC invited Request for Proposal for the development of TSDF in December 2017 but only one bidder participated. Hence, the RFP was re-invited in Feb-2018. This bid was also rejected being a single bid on 19.12.2018. Further, RFP was invited third time by DSIIDC on 26.12.2018 in which two bidders participated. One of the bidders namely M/s SMS Ltd., who participated in the bids invited in February, 2018, had filed a case before Hon'ble High Court of Delhi against rejection of their bid.The Hon'ble High Court has dismissed the writ petition on 09.10.2019.

Hon'ble NGT vide order dated 19.11.2019 in the matter of "All India Lokadhikar Sangathan Vs Govt. of NCT of Delhi & Ors." (OA No. 159/2013) with "M/s Ashok Vihar Mitra Mandel Vs Govt. of NCT of Delhi & Ors." (OA No. 77/2016), has directed to set up TSDF in Delhi by June, 2020.

DSIIDC has awarded the work of development of Treatment, Storage and Disposal Facility(TSDF) for Hazardous Waste at Bawana, Delhi to M/s Tamil Nadu Waste Management Limited (M/s TNWML) on 30.11.2019.The project shall be completed in 15

months time however M/s TNWML has been requested to start operation of facility from June, 2020 as per the directions of Hon'ble NGT.

MoEF& CC vide letter dated 06.01.2020 has given Terms of Reference (TOR) for Environmental Clearance for the said project. M/s TNWML has submitted EIA report to DPCC for conducting Public Hearing which is to be held in March,2020. After conducting Public Hearing, DPCC shall submit the details of proceedings to MoEF & CC for Environmental Clearance.

### 3.6.5 Bio Medical Waste Management Scenario

Bio-medical Waste is generated from the Hospitals, Nursingh Homes, Clinics, Pathological Laboratories , Diagnostic Centres, Research Laboratories etc. and dealt as per the provisions of the Bio Medical Waste Management Rules, 2016, as amended is given in **Table 30**below:-

**Table 30. Bio-medical Waste Management Scenario in Delhi**

| S. No | Description | | Quantity |
|---|---|---|---|
| 1 | No. of Health Care Establishments (HCEs) | : | 10500 (Appx.) (As per Authorisation Applications received by DPCC) |
| 2 | No. of Beds with HCEs | : | 65000 (Appx.) |
| 3 | Quantity of Bio Medical Waste | | 26.7 TPD |
| 4 | No. of Common Bio Medical Waste Treatment Facilities | : | 2 Nos |
| 5 | Treatment Capacity of 2 CBWTFs | : | 63 TPD |

There are following 2 CBWTFs having Capacity of about **63 TPD** for collection and Treatment of the Bio-medical waste generated from the Health Care Establishments in Delhi: They are (1) M/s Biotic Waste Solutions Pvt. Ltd., 46 SSI Industrial Area, G.T.Karnal Road, Delhi -110033; (2) M/s SMS Water Grace BMW Pvt. Ltd., Nilothi Sewage Treatment Plant Complexof DJB, Nilothi, Delhi -110041.Both the CBWTFs are having Incinerators, Autoclaves & Shredders for the treatment of Bio Medical Waste collected from the Health Care Establishments in Delhi and have installed Air Pollution Control System and Online Monitoring System.

- Inventorization of Health Care Establishments in Delhi has been completed as all bedded and non bedded HCFs from known sources have been covered.
- Action is taken against the violators / defaulting Health Care Establishments as per the provisions of the Bio Medical Waste Management Rules, 2016 & other applicable Acts / Rules.
- Directions for Closure etc. are issued to Hospitals / Nursing Homes/ non-bedded facilities (mainly diagnostic centers) found operating without applying for authorisation.
- Environmental Compensation is also levied on such Health Care Establishments.

- HCEs are regularly inspected by DPCC individually, as well as along with District

  - Level Monitoring Committees for checking compliance of the authorization issued/provisions of Bio-medical Waste Management Rules,2016.

- Common Bio-medical Waste Management facilities are being inspected at least once in six months alongwith third party, Both CBWTFs in Delhi have 2-second residence time in secondary chamber.

- Barcode system has been implemented in Delhi.

### 3.6.6 Construction and Demolition Waste Management Scenario

Approximately 3900 TPD of Construction and Demolition Waste (C&D Waste) is generated in Delhi which requires dedicated handling mechanism and disposal thereof. Accordingly, separate collection and transport infrastructure of C&D Waste has been set up under which the C&D Waste is collected at ear marked sites identified by the 3 Municipal Corporations (North DMC, EDMC & SDMC), New Delhi Municipal Council (NDMC) & Delhi Cantonment Board (DCB) and the same is transported to the 3 Construction and Demolition Waste Processing / Recycling Facilities / Plants functioning in Delhi. The existing capacity of Construction and Demolition Waste Processing / Recycling plants in Delhi is 2650 TPD, as given in following **Table 31.**

**Table 31 : C & D Waste Processing Facilities & Proposed Expansion**

| S. No. | C& D Waste Processing Facility | Existing Capacity (in TPD) | Proposed Expansion for Additional Waste Processing Capacity (in TPD) |
|---|---|---|---|
| 1 | **North DMC**<br>C & D Waste Processing Facility at Jahangir Puri (Being operated by IL&FS) | 2000 | --- |
| 2 | **East DMC**<br>C & D Waste Processing Facility at Shastri Park (Being operated by IL&FS) | 500 | 500 |
| 3 | **DMRC**<br>C & D Waste Processing Facility at DMRC Site Rani Khera (Being operated by IL&FS) | 150 | --- |
| | **Total** | **2650** | **500** |

### 3.6.7 Electronic WasteManagement Scenario:

DPCC acts as per the duties assigned under the E Waste Management Rules,2016. Regarding inventorization of E-waste generation in Delhi, CPCB had earlier (in April, 2019) asked the States to wait for 2-3 months till the methodology of the procedure is finalized by Ministry of Electronics. However in the latest meeting of Advisory Committee in CPCB held on 10.10.2019, it has been decided that the CPCB shall make a report on E-waste generation w.r.t. all over India on the basis of returns filled by producers/ manufactures/ recyclers in CPCB within 3 months and the Ministry of Electronics Govt. of India shall finalize the methodology to evaluate the exact quantity of e-waste generation in all States/UTs.

As per the Master Plan of Delhi 2021, Recycling / Reprocessing of E-Waste is not allowed in NCT of Delhi , the E-Waste goes to the Recycling / Reprocessing facilities in the neighbouring States. However, there is an urgent need to have E-waste recycling/processing units in Delhi so that illegal transportation / procurement /processing/ usage could be checked and controlled by DPCC.

Lists of Recyclers and Collection Centers mentioned in the EPR Authorisation issued by CPCB have been uploaded on the website of DPCC.

In view of the Hon'ble Supreme Court judgment dated 07.05.2004 in WP (C) 4677 of 1985, M.C. Mehta Vs. UOI & Ors and decisions taken by the Chief Secretary in the meeting held on 13.09.2018 w.r.t said matter Action on industries operating in non-conforming areas and violating Master Plan is to be taken by the land owning agencies (DMCs/DDA).

Directions under section 5 of EP Act have already been issued to all the Municipal Corporations / Local Bodies for closing down all illegal E- Waste procurement/ processing activities.

DPCC has constituted 9 teams headed by SDMs in 3 East, North-East & Shahdara districts consisting representatives from EDMC, Delhi Police and DPCC. The teams are working in areas including Mandoli area. These teams have effectively closed 31 units engaged in illegal E-waste procurement and processing. Apart from this, 36 units in Bhagirathi Vihar and 57 units in Seelampur have already been effectively closed. However no illegal E-waste processing units were found in Mandoli area.

Further the collection and disposal of E-waste in Delhi is being managed by the authorized producer/ recycler through the designated collection centers/ points for disposal of E-waste facilities as reported in the EPR, which are issued by CPCB on pan India basis. DPCC is not issuing the authorization to stand alone collection centers for storage/collection of E-waste in Delhi. To facilitate the bulk consumer/ common people, DPCC has prepared the list of 40 recyclers for E-waste in NCR and 61 collection centers under EPR in Delhi and the lists have been uploaded on the DPCC website for information of the stakeholders. DPCC has a mandate to issue authorization under E-waste Rules 2016 to dismantler/ re-furbisher. As on date DPCC has issued authorization to four re-furbisher facilities.

### 3.6.8 Plastic Waste Management Scenario :

About 1500 Tons per day of Plastic Waste is generated in Delhi as per the estimated figures calculated by CPCB based on the per capita plastic waste generation. About 6% (90 TPD) of the total Plastic waste generated in Delhi is non recyclable and about 1410 TPD is recyclable. Local Bodies have prepared Draft Bylaws for implementation of Plastic Waste Management Rules,2016 as amended to date and Urban Development Deptt., Govt. of NCT Of Delhi is in the process of notifying these Bye-laws. Local Bodies have been directed to encourage the use of plastic waste (preferably the plastic waste which cannot be further recycled) for road construction or energy recovery etc. Registration under the Plastic Waste Management (Amendment) Rules, 2018, isgranted to the units engaged in the manufacturing of plastic bags, multilayered packaging etc.Necessary

action for violation of the Plastic Waste Management Rules is taken including issuance of Show Cause Notice & Directions for Closure under section 5 of Environment (Protection) Act. Show Cause Notices were issued to 1691 Units on 24.06.2019, which were operating in various industrial areas without registration under the Plastic Waste Management (Amendment) Rules, 2018.Local Bodies, Revenue Department, Govt. of NCT of Delhi & DPCC take necessary action with respect to ban on less than 50 micron Plastic Carry Bags. Show Cause Notices/ Challans are issued &Environmental Compensation is also imposed on the violators.

A special joint drive was done by SDM (Model Town), DPCC & North DMC for removal of plastic waste from the Govt. land near Prayas Child Home, Jahangir Puri, Delhi in the month of August, 2019. During this drive, about 950 Metric Ton of Plastic Waste/ Municipal Waste was removed. Environmental Compensation of Rs. 3,33,00,000/- (Rupees Three Crores Thirty Three Lakh only) has been imposed on the Defence and Rs.10,00,000/- (Rupees Ten Lakh only) on PWD as the land owning agencies have failed to protect their land and allowed their land to be misused by dumping of plastic waste.

Directions have been issued to all the SDMs and Zonal Commissioners of 03 Municipal Corporations in Delhi to ensure that the Manufacture, Import , Stocking, Distribution, Sale and Use of Carry Bags, Plastic Sheets or like, or cover made of plastic sheet and multi-layered packaging, which is not an integral part of multi-layered packaging and cover made of plastic sheet used for packaging, wrapping the commodity shall not be less than fifty microns in thickness except where the thickness of such plastic sheets impair the functionality of the product and to take action against the violators.

Registration under the Plastic Waste Management Rules, 2016, as amended in 2018 has been granted to 54 Units.

Action is taken by Local Bodies, Revenue Department & DPCC with respect to ban on less than 50 micron Plastic Carry Bags and in the period of 17.08.2017 to 30.9.2019 total Quantity of Material seized is 136438 Kg, Number of Notices / Challans issued is 5024 and Environmental Compensation received is Rs. 1,09,16,000/- (Rupees One Crore Nine Lakh Sixteen Thousand only).

### 3.6.9 Ground Water Extraction and related Mechanism.

Mechanism for granting groundwater extraction permission in Delhi, as per the **Notification Dated 12.07.2010 for Groundwater Regulation and Management** issued u/s 5 of the Environment (Protection) Act, 1986.

If the plot size of the building is more than 200 sq. meters, the permission to draw groundwater through bore well or tube well is subject to the condition that the occupier or owner of the said plot or building shall install rain water harvesting system in such building.

The permission to draw ground water through bore well or tube well for commercial and or industrial use is subject to the condition that the concerned person or authority shall install the rain water harvesting structure, and shall ensure reuse of the water in horticulture or cooling or toilet flushing, etc after proper treatment of wastewater.

An Advisory Committee in each revenue areas (presently 11) of the National Capital Territory of Delhi is constituted under the Chairmanship of the Deputy Commissioner of each revenue area comprising members of (i) Director (Panchayat) ; (ii) Block Development Officer; (iii) Chief Engineer nominated by Delhi Jal Board; (iv) Representative of CGWB, New Delhi ; (v) Representatives of local bodies having jurisdiction over the area; (vi) Representative of Department of Environment, GNCTD/DPCC; (vii) Representative of reputed NGO in the field of GroundwaterManagement nominated by the Deputy Commissioner concerned.

**Present Status on Amendment to Groundwater Notification**

Groundwater Regulation and Management Notification Dated 12th July, 2010 is being amended in light of submission made by department on simplification to the Notification and also mentioned in Hon'ble NGT Order Dated 14.08.2018 in OA No. 175 of 2015 titled "Shailesh Singh vs. Hotel Jaypee Vasant, New Delhi and Ors".Meeting held with stakeholders and after detailed deliberations, it was decided to hold the amendment in the Groundwater Regulation and Management Notification Dated 12th July 2010, as amended to date, till CGWA issues the Guidelines for extraction of Ground Water and also clarify the applicability of same in respect of Delhi.

# CHAPTER: IV

## 4.0 GAP ANALYSIS

### 4.1. Gap Analysis for Sewage Management

Present installed sewage treatment capacity is 2714 MLD (597 MGD) and about 2273 MLD (500 MGD) is being treated and the actual treatment will further increase after the commissioning of ISP in March, 2020 onward, which will result in a phased increase in the total wastewater treatment by Delhi to 3214 MLD (707 MGD)**by December 2022*** and thereafter there will be no Gap in sewage generation and treatment in Delhi, as detailed in **Table 32.**

**Table 32.Gap Analysis for Sewage Management**

| Year | Sewage Generation | STPs | Total Treatment Capacity of STPs | Capacity Utilization (in MLD and %) | Gap (in MLD) (Theoratical calculation) | Actual Gap as per Flow in Drains |
|---|---|---|---|---|---|---|
| 2020 | 3273 MLD (720 MGD) | 41 (35 Operational) | 2714 MLD (597 MGD) | 2273 MLD (500 MGD) (84%) | 559 MLD (123 MGD) | - 253 MLD (- 55 MGD)<br>[(3026 MLD – 500 MLD- 65MLD ) – 2714 MLD]<br>[(666 MGD – 110 – 14 ) – 597MGD ]<br>[This includes Waste Water received through Drains from Haryana [about 500 MLD(110 MGD)] through Badshahpur & Dharampuri (Leg I, ii & iii), & DD-6Drains) & Uttar Pradesh [about 65 MLD (14 MGD] through Shahibabad, Indirapuri , Banthla , Kaushambi & Loni Drains).] |
| 2025 | 3637 MLD (800 MGD) | – | 3778 MLD (831 MGD) | 3637 MLD (800 MGD) (100%) | -31 MGD (- 142 MLD) | |
| 2031 | 4826 MLD (1062 MGD) | | 5027 MLD (1106 MGD) | 4826 MLD (1062 MGD) (100%) | -44 MGD (- 200 MLD) | |

## 4.2 Gap Analysis for Industrial Effluent Management

There are total 1516 ETPs are installed in various Industries / Units in 28 Approved Industrial Areas. It is further stated that total waste water discharge from the 28 Approved Industrial Areas is 35.98 MLD. There are 28 Approved Industrial Areas (Existing Planned Industrial Areas) in Delhi as per Master Plan of Delhi-2021 (MPD-2021). Besides 28 Approved Industrial Areas, there are 24 Areas Notified for Re-development under MPD-2021(non-conforming clusters of industries for redevelopment). Information regarding no. of industries/units in these 24 redevelopment areas is not available however by rough estimate these redevelopment areas may be having about 10,000 industries/units in these areas. Thirteen (13) CETPs with total capacity of 212.3 MLD(46.7 MGD) are connected with 17 Approved Industrial Areas.Rest of the 11 Approved industrial areas out of 28 Approved Industrial Areas are not having CETPs as they are not generating substantial liquid waste. CETPs are over designed. Against the 212.3 MLD (46.7 MGD) capacity of all the 13 CETPs 53.4 MLD (11.75 MGD) effluent is reaching to CETPs (Capacity utilization is about 25%).***The units which are operational in non-CETP industrial areas have individual waste water treatment facilities. Sufficient treatment capacity is available with CETPs and there is no Gap.***Gap analysis w.r.t the industrial effluent management in Delhi is given in **Table 33.**

**Table 33. Gap Analysis in respect of CETPs**

| S. No | Name of CETP | Industrial Areas connected with CETP | Total Waste Water Generation (in MLD) | Installed Capacity (in MLD) | Average Flow (in MLD) | Gap (in MLD) |
|---|---|---|---|---|---|---|
| **1** | Jhilmil CETP | Jhilmil and Friends Colony Industrial Areas | 0.648862 | 16.8 | 5.5 | -11.3 |
| **2** | Badli CETP | Badli Industrial Estate | 0.64914 | 12 | 1.92 | -9.99 |
| **3** | Mayapuri CETP | MayapuriIndustrialArea | 2.184367 | 12 | 2.25 | -8.35 |
| **4** | Mangolpuri CETP | MangolpuriIndustrial Area | 0.36728 | 2.4 | 1.5 | -0.42 |
| **5** | Wazirpur CETP | WazirpurIndustrial Area | 0.359225 | 24 | 2 | -21.39 |
| **6** | Nangloi CETP | Nangloi&Udyog Nagar Industrial Areas | 9.289783 | 12 | 2.71 | -9.06 |
| **7** | SMA CETP | SMA, RajasthaniUdyog Nagar & SSI Industrial Areas | 0.945491 | 12 | 1.5 | -9.4 |
| **8** | Okhla CETP | Okhla Industrial Area | 7.112682 | 24 | 2.715 | -21.42 |
| **9** | Narela CETP | Narela Industrial Area | 2.281569 | 22.5 | 10.8 | -15.3 |
| **10** | Bawana CETP | Bawana Industrial Area | 2.486516 | 35 | 19.0 | -12.03 |
| **11** | Naraina CETP | Naraina Industrial Area | 1.149645 | 21.6 | 5.1 | -16.5 |
| **12** | GTK Road CETP | GTK Road Industrial Area | 0.011373 | 6 | 2.5 | -3.3 |
| **13** | Lawrence Road CETP | Lawrence Road Industrial Area | 0.548615 | 12 | 1.0 | -10.8 |
| | | **Total** | **28.03455** | **212.3 MLD (46.7 MGD)** | **53.395 MLD (11.75MGD)** | **-149.26 MLD** |

## 4.3 Gap Analysis for Solid Waste Management

3 Municipal Corporations (SDMC, North DMC & EDMC) and NDMC & DCB are the Local Bodies for management of Solid Waste in Delhi. Quantum of Solid Waste Generation in Delhi is 10744 Tons per day. Gap analysis w.r.t the municipal solid waste management is given in **Table 34.**

**Table 34. Gap Analysis for Solid Waste Management**

| Year | MSW Generation (in TPD) | SLF | | | WTE | | Centralised Compost Plant | | Gap (in TPD) |
|---|---|---|---|---|---|---|---|---|---|
| | | Engineered SLF | Dump Site | MSW Dumped (TPD) | No. | Treatment / Disposal (TPD) | No. | Treatment / Disposal (TPD) | |
| 2020 (Population 20 Million) | 10744 | 1 (at Bawana600 TPD) | 3 | 6169 [4594 + 1575 (30 % Ash from WTEs)] | 3 | 5250 | 20 | 942 ( 700 + 200+ 42) | 4594 [10744 -5250 -900] |
| 2025 (Population 25 Million) | 13430 | 3 (at Bawana 1200 TPD, Tehkhad 2000TPD and in EDMC area 1000 TPD) | Nil | 5401 [ 2686 Inert (20% of total MSW) + 2715(30 % Ash from WTEs)] | 4 | 9050 (5250 existing + 2000 at Tehkhand and 1800 at Ghonda Gujran) | 34 | 1270+ other Compost / Biomethanation Plants proposed in various parts of Delhi) | - 2291 [13430 – 9050 – 1270 - 5401] |

After Construction/ Development of new Engineered SLF by SDMC & EDMC, each Municipal Corporation will have SLF in their areas.After Expansion of existing Waste to Energy Plants, construction of New Waste to Energy Plants and installation of No. of Bio Methanation Plants , Delhi will have sufficient capacity for Waste Management and Disposal. Also, 'Legacy' Waste dumped at Bhalswa , Ghazipur and Okhla Dumpsites shall be cleared within one year i.e. by 16.07.2020 as per the orders of Hon'ble NGT dated 17.07.2019 in OA No. 519 / 2019.

## 4.4 Gap Analysis for Construction & Demolition Waste Management

3 Municipal Corporations (SDMC, North DMC & EDMC) and NDMC & DCB are the Local Bodies for management of C & D Waste in Delhi.Approximately 3900 TPD of Construction and Demolition Waste (C& D Waste) is generated in Delhi. The existing capacity of Construction and Demolition Waste Processing / Recycling plants in Delhi is 2650 TPD. Detailed gap anbalysis with respect to C & D Waste management in Delhi State is given in the **Table 35.**

**Table 35. Gap Analysis w.r.t C & D Waste Management in Delhi State**

| Year | C&D Waste Generation(in TPD) | Capacity of Existing C&D Waste Processing Facilities (in TPD) | Gap (in TPD) |
|---|---|---|---|
| 2020 | 3900 | 2650 | 1250 |

## 4.5 Gap Analysis for Hazardous Waste Management

There are1781Hazardous Waste Generating units in NCT of Delhi. 5478.9 TPA of Hazardous Waste is generated in Delhi. Out of which, 33.5TPA is Incinerable and 541.5TPA is recyclable.Out of 5478.9 TPA, 2400 TPA is generated from 13 CETPs in Delhi and rest 3078.9 TPA is generated by the Industries / Units.CETPs generates 6.57 TPD of Hazardous waste (CETP Sludge). ***Since at present there is no Treatment, Storage and Disposal Facility (TSDF) for Hazardous Waste in Delhi***, Industries / Units and CETPs are storing their Hazardous Waste (ETP/CETP Sludge etc.) at the site.Treatment, Storage and Disposal Facility (TSDF) for Hazardous Waste is to be developed by DSIIDC at Bawana for which 14 Acres land has already been provided to DSIIDC.

***After development of TSDF( with Incinerator ) for Hazardous Wasteat Bawana in Delhi, the hazardous waste generated in Delhi shall be disposed off as per the Hazardous and Other Wastes (Management and Trasnboundary Movement) Rules, 2016 and there will be no Gap w.r.t. hazardous waste management and TSDF in Delhi.***

## 4.6 Gap Analysis:Bio-Medical Waste Management

There is sufficient surplus capacity with the 2 CBWTFs operating in Delhi to cater Bio-Medical Waste Generated in Delhi and therefore there is no GAP w.r.t treatment capacity. Inventorization of Health Care Establishments in Delhi has been completed as all bedded and non bedded HCFs from known sources have been covered. Details of gap analysis w.r.t bio-medical waste management is given in **Table36.**

### Table 36.Gap Analysis w.r.t Bio-medical Waste Management in Delhi State

| S.No | Particulars | Quantity | Gap |
|---|---|---|---|
| 1. | No. of Health Care Establishments (HCEs) | 10500 (Appx.) | (-) 36.3 TPD (Surplus capacity with the 2 CBWTFs) |
| 2. | No. of Beds with HCEs | 65000 (Appx.) | |
| 3. | Quantity of Bio Medical Waste | 26.7 Tons/Day | |
| 4. | Common Bio Medical Waste Treatment | 2 | |
| 5. | Treatment Capacity of 2 CBWTFs | 63 Tons/ Day | |

## 4.7 Gap Analysis: Plastic Waste Management

It is estimated by CPCB that about 1500 TPD Plastic Waste is generated in Delhiand there are 23 .no. of plastic waste recycling and reprocessing units in approved industrial areas, which have been authorised under Plastic waste Management Rules, with a total capacity of 138.33 TPD.

- Local Bodies have prepared Draft Bylaws for implementation of Plastic Waste Management Rules, 2016 and Urban Development Deptt., Govt. of NCT of Delhi is in the process of notifying these Bye-laws.
- Registration under the Plastic Waste Management (Amendment) Rules, 2018, is being granted.
- Necessary action for violation of the Plastic Waste Management Rules is taken including issuance of Show Cause Notice & Directions for Closure under section 5 of Environment (Protection) Act..

Gap analysis w.r.t plastic waste management in Delhi State is given in **Table37.**

**Table37. Gap Analysis w.r.t Plastic Waste Management in Delhi State**

| S. No | Total Plastic Waste Generation in TPD | No. of Plastic Waste Recycling Units | Capacity in TPD | Gap |
|---|---|---|---|---|
| 1. | 1500 TPD | 23 | 138.3 | 1361.7 |

## 4.8 Gap Analysis for E-Waste Management

It is estimated that 30000 Tons of E-Waste is generated in Delhi.As per the Master Plan of Delhi 2021, Recycling / Reprocessing of E-Waste is not allowed in NCT of Delhi however it has been suggested to establish centralised E-waste recycling facility in Delhi.

- E-Waste goes to the Recycling / Reprocessing facilities in the neighbouring States.
- Lists of Recyclers and Collection Centers mentioned in the EPR Authorisation issued by CPCB have been uploaded on the website of DPCC.
- Refurbishers & Dismantler (Manual Dismantling only) can obtain Authorization from DPCC.
- Authorization to stand alone Collection Centers is not given as per the Rules.
- Authorization has been given to 4 Refurbishers.
- Action against the violators is taken by DPCC for the violation of E-waste (Management) Rules 2016.

# CHAPTER: V

# 5.0 ACTION PLAN & MONITORING MECHANISM

## 5.1. Management of Domestic Sewage

As reported by Delhi Jal Board (DJB), about 3273 MLD (720 MGD) of sewage is being generated on the basis of water supply of about 4091 MLD (900 MGD) as per CPHEEO norms. The quantum of water supply will remain static unless the upstream storage dams like Renuka, Lakhwar Vyasi and Kishau are completed. As per the data of CPCB for waste water discharge and BOD Load from major drains into river Yamuna at Delhi for the year 2019 (as mentioned in the 3rd Interim Report of the Yamuna Monitoring Committee appointed by Hon'ble NGT), about 3026 MLD (about 666 MGD) of waste water is discharged into the River Yamuna and about 264 TPD is the pollution load in terms of BOD.Accordingly, the actual waste water out falling into river Yamuna from Delhi area is about 2464 MLD (542 MGD). Present installed sewage treatment capacity is 2714 MLD (597 MGD) and2273 MLD (500 MGD) is being treated and the actual treatment will further increase after the commissioning of ISP in March,2020 onward, which will result in a phased increase in the total wastewater treatment by Delhi to 3214 MLD (707 MGD) ***by December 2022*.***

### (A) DJB Action Plan for Better Capacity Utilization of STPs by Trapping of Drains (directly falling into River Yamuna):

**Trapping of Drains**

Status of trapping of drains by Delhi Jal Board is as follows :

**(1) Two major drains outfalling into River Yamuna : Najafgarh (+Supplementary) and Shahdara Drain**

Under Interceptor Sewer Project (ISP), **108 Nos of the drains are to be trapped** and provision of **trapping of about 1100 MLD (242 MGD) flow is being made.** These 108 drains are in command areas of Najafgarh, Supplementary and Shahdara drains . 63 Drains have been trapped and the balance will be trapped by December, 2019 as per commitment of M/s EIL, which is executing the project on behalf of DJB. With the commissioning of all the six packages of Interceptor Sewage Project, the BOD load reduction in the river will be of the order of 165 TPD. The details of six packages of ISP are given in **Table 38.**

**Table 38. Details of Interceptor Sewer Project in Delhi with timelines(Implementing Agency:Delhi Jal Board)**

| S. No | ISP Package No | Flow to be Trapped (in MLD) | Name of STP & Treatment Capacity (in MLD) | Capacity Available for Treatment of Intercepted Flow | Flow already Trapped and being Treated (in MLD) | Balance Flow Targeted to be Trapped and Treated with Timeline (in MLD) | Estimated Budget (in Crores) and Source of Finance |
|---|---|---|---|---|---|---|---|
| 1 | Package -1 | 62.7 (13.80 MGD) (Dwarka) | Dwarka-181 MLD (40 MGD) | Yes | 62.73 (13.80 MGD) | Already Trapped | Total Awarded cost – Rs. 61.07 Cr. Total Expenditure – Rs. 67.82 Cr. Balance – NIL |
| 2 | Package -2 | 190.48 (41.90 MGD) (Nilothi) | Nilothi- 272.6 MLD (60 MGD) | Yes | 190.48 (41.90 MGD) | Already Trapped | Total Awarded cost – Rs. 512.66 Cr. Total Expenditure – Rs. 438.24 Cr. Balance– Rs.74.4 Cr. |
| | | 101.37 (22.30 MGD) (Keshopur) | Keshopur – 327 MLD (72 MGD) | Yes | 79.1 (17.40 MGD) | 22.27 (4.9 MGD) by March, 2020 | |
| 3 | Package -3 | 227.3 (50.0 MGD) (Coronation Pillar) | Coronation Pillar- 318 MLD (70 MGD) (New) & Existing STP is 136 MLD (30 MGD) | Construction of STP is in progress & likely to be commissioned by December, 2019 | - | 227.3 (50.0MGD) byMarch, 2020 | Total Awarded cost – Rs. 372.93 Cr. Total Expenditure – Rs. 279.67 Cr. Balance –Rs. 93.26Cr. |
| | | 87.28 (19.20 MGD) (Rithala) | Rithala – 363.6 MLD (80 MGD) | Yes | - | 87.28 (19.20 MGD) by March, 2020 | |
| 4 | Package -4 | 61.37 (13.50 MGD) (Rithala) | Rithala– 363.6 MLD (80 MGD) | Yes | 30 (6.60 MGD) | 16 (3.5 MGD) by March, 2020 | Total Awarded cost – Rs. 133.30 Cr. Total Expenditure – Rs. 105.76 Cr. Balance – Rs.27.54Cr. |
| | | 56.8 (12.50 MGD) (Rohini) | Rohini– 68.1 MLD (15 MGD) | Yes | 56.8 (12.50 MGD) | Already Trapped | |
| 5 | Package -5 | 145 (31.90 MGD) (Yamuna Vihar) | Yamuna Vihar – 159.13MLD (35 MGD) &45.46ML (10 MGD) (under Rehabilitation of AMRUT) | Yes | - | By 75.46 (16.6 MGD) March, 2020 | Total Awarded cost – Rs. 150.67 Cr. Total Expenditure –Rs.103.54 Cr. Balance– Rs.47.13 Cr |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6 | Package -6 | 168 (37.0 MGD) (Kondli) | Kondli- 204.6 MLD (45 MGD) New & 204.6 MLD [45(10+25+10)] MGD to be rehabilitated under YAP-III out of which 113.6 MLD (25 MGD) is still in operation Presently, total operational capacity-318MLD (70 MGD). | Rehabilitation of 45.46 MLD (10 MGD) STP by December -2019.Total capacity in December, 2019 will be 363MLD (80 MGD). | 153 (33.7MGD) | 25 (5.5 MGD) by March,2020 | Total Awarded cost – Rs. 164.40 Cr. Total Expenditure – Rs. 130.04 Cr. Balance –Rs. 34.36 Cr. |
| **Total** | | **1100 MLD (242 MGD)** | | | **571.89 MLD (125.8 MGD)** | **453.25 MLD (99.7 MGD)** | **Total Awarded cost – Rs. 1395 Crores. Total Expenditure – Rs. 1125.07 Crores Balance – Rs.269.93 Crores** |

***Note – Two small parts (i) Seelampuri stretch and (ii) Brahmpuri stretch are de-scoped from P6 and P5 respectively. The awarded cost of P6 and P5 are considered including these two parts as original. Work will be completed byMarch, 2020.***

After completion of ISP, provision of trapping of drains will be made and utilization of capacities of following STPs will be further enhanced. Details of numbers of drain, and name of STPs are given in **Table39** as under :-

**Table39.Capacities of STPs after Trapping of 108 Sub Drains under Interceptor Sewer Project (ISP)**

| S. No | Name of STP | Present Capacity of STPs in MGD (MLD) | Proposed to trap in ISP | | Trapped so far | | Target timelines for trapping of balance drains | Capacity utilization of STPs after commissioning of ISP in % |
|---|---|---|---|---|---|---|---|---|
| | | | Nos of Sub-drains | Discharge in MGD (MLD) | Nos of Sub-Drains | Discharge in MGD (MLD) | | |
| **1** | Dwarka | 40 (181.84) | 2 | 13.80 (62.74) | 2 | 13.80 (62.74) | Trapped | 100 |
| **2** | Nilothi | 60 (272.77) | 37 | 64.10 (291.41) | 36 | 59.2 (269.13) | March, 2020 | 100 |
| **3** | Coronation Pillar | 72 (327.32) | 12 | 50 (227.31) | 0 | 0 | March, 2020 | 100 |
| | Rithala STP through | 60 (272.76) | 7 | 19.2 (87.28) | 0 | 0 | March, 2020 | 100 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | Bharat Nagar SPS | | | | | | | |
| **4** | Rithala | | 18 | 13.5 (61.37) | 9 | 6.5 (29.54) | March, 2020 | 100 |
| | Rohini | 10 (45.46) | 1 | 12.5 (56.83) | 1 | 12.5 (56.83) | March, 2020 | 100 |
| **5** | Yamuna Vihar | 45 (204.57) | 15 | 31.90 (145) | 0 | 0 | March, 2020 | 100 |
| **6** | Kondli | 70 (318.23) | 16 | 37.00 (168.21) | 15 | 31.5 (143.20) | March, 2020 | 100 |
| | Total | **357 (1622.95 MLD)** | **108** | **242 (1100 MLD)** | **63** | **123.5 (561.44 MLD)** | March, 2020 | 100 |

## Table 40 : Action Plan for 2 Drains which have been Trapped Partially

| S. No. | Name of Drain | Approximate Dry Weather Flow (MLD) | Current Status | Trapped sewage sent to STP | Action plan by DJB | Likely date of completion | Command area of Drain |
|---|---|---|---|---|---|---|---|
| 1 | Tonga Stand Drain | 1.72 | Partialy trapped | Okhla STP through Bella Road Trunk Sewer – Nigambodh SPS to the extent of 01-1.5 MLD. | Some discharge at the downstream side has been observed from JJ Cluster and some settlement in O-Zone. It is proposed to construct a small decentralized plant/lift station to treat the local discharge. A piece of land is to be allotted by DDA. | 18 months from the date of allotment of land from DDA. | The additional discharge is coming from the Settlements of downstream side between Ring road and Yamuna bank including JJ Clusters on the bank of the river near Hanuman Prachin Mandir, Yamuna Bazzar. |
| 2 | Dr. Sen N.H. Nallah | 9.51 | Trapped to the extent of 10 MLD | Partially treated at Sen Nursing Home STP (2.2 MGD) and at Ring road trunk sewer (about 10 MLD). | Trapped. However, overflowwere observed from the gates on Sen Nursing Home nallah installed.<br><br>It is proposed to construct RCC weir across the drain on the downstream of STP so that overflow into river Yamuna is completely stopped. | March 2020. | |
| | **Total** | **11.23 MLD** | | **10.73 MLD** | | | |

## (2) Trapping of Other 16 Drains

Out of remaining 16 drains, 13 drains as mentioned in Table 12 have already been trapped and sewage is being treated in nearest STPs. The remaining 03 drains carry a discharge of about 216 MLD (47.5 MGD) for which action plan has been prepared and the status is as given below.

**(i) Barapulla Drain [145.5 MLD (32 MGD)]:-** The short term & medium term plans have been completed and has resulted in trapping of **79.42 MLD (17.47 MGD)** of sewage into sewerage system for treatment through Okhla STP. The long term plan is under implementation and is expected to be completed by **30.09.2022** which will further trap 28.18 MLD(6.2 MGD) sewage.

DJB is also undertaking works for trapping of sewage as per the report of Kushak Drain by expert member of Monitoring Committee and it is proposed to trap the flow in Kushak drain at Andrews Ganj Pumping station. Further, the sewer rehabilitation works are also under implementation at Munirka, Sarai Kale Khan, Saket etc. All these measures are expected to be completed by **30.06.2020** which will reduce about **45.46 MLD (10 MGD)** flow in the Barapulla Drain. The remaining flow is expected to be around 68.91 to 90.92 MLD (15 to 20 MGD) for which a STP of 90.1 MLD (20 MGD) will be constructed before outfall into the Yamuna. The land for the STP is to be allocated by DDA for which request has been made to DDA for allotment of 20 Acre land which is still awaited. The STP will be completed in 3 years after allotment of land by DDA.

**(ii) Qudsia Bagh + Morigate Drain [Flow 40.9 MLD (09 MGD)]:-** STP at the mouth of this drain is proposed to be constructed for which land has again been identified with DDA but same is yet to be allotted to DJB. Necessary action shall be taken after allotment of land.

**(iii) Maharani Bagh Drain [Flow 29.6 MLD (6.5 MGD)]:-** The work of trapping Maharani Bagh drain has been completed to trap the flow of around 9 MLD (2 MGD) in C.V.Raman Marg Trunk Sewer in all respect. For balance about 20.5 MLD (4.5 MGD) flow, the sewerage system is being provided in Batla House GOC, Phase-II, which will trap the same and pump to Okhla STP. The time lines for the same is **31.12.2021.**Trapping of 3 Drains & Timelines are given in **Table 41.**

### Table 41. Trapping of 3 Drains & Timelines

| S.No | Name of the Drain | Timeline for Trapping | Remarks |
|---|---|---|---|
| **1.** | Barapulla Drain | 30.09.2022* | Short term measures already taken. Long term measures will be taken after allotment of land by DDA |
| **2.** | Qudsia Bagh + Morigate Drain | 36 *months after allotment of land by DDA | Short term measure is not technically feasible |
| **3.** | Maharani Bagh Drain | Short Term–By 31.12.2019<br>Long Term - By 31.12.2021*. | The trapping has been completed as short term measure to trap part flow. The balance flow will be trapped by 31.12.2021as long term measure. |

*Timeline given by DJB vide letter dated 14.10.2019, however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

**In addition to the above drains, the status of following 6 additional drains (Sonia Vihar Drain + 5 Other Drains) are given below:**

## (i). Sonia Vihar Drain:

**Current Status :** The sewerage scheme based on SMP 2031 for Sonia Vihar GOC has been prepared in three parts: 1. Providing laying sewerage system Sonia Vihar-Rajive Nagar GOC 2. Construction of 31.8 MLD (7 MGD) STP and 54.5 MLD (12 MGD) SPS. 3. Providing laying sewerage system in Part of Sonia Vihar GOC and construction of 19.54 MLD (4.3 MGD) SPS at 5$^{th}$ Pusta Sonia Vihar.

The tenders for the work of Providing laying sewerage system Sonia Vihar-Rajive Nagar GOC has been invited and tender for consultancy for the construction of 31.8 MLD (7 MGD) STP and 54.5 MLD (12 MGD) SPS will be invited.

Since land for the construction of 19.54 MLD (4.3 MGD) SPS at 5$^{th}$ Pusta Sonia Vihar is not available, the scheme mentioned at S.No.3 could be implemented only after the land is available for which the persuation with Delhi Police is being done. Details are given in **Table 42 and Table 43**below:-

**Table 42.Action Plan for Sonia Vihar Drain**

| S.No. | Plan | Present Status/ Action to be taken | Timeline |
|---|---|---|---|
| **1** | Short term action plan | Installation of static aeration unit at pond from where pumping is done by I&FC department.<br>**Short Term Measure:**<br>The possibility of installation of floating/static aerator at Pond of Sonia Vihar was explored for reduction of pollution load at River Yamuna as per direction of Yamuna Pollution Monitoring Committee appointed by Hon'ble NGT. It has been found that the cost involvement for floating aerators is around Rs.15 Crore excluding the running cost i.e. Electricity charges.In this connection it is to submit that a proposal has also been initiated by the Project Wing for construction of new WWTP including SPSs at Sonia Vihar as a combined scheme of the area. This is expected to be commissioned within 3 to 4 years. After commissioning of WWTP at Sonia Vihar, the floating/static aerators will be scraped which shall not be reusable at new WWTP.Therefore a process through the use of Bio-enzymes has been considered involving much lower cost implication for short term action plan. Thetenders for this work are being and the work is likely to start by the end of February 2020. | 9* Months |
| **2** | Medium term action plan | The discharge of the pond pertaining to I&FC will be taken into the proposed Sonia Vihar STP [31.8 MLD (7 MGD)] as per SMP: 2031. Execution of 31.8 MLD (7 MGD) STP will be taken up on priority. | 30* Months |
| **3** | Long term action plan | The land for STP and WWPS Rajeev Nagar is available and accordingly the sewerage scheme has been approved and tenders have been invited for Providing internal sewerage network and further the tender for the consultancy for construction of 31.8 MLD (7 MGD) STP and 54.5 MLD (12 MGD) SPS will be invited. Regarding Sonia Vihar WWPS as and when land is made available the scheme would be initiated for onward processing execution. | 30* Months from the date of allotment of land for SPS at Sonia Vihar |

***Note:- Timeline given by DJB however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.***

## Table 43. Proposed Action Plan for other 5 Drains

| S.No. | Name of Drain | Flow | Source of Discharge | Action Plan of DJB | Time lines* |
|---|---|---|---|---|---|
| 1 | Kailash Nagar Drain | Being assessed | Rising main from EDMC's Storm water Pump House near Mahavir Swami Park, Kailash Nagar During dry weather this pum house collects water from Chander Puri JJ Cluster which is un-sewered and is maintained by DUSIB | The discharge in drain is coming mainly from JJ Cluster. Matter is being taken up with DUSIB & EDMC. They have been advised to carry the discharge to Geeta Colony SPS by laying a rising main or to take other suitable alternative proposal such as construction of decentralized STP. | |
| 2 | Shastri Park Drain | Being assessed | Mainly from Buland Mansjid unauthorized colony & nearby habita tions. | Sewerage system of Buland Masjid U/A Colony has been made functional on 12.10.19. Various camps have been organized in at site for sanction of sewers connections in this colony. As per recent directions, proposal has been framed for installation of sewer connections in this colony under "Mukhya Mantri Muft Sewer Connection Sanction Yojna" | It is targeted to install all sewer connections by 31.03.2020. |
| 3 | Abul Fazal Drain | Being assessed | Unauthorised colonies in Batla House Phase-II area. | The sewage of the area which is at present going to the drain will be diverted to the sewerage system under progress and proposed 36.37 MLD 8 MGD) SPS at Batla House and will be treated at Okhla STP. | The sewerage system shall be laid by December, 2021*. |
| 4 | Jaitpur Drain | Being assessed | Unauthorised colonies of Badarpur area and some discharge from Faridabad. The drain is outfalling into river yamuna on the downstream side of Okhla barrage. | At present no sewerage system in Badarpur area. It is proposed to provide sewerage networ k in Badarpur area along with construction of dec entralized STPof 45.46M LD (10MGD) capacity for which the land is under allocation. | The sewer network along with STP will be completed in 3* years time after allotment of land for STP. |
| 5 | Agra Canal near Okhla | This is an irrigation canal which emanate from Okhla Barrage and terminates into UP for irrigating the agriculture fields. Hence, no action is required. If the quality of river water is improved in Delhi stretch, the quality of Agra Canal will also improve. | | | |

* ***Note:- Timeline given by DJB however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.***

## (B) Upgradation/Rehabilitation of Existing STPs

Some of the STPs are designed only to achieve BOD/TSS standards of 30/50 mg/l even though DPCC has laid down standards of 10/10 mg/l for the treated waste water in the STPs. The DJB has planned Rehabilitation/ Upgradation of STPs which have either outlived their prescribed life or are otherwise not meeting their design parameters. A total of 12 STPs of capacity 1132 MLD (249 MGD) are under up gradation or planned to be upgraded as per the details given in **Table 44.**

### Table 44.List of STPs being Rehabilitated/ Upgraded

| S. No. | Location | Capacity | Target Date of Completion | Remarks | Estimated Budget and Source of Finance |
|---|---|---|---|---|---|
| | | | | **On Commissioning, STP at S.No. of Table 10 will beDecommissioned** | |
| 1. | Kondli STP Phase I | 45.46 MLD (10 MGD) | 12 Months* after Tree cutting permission. | Are being rehabilitated under YAP-III.<br><br>On commissioning ofPhase –II, S.No. 8 of Table 10) shall be de-commissioned. | CAPEX: Rs. 314.06 Cr.<br>OPEX: Rs. 75.94 Cr.<br>**Total : Rs. 390.00 Cr.**<br><br>JICA funding (85:15) under YAP –III |
| 2. | Kondli STP Phase ll | 113.65 MLD (25 MGD) | July,2022* | | |
| 3. | Kondli STP Phase III | 45.46 MLD (10 MGD) | 12 Months* after Tree cutting permission. | | |
| 4. | Yamuna Vihar STP Phase ll | 45.46 MLD (10 MGD) | March , 2022* | The plant has already been made operational as per existing parameters. Upgradation of Yamuna Vihar STP to 10/10 parameter will be completed by March, 2022. | **Rs. 60 Cr.**<br><br>Under AMRUT Scheme |
| 5. | Okhla STP Phase I | 136.38 MLD (30 MGD) | December,2022* | 554 MLD (124 MGD) STP at Okhla will be constructed instead of existing Okhla STP (Phase I to IV).<br>The new STP will be constructed at a new location. Till the new plant is constructed & commissioned, the existing plants will remain in operation. | CAPEX : Rs. 942.18 Cr.<br>OPEX : Rs. 219.00 Cr.<br>**Total : Rs. 1161.18 Cr**.<br>JICA funding (85:15) under YAP –III |
| 6. | Okhla STP Phase II | 54.55 MLD (12 MGD) | | | |
| 7. | Okhla STP Phase III | 168.2 MLD (37 MGD) | | | |
| 8. | Okhla STP Phase IV | 2047.6 MLD (45 MGD) | | | |

| | | | | | |
|---|---|---|---|---|---|
| 9. | Rithala Phase I | 181.8 MLD (40 MGD) | December, 2021*or 30 months after receipt of tree cutting permission whichever is later. | Is being rehabilitated under YAP – III. December, 2021 subject to timely tree cutting permission from Forest Department | CAPEX: Rs. 220.19 Cr. OPEX: Rs. 75.94 Cr. **Total : Rs. 296.13 Cr.** JICA funding (85:15) under YAP –III |
| 10. | Coronation Phase-I | 45.46 MLD (10 MGD) | New 318 MLD (70 MGD) is under construction, thereafter existing 136 MLD (30 MGD) will be put out of operation. 50% liquid stream along with 4 digesters of Coronation Pillar STP shall be commissioned by July, 2020 and entire plant by Oct, 2020. | | CAPEX: Rs. 414.79 Cr. OPEX: Rs. 100.29 Cr. **Total : Rs. 515.08 Cr.** NMCG funding (50%) |
| 11. | Coronation Phase-II | 45.46 MLD(10 MGD) | | | |
| 12. | Coronation Phase-III | 45.46 MLD (10 MGD) | | | |
| | **Total** | **249 MGD (1131.98 MLD)** | | | |

*Timeline given by DJB vide letter dated 14.10.2019 (**ANNEXURE-9**) however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

Capacity of STPs will be increased to 2873 MLD (632 MGD) by March 2020 as 159 MLD (35 MGD) will be added after commissioning of 50% of Coronation Pillar STP.Capacity will further increase by 22.7 MLD (5 MGD) i.e. 2896 MLD (637 MGD) after commissioning of complete 318 MLD (70 MGD) Coronation Pillar STP in June, 2020 [existing STPs of 136.4 MLD (30 MGD) capacity Pillar will be decommissioned]. In December, 2021 capacity will be increased to 2987 MLD (657 MGD) after commissioning of Rithala STP Phase-I of 90.1 MLD (20 MGD), which is presently under rehabilitation.

Capacity will be further enhanced to 2987 MLD (657 MGD) in July, 2022 after rehabilitation of Kondli STP of 90.1 MLD (20 MGD).Capacity will be further augmented to 3214 MLD (707 MGD) in December, 2022 after construction of new Okhla STP.

**STP Capacity at Coronation Pillar :** Present capacity 136.4 MLD (30 MGD) (Phase I, 10 MGD– **closed**, Phase II, 20 MGD and Phase III, 10 MGD). A new Plant of 318 MLD (70 MGD) is under construction, thereafter existing 136.4 MLD (30 MGD) will be put out of operation. 50% liquid stream along with 4 digesters of Coronation Pillar STP shall be commissioned by July, 2020 and entire plant by Oct, 2020.

The existing STPs of DJB have been designed for BOD/TSS 30:50 and 20:30. However, as per the directions of Hon'ble NGT dated 30.04.2019, the STPs are required to be upgraded for BOD/TSS 10:10. All new STPs being constructed/upgraded by DJB are of BOD/TSS 10:10. Details are given in **Table 45.**

**Table 45: List of Ongoing / Constructed STPs for BOD / TSS (10 mg/l/10mg/l)**

| S.No. | Location | Capacity | Target Date of Completion* |
|---|---|---|---|
| **1** | Pappankalan Phase-II | 20 MGD (90.22 MLD) | Already in operation |
| **2** | Nilothi Phase –II | 20 MGD (90.22 MLD) | Already in operation |
| **3** | Kapashera | 5 MGD (22.7 MLD) | Already in operation |
| **4** | Common Wealth Games Village | 1 MGD (4.56 MLD) | Already in operation |
| **5** | Delhi Gate Phase –II | 15 MGD (68.19 MLD) | Already in operation |
| **6** | Chilla | 9 MGD (40.91 MLD) | Already in operation |
| **7** | Kondli STP Phase I | 10 MGD (45.46 MLD) | 12 months after the receipt of tree cutting permission |
| **8** | Kondli STP Phase II | 25 MGD (113.65 MLD) | July, 2022* |
| **9** | Kondli STP Phase III | 10 MGD (45.46 MLD) | 12 months after the receipt of tree cutting permission |
| **10** | Yamuna Vihar STP Phase II | 10 MGD (45.46 MLD) | March, 2022* |
| **11** | Okhla STP Phase I | 30 MGD (136.38 MLD) | December, 2022* |
| **12** | Okhla STP Phase II | 12 MGD (54.55 MLD) | December, 2022* |
| **13** | Okhla STP Phase III | 37 MGD (168.2 MLD) | December, 2022* |
| **14** | Okhla STP Phase IV | 45 MGD (204.57 MLD) | December ,2022* |
| **15** | Rithala Phase-I | 40 MGD (181.54 MLD) | December, 2021* subject to timely tree cutting permission from forest department |
| **16** | Coronation Phase-I | 10 MGD (45.46 MLD) | New 70 MGD (318 MLD) is under construction, thereafter existing 30 MGD (136.4 MLD)will be put out of operation. 50% liquid stream along with 4 digesters of Coronation Pillar STP shall be commissioned by July, 2020 and entire plant by Oct, 2020. |
| **17** | Coronation Phase-II | 10 MGD (45.46 MLD) | |
| **18** | Coronation Phase-III | 10 MGD (45.46 MLD) | |

* Timeline given by DJB vide letter dated 14.10.2019 (ANNEXURE-9) however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

The action plan for upgradation of the remaining STPs is under preparation. The cost and time implications for upgradation of the remaining STPs is as given in following **Table 46**.

**Table 46 : Up-gradation of Balance Existing STPs with Parameters of BOD / TSS as 10 /10 mg/l (including Bio-nutrient & pathogen removal & sludge management)**

| S. No. | Name of STP | Phase-Wise Breakup | Design Capacity in MGD (in MLD in brackets) | Designed Outlet Parameters BOD/TSS | Estimated Cost for Upgradation to 10/10 Parameters (Rs Crore) | Expected Timelines of Completion (*subject to availability of funds)* |
|---|---|---|---|---|---|---|
| **1** | Rithala | Phase – II | 40 (181.8) | 15/20 | 312.76 | The completion period for up-gradation of STPs is 3 to 4 years* from the date of availability of funds. |
| **2** | Okhla | Phase-V | 16 (72.74) | 30/50 | 125.10 | |
| | | Phase-VI | 30 (136.4) | 20/30 | 234.57 | |
| **3** | Kondli | Phase – IV | 45 (204.6) | 20/30 | 351.86 | |
| **4** | Keshopur | Phase-I | 12 (54.5) | 20/30 | 93.83 | |
| | | Phase-II | 20 (90.9) | 30/50 | 156.38 | |
| | | Phase-III | 40 (181.8) | 30/50 | 312.76 | |
| **5** | Yamuna Vihar | Phase – I | 10 (45.54) | 30/50 | 78.19 | |
| | | Phase-III | 25 (113.6) | 20/30 | 195.48 | |
| **6** | Vasant Kunj | Phase – I | 2 (9) | 30/50 | 15.64 | |
| | | Phase - II | 3 (13.6) | 30/50 | 23.46 | |
| **7** | Mehrauli | Mehrauli | 5 (22.7) | 20/30 | 39.10 | |
| **8** | Narela | Narela | 10 (45.54) | 30/50 | 78.19 | |
| **9** | Nilothi | Phase – I | 40 (181.8) | 30/50 | 312.76 | |
| **10** | Najafgarh | Najafgarh | 5 (22.7) | 30/50 | 39.10 | |
| **11** | Pappankalan | Phase – I | 20 (90.9) | 30/50 | 156.38 | |
| **12** | Dr.Sen Nursing Home Nalla | Dr.Sen Nursing Home Nalla | 2.2 (10) | 10/15 | 17.20 | |
| **13** | Delhi Gate | Phase – I | 2.2 (10) | 10/15 | 17.20 | |
| **14** | Rohini | Rohini | 15 (68.2) | 30/50 | 117.29 | |
| **15** | Ghitorni | Ghitorni | 5 (22.7) | 30/50 | 39.10 | |
| **16** | Molar-Bandh | Molar-Bandh | 0.66 (3) | 30/50 | 5.16 | |
| | | | **348.06 (1582.31 MLD)** | | **2721** | |
| **Total Fund Requirement for 348.06 MGD @ 7.82 Crores / MGD = Rs 2721 Cr** | | | | | | |

*Timeline given by DJB vide letter dated 14.10.2019 (ANNEXURE-9) however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

For upgradation of the above STPs to 10:10 norms, the following points need to be considered:

**(i)** The upgradation will be taken up in a phased manner subject to the availability of funds. Since more then Rs 2721 Crores will be needed, the external funding agencies, NMCG, GOI etc. will be approached for necessary funding.

**(ii)** The work of upgradation of running STPs cannot be taken up simultaneously as only about half the existing plant can be taken up at a time for the upgradation work and the remaining 50% is kept functional.

**(iii)** The action plan and tentative timelines for up gradation are given in **Table 47as** under:-

## Table 47 : Action Plan &Tentative Timelines on STP related aspects

| S.No | Activity | Timelines | Cumulative time |
|---|---|---|---|
| **Upgradation of Rithala Phase-II STP** | | | |
| **1** | Preparation and approval of block estimate | Completed | ---------- |
| **2** | Inviting tender for appointment of consultant and appointmentof consultant | 3 Months | 3 Months |
| **3** | Preparation of DPR | 3 Months | 6 Months |
| **4** | Seeking funding for the project from the funding agencies | 6 Months | 12 Months |
| **5** | Inviting tenders for the work and award of the work | 3 Months | 15 Months |
| **6** | **Completion of project** | **36 Months*** | **51 Months*** |
| **Upgradation of Narela & Rohini STPs** | | | |
| **1** | Preparation and approval of block estimate. | Completed | ---------- |
| **2** | Inviting tender for appointment of consultant and appointmentof consultant | Done | ---------- |
| **3** | Preparation of DPR | 3 Months | 3 Months |
| **4** | Seeking funding for the project from the funding agencies | 6 Months | 9 Months |
| **5** | Inviting tenders for the work and award of the work | 3 Months | 12 Months |
| **6** | **Completion of project** | **36 Months*** | **48 Months*** |
| **Upgradation of Nilothi Phase-I STP** | | | |
| **1** | Preparation and approval of block estimate | 3 Months | 3 Months |
| **2** | Inviting tender for appointment of consultant and appointmentof consultant | 3 Months | 6 Months |
| **3** | Preparation of DPR | 3 Months | 9 Months |
| **4** | Seeking funding for the project from the funding agencies | 6 Months | 15 Months |
| **5** | Inviting tenders for the work and award of the work | 3 Months | 18 Months |
| **6** | **Completion of project** | **36 Months*** | **54 Months*** |
| **Upgradation of Pappankalan Phase-I STP** | | | |
| **1** | Preparation and approval of block estimate | 3 Months | 3 Months |
| **2** | Inviting tender for appointment of consultant and appointmentof consultant | 3 Months | 6 Months |
| **3** | Preparation of DPR | 3 Months | 9 Months |
| **4** | Seeking funding for the project from the funding agencies | 6 Months | 15 Months |
| **5** | Inviting tenders for the work and award of the work | 3 Months | 18 Months |
| **6** | **Completion of project** | **36 Months*** | **54 Months*** |
| **Action Plan &Tentative Timelines for Upgradation of STPs at Okhla Phase – V & VI, Kondli Phase-IV, Keshopur Phase I, II & III, Yamuna Vihar Phase-I & III, Vasant Kunj Phase-I & II, Mehrauli , Najafgarh, Dr.Sen Nursing Home Nalla, Delhi** | | | |

| Gate Phase-I, Rohini, Ghitorni & Molar-Bandh | | | |
|---|---|---|---|
| **1** | Preparation and approval of block estimate | 3 Months | 3 Months |
| **2** | Inviting tender for appointment of consultant and appointmentof consultant | 3 Months | 6 Months |
| **3** | Preparation of DPR | 3 Months | 9 Months |
| **4** | Seeking funding for the project from the funding agencies | 6 Months | 15 Months |
| **5** | Inviting tenders for the work and award of the work | 3 Months | 18 Months |
| **6** | **Completion of project** | **36 Months*** | |

*Timeline given by DJB vide letter dated 14.10.2019 however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

## (C) Setting up of New STPs

As per Sewage Master Plan 2031 (SMP 2031) , 32 Nos STPs are to be constructed. 14 STPs are to be constructed in Najafgarg Drainage Zone and 18 STPs in Narela, Okhla, Outer South Delhi, Kanjhawala, Bawana, Shahdara zone. Due to land constraint, it has earlier been decided to construct Decentralized STPs at 42 locations in place of 18 STPs and 7 SPS. DJB has identified Gram Sabha land and Private land at 49 locations in respective drainage zones for construction of 42 DSTPs and 07 SPS for which request has been sent to Revenue Department for allotment of land, which is awaited.Status of 32 STPs (now 56 DSTPs) is given below .

### (i) 14 STPs in Najafgarh Drainage Zone:-

The Work Orders for execution of 14 STPs were issued to M/s L&T on 21.04.2017 having total capacity of about 177 MLD (39 MGD) as per the projected requirement of Sewerage Master Plan-2031.However, the NMCG during their inspection in 2016 had observed less flow in the drains and prioritized funding of only 7 STPs out of 14 STPs. The matter was agitated and Hon'ble NGT vide its directions dated 06.12.2017 directed NMCG to fund all the 14 STPs in the ratio of 70:30. However, till date NMCG has funded only 7 STPs.

Further, in a meeting of joint review in MoWR, Govt of India held on 18.01.2018, it was decided that there is a need to re-examine the justification of the project to avoid any wasteful expenditure. In pursuance, M/s 'Water and Power Consultancy Services' (WAPCOS), was appointed as consultant on 27.04.2018 to ascertain the quantum of flow in the command of 14 STPs. M/s WAPCOS has given opinion that there is less flow in the drains under the command of these 14 STPs, which is primarily due to absence of proper sewerage system in the area as only effluent from septic tank and grey water is being discharged into the drain. Moreover, expected population growth has not taken place in their command. Therefore, WAPCOS recommended that capacities of these 14 STPs must be reduced from 177 MLD to 145.5 MLD (39 MGD to 32 MGD). Recommendations of WAPCOS were approved by the Board on 29.05.2019. Accordingly, matter was taken up with the contractor M/s L & T to execute the work at reduced capacities of these 14 STPs, as per the recommendations of WAPCOS. However, the contractor has declined to proportionately scale down the cost as per the reduced capacities and a conditional offer has been given, which is beyond the terms of the original contract. Further, discussions are underway in the matter.

**Issues plaguing the Implementation of this Project:**

As per the original plan, all the 14 STPs were to be funded by NMCG in the ratio of 70:30 (NMCG : Delhi Govt) and land for STPs were to be made available by Government. NMCG has prioritized funding for only seven (7) specific STPs out of 14 till date and the land is available for only 6 locations, out of which only 2 have requisite funding. The details of the problems of land and funds are given below :

**Land for 14 STPs**:Out of 14 STPs, land at only 6 locations has been given to DJB by Govt. The land for the balance 8 locations is yet to be acquired/allotted by Government to DJB.

**Funds for 14 STPs:-**As per directions of Hon'ble NGT, approval of funding for 7 STPs have been received from NMCG so far. Approval of funding for balance 7 STPs is yet to be received from NMCG.

**Current status of work:-**

Out of 7 STPs where funding from NMCG is available, land is available only at 2 locations. However, at these locations also, the work could not be started due to reduced capacities of these STPs as per expert opinion of M/s WAPCOS and the reluctance of the contractor to commence work at altered plant capacities with proportionate reduction in cost.

- Land at balance 5 locations is not available wherein funding from NMCG is approved. Hence, work could not be commenced.
- Funding for balance 7 STPs is yet to be approved by NMCG.. Therefore work could not be taken up for remaining 7 locations too.

To summarize the issue, the 3 major hurdles in the implementation of 14 STPs (9+5) scheme have been land, funds and projected/actual flow in drains.

**(ii) Other 42 Decentralized STPs and 7 SPS in Narela, Okhla, Outer South Delhi, Kanjhawala, Bawana and Shahdara Drainage Zones**

DJB had proposed to construct 42 decentralized STPs and 7 SPS in these zones for which land at 49 locations has been requested from Delhi Govt./DDA. The land is still to be allocated. As suggested by the Yamuna Pollution Monitoring Committee, DJB has already de-clubbed the proposals, so that as and when land is available, action for each project can be taken independently of others. Divisional Commissioner has been requested to provide land for these STPs. Details are given in **Table 48 to Table 53**.

**Table 48 : Brief Status of 56 Decentralised STPs**

| S.No | Name of STP | Timeline | Remark |
|---|---|---|---|
| **1.** | 14 (7+7) STPs in Najafgarh Drainage Zone | 18 to 30 Months* after approval of funding of balance STP by NMCG and allotment of land | Out of 14 locations, land is available only at 06 locations and land at balance 08 locations is yet to be allotted. |
| **2.** | 42 No.of Decentralized STPs at various locations. | 24 to 36 Months* after allotment of land | Land for construction of 42 DSTPs and 07 SPS have been identified at various locations and it is still in the process of allotment by Revenue department of GNCT Delhi/DDA. Necessary action will be taken by DJB after allotment of land. |

***Timeline given by DJB vide letter dated 14.10.2019 (ANNEXURE-9) however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.**

## Table 49. Details of Decentralized* STPs

| S. No. | Details of Decentralized Plants | Capacity | Estimated Budget and Source of Finance |
|---|---|---|---|
| 1 | Timarpur Oxidation Ponds | 25 MLD (5.50 MGD) | 61.66 Cr (DJB funded) |
| 2 | Decentralised STP in Burari area | 20.45 MLD (4.50 MGD) | The persuasion for allotment of land for construction of DSTPs with Revenue Department, Govt of NCT of Delhi/DDA is continuously being done as such the cost of the project could be worked out as and when such lands are made available. |
| 3 | 8 Nos.Decentralized STPs in Chattarpur area | 22.73 MLD (5.00 MGD) | Rs. 209 Cr. funding from NMCG & UDF fund under MoHUA. |
| 4 | Decentralised STP in Kirari area | 93.19 MLD (20.5 MGD) | Since the land for construction of DSTP for Kirari GOCs are not available, now the proposal is to construct a Centralized STP in Rohini Phase-II. |
| 5 | Decentralised STP in Narela, Zindpur & Palla | 115 MLD (25.30 MGD) | The persuasion for allotment of land for construction of DSTPs with Revenue Department, Govt of NCT/DDA of Delhi is continuously being done as such the cost of the project could be worked out as and when such lands are made available. |
| 6 | Decentralised STP in Bawana & Kanjhawla | 203.21 MLD (44.70 MGD) | The persuasion for allotment of land for construction of DSTPs with Revenue Department, Govt of NCT of Delhi/DDA is continuously being done as such the cost of the project could be worked out as and when such lands are made available. |
| 7 | Decentralised STP in Badarpur area | 45.46 MLD (10.00 MGD) | Rs. 377 Cr. funding from NMCG & UDF fund under MoHUA. |
| 8 | Decentralised STP in Mundka (part) area | 15 MLD (3.30 MGD) | The persuasion for allotment of land for construction of DSTPs with Revenue Department, Govt of NCT of Delhi/DDA is continuously being done as such the cost of the project could be worked out as and when such lands are made available. |
| 9 | 9+5 STPs in Najafgarh area | 169.11 MLD (37.2MGD) | The project is to be funded by NMCG and DJB in the ratio of 70:30 as per the directions of the Hon'ble NGT. The project cost could not be given as the revised cost / offer for construction of 14 STPs submitted by M/s L&T is under scrutiny for the reduced/ revised capacities approved by the Board, as per the recommendations of M/s WAPCOS . |
| | **Total** | **709.2 MLD (156.00 MGD)** | |

No specific Timeline given by DJB however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

## Table 50.Status of New STPs Proposed*

| S. No. | Name of the Plant | Capacity (MLD) | Status |
|---|---|---|---|
| 1. | Tikrikalan | 12.24 (2.7 MGD) | Notification was issued by Land & Building Department on 28.8.2015.Payment made on 23 August, 2017.Acquisition of land is in progress. |
| 2 | Mitrao | 25.45 (5.6 MGD) | Land has been allotted by Revenue Department to DJB. |
| 3 | Dichaokalan | 25.45 (5.6 MGD) | Partial Gram Sabha Land allotted. After the investigation of Hon'ble NGT a joint inspection with Revenue Department was carried out on 01.12.2017 for balance requirement. A private land was identified adjacent to existing Gram Sabha land. Hon'ble NGT directed Revenue Deptt. to start process of acquisition of land. Case for acquisition of land through Land & Building Dept of Delhi Govt. is being processed separately. |
| 4 | Kazipur | 5 (1.1 MGD) | 50% Gram Sabha land available with DJB.<br>For balance private land Notification was issued by Land & Building Department on 28.08.2015.<br>Payment made on 17 July, 2017. Acquisition of land is in progress.<br>Payment of First instalment was made on 17 July, 2017.As demanded by DM(SW), IInd instalment paid in September, 2019. Acquisition of land is in progress. |
| 5 | KheraDabar Extn | 4.09 (0.9 MGD) | Land taken over by DJB |
| 6 | Shikarpur | 2.72 (0.6 MGD) | Alternate Gram Sabha land under allotment as earlier allotted land was shifted due to public resistance. |
| 7 | Kair | 5 (1.1 MGD) | Notification was issued by Land & Building Deptt. on 28.08.2015. Payment made on 17 July 2017. Acquisition of land is in progress.<br>Payment of First instalment was made on 17 July, 2017.As demanded by DM(SW), IInd instalment paidin September, 2019. Acquisition of land is in progress. |
| 8 | Jaffarpur | 10 (2.2 MGD) | Land taken over by DJB |
| 9 | Hasanpur | 10 (2.2 MGD) | Alternate Gram Sabha land under allotment as earlier allotted land was shifted due to public resistance. |
| 10 | Sarangpur | 10 (2.2 MGD) | Land taken over by DJB |
| 11 | Galibpur | 5 (1.1 MGD) | Land taken over by DJB |
| 12 | Tajpurkhurd | 36.37 (8.0MGD) | Notification was issued by Land & Building Department on 28.08.2015. ayment made on 20 July, 2017. Case for acquisition of additional 20 Bigha Land is in process. Acquisition of land is in progress.There is a stay grnted by Hon'ble Delhi High Court in the acuisition process. |
| 13 | Goyalavihar (Kakorala) | 11.36 (2.5 MGD) | Notification was issued by Land & Building Deptt. on 28.08.2015. Payment made on 17 July 2017. Acquisition of land is in progress.Payment of First instalment was made on 17 July, 2017.As demanded by DM(SW), IInd instalment paidin September, 2019. Acquisition of land is in progress |
| 14 | Badu Sarai (Kanganheri) | 6.36 (1.4 MGD) | Land taken over by DJB |
| | **Total** | **169.1 MLD (37.2 MGD)** | |

*No specific Timeline given by DJB however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

## Table 51: Capacity of ExistingSTPs, under Upgradation / Rehabilitation and

**New / Proposed STPs**

| Discharge from Drains into River Yamuna in Delhi | Sewage generation in Delhi | Present treatment Capacity of STPs | Capacity of Upgradation / Rehabilitation of STPs (12 Nos.) | Capacity of New / Proposed STPs (14 Nos.) | Capacity of proposed Decentralised STPs (42 Nos.) | ISP (6 Packages) |
|---|---|---|---|---|---|---|
| **3026 MLD (666 MGD)** [ About 565 MLD (124 MGD of Waste Water received through drains from Haryana (500 MLD(110 MGD) and UP 65 MLD (14 MGD)] | **3273 MLD (720 MGD)** [80% of 4091 MLD (900 MGD) water supply] | **2714 MLD (597 MGD)** (present treatment 2273 MLD (500 MGD)] | **1132 MLD (249 MGD)** | **169 MLD (37 MGD)** | **709 MLD (156 MGD )** | **1100 MLD (242 MGD)** |

**Table 52 : Sewage Treatment and Timelines for Enhancing Capacity of STPs**

| S. No. | Description | December, 2019 | June, 2020 | December, 2020 | December, 2021++ | December, 2022++ | December, 2025 | December, 2031 | Remarks |
|---|---|---|---|---|---|---|---|---|---|
| 1. | Sewage generation | 720 MGD (3273 MLD) | 720 MGD (3273 MLD) | 720 MGD( 3273 MLD) | 720 MGD (3273 MLD) | 720 MGD (3273 MLD) | 800$^{+}$ MGD (3637 MLD) | 1062 MGD (4828 MLD) | Theoretical sewage discharge as per CPHEEO Manual, 80 % of total water supply which is expected to be about 1000 MGD in the year 2025. $^{+}$In addition the sewage will be generated from outer Delhi areas for which DSTPs are proposed. |
| 2. | Installed Sewage treatment capacity | 597* MGD (2714 MLD) | 637** MGD (2896 MLD) | 637 MGD( 2896 MLD) | 657 MGD (2987 MLD) # | 707## MGD (3214 MLD) | 831*** MGD (3778 MLD) | 1106 MGD (5028 MLD) | *The capacity reduced from 617 to 597 MGD (2804 to 2714 MLD) due to shutting down of 20 MGD (90.9 MLD) unit at Rithala taken up for rehabilitation **After commissioning of Coronation Pillar STP [70 MGD (318MLD)] #After rehabilitation of Rithala STP [40 MGD (181.9 MLD)] |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | ##After commissioning of Okhla STP [140 MGD (636.5MLD)] & Rehab. of Kondli STP (10+10+25=45MGD) |
| 3. | Actual Sewage treatment | 540* MGD (2455 MLD) | 592** MGD (2691 MLD) | 607# MGD (2759 MLD) | 627## MGD (2850 MLD) | 707 MGD (3214 MLD) | 800 MGD (3637 MLD) | 1062 MGD (4828 MLD) | ISP will be commissioned by March, 2020 but actual treatment will be possible after rehabilitation / construction of some of the STPsunder its command i.e. Kondli, Rithala, Coronation Pillar<br>*After commissioning of ISP Package 5,6 & Pkg. 3 (partial)<br>**After part commissioning of Package 3 &4 of ISP<br>#After full commissioning of ISP Package 3 & 4 and interconnecting Rithala STP to Rohini STP<br>## After commissioning of Rithala STP, the flow of Pkg. 3 of ISP will be fully trapped. |
| 4. | Capacity utilization (%age) | 90.45 | 93.0 | 95.3 | 96.2 | 100* | *100* | *100* | Capacity Utilization of some of the STPs like Ghitorni, Kapashera, Vasant Kunj, Mehrauli, Najafgarh, Narela is less due to fact that development of the area has not taken place as anticipated in the DDA Master Plan.<br>*The Existing plants can treat excess flow upto 5-10% of installed capacity. |

**++ Timeline given by DJB vide letter dated 14.10.2019 (ANNEXURE-9) however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.**

**Note: There is no possibility of increase in raw water sourcess in near future. Therfore, the only option available is to ratonalise the available water supply to meet the increased demand.**

*****DJB has planned to install 56 DSTPs in outer Delhi areas having capacity of 92 MGD and by augmenting Rohini STP to 25 MGD, Sonia Vihar STP by 7 MGD. Thus the total installed capacity will increase to 831 MGD.***

## Table 53: Sludge Management at STPs (Status & Timelines )

| Name of STP | Phase-Wise Breakup | | Design Capacity (in MGD) | Bio Digesters/ Methane Recovery Plant | Management of Sludge | Remarks / Timelines |
|---|---|---|---|---|---|---|
| **Rithala** | • | Phase – I | 40 | | | |
| | • | Phase - II | 40 | Yes | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Okhla** | • | Phase-I | 30 (12+18) | No | Included in the new 124 | A new 124 MGD (536.7 MLD) is coming up in place of phase I to IV. The work will be completed by Dec 2022*. Sludge manage ment is included in this project. |
| | • | Phase-II | 12 | No | -Do- | -Do- |
| | • | Phase-III | 37 | No | -Do | -Do |
| | • | Phase-IV | 45 | No | -Do- | -Do- |
| | • | Phase-V | 16 | No | No | Included in upgradation of plant by Dec 2024* |
| | • | Phase-VI | 30 | Yes | No | Digesters are working |
| **Kondli** | • | Phase-I | 10 | No | No | Under Rehabilitation |
| | • | Phase– II | 25 | No | No | Running & Under Rehabilita tion |
| | • | Phase-III | 10 | No | No | Under Rehabilitation |
| | • | Phase–IV | 45 | Yes | No | Digesters are working, Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Keshopur** | • | Phase-I | 12 | Yes | No | |
| | • | Phase-II | 20 | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| | • | Phase-III | 40 | Yes | No | |
| **Yamuna Vihar** | • | Phase – I | 10 | Yes | No | Included in up-gradation of STP likely by Dec, 2024* |
| | • | Phase-II | 10 | No | No | SMS facility shall be included in the up-gradation of Phase-I/III |
| | • | Phase-III | 25 | Yes | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Vasant Kunj** | • | Phase – I | 2 | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| | • | Phase - II | 3 | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Mehrauli** | • | Mehrauli | 5 | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Coronation Pillar** | • | Phase– I & II | 20 | No | No | The sewage will be diverted to new STP in construction likely by March, 2020 |
| | • | Phase- III | 10 | No | No | |
| **Narela** | • | Narela | 10 | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Najafgarh** | • | Najafgarh | 5 | - | - | Plant is extended aeration |
| **Nilothi** | • | Phase – I | 40 | No | No | Included in up-gradation of |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | | | STP likely by Dec, 2024* |
| | • | Phase– II | 20 | Yes | Yes | |
| **Pappan Kalan** | • | Phase – I | 20 | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| | • | Phase– II | 20 | Yes | Yes, under construction | Being constructed likely to be commissioned by Dec, 2019 |
| **Dr. Sen Nursing Home Nalla** | • | Dr. Sen Nursing Home Nalla | 2.2 | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Delhi Gate Nallah** | • | Phase – I | 2.2 | No | No | No digesters, plant designed on extended aeration basis |
| | • | Phase - II | 15 | No | No | Digesters are working |
| **Rohini** | • | Rohini | 15 | No | No | Included in up-gradation of STP likely by Dec, 2024* |
| **Ghitorni** | • | Ghitorni | 5 | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Kapashera** | • | Kapashera | 5 | Yes | No | |
| **Common Wealth Games Village** | • | Common Wealth Games Village | 1 | No | No | -- |
| **Molar-Bandh** | • | Molar Bandh | 0.66 | No | No | Sludge management shall be included in up-gradation of STP Likely by Dec 2024* |
| **Chilla** | • | Chilla | 9 | Yes | No | -- |

*Timeline given by DJB however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.

After Rehabilitation / Upgradation of Existing STPs and construction of New STPs there will be total 3214 MLD (707 MGD) capacity of Sewage Treatment by December, 2022 and this will cater to treatment of all the sewage generated in Delhi.

## (D) Septage Management

As per Septage Management Regulation-November, 2018, Delhi Jal Board is responsible for entire sewerage network in sewered area being maintained by DJB within Municipal limit. Entire unsewered area pertains to respective Municipal Corporations, Cantonment Board, NDMC. Construction of decentralized STP at 56 locations is pending due to allotment of land and funds. However, DJB has taken following measures for septage management in unauthorised colonies/unsewered areas.

- As per the Septage Regulation 2018, The DJB has issued 156 Nos. Licenses to the private tanker operators and they are performing the duties of collection and disposal of septage from the individual households from unauthorized colonies/ unsewered areas.

- The DJB is regularly collecting septage through the Licensed vendors at its designated SPSs. The location of these designated SPSs hve already been Mapped by Delhi Jal Board. The average collection of septage is approximate to 3 Lac liters per day.

- The most of the Licensees are tractor mounted tankers and they are not fulfilling the requirement as per the regulation as well traffic/transportation Authority etc.

DJB is under process of deploying 80 Nos. Truck mounted tankers initially with the facility of monitoring of septage collection from the households of unauthorized/ un sewered areas of Delhi at free of costwith proper record/monitoring of collection of Septage from Households of unauthorized colonies/ unsewered area under the "Mukhya Mantri Septic Tank Cleaning Yojana". The scheme is approved by the board and tenders have been invited for hiring of vehicles. It is clarified that the number of suction machines can be increased based on the actual field requirement and assessment of ground realities as borne out during the implementation of the project. The deployment of vehicles shall be completed by March, 2020 and the entire system will be fully operational with management information system by June, 2020.

## (E) In-situ Bio-remediation / Phyto-remediation of Sewage in Drains

Based on the chamber meeting taken by Hon'ble NGT on 03.01.2020, discussions held with various stake holders including CPCB, DJB, YPMC, NEERI etc. and reports of Yamuna Pollution Monitoring Committee including Report on "Approach to In-situ Bio-remediation / Phyto-remediation of sewage in drains of Delhi", Hon'ble NGT vide order dated 22.01.2020 has passed detailed order and summed up the directions given in the said order at Para 27. Various Drain owning / maintaining agencies in Delhi (DDA, DSIIDC, PWD, Irrigation and Flood Control Department, Cantonment Board; NDMC; South, East and North Delhi Municipal Corporations) have been directed to furnish their response with respect to the issues mentioned in the said order. CPCB has also been asked to furnish a report in terms of Para 25 of the said order.

Necessary action shall be taken by the Drain owning / maintaining agencies in consultation with CPCB as per the directions of Hon'ble NGT in OA No. 673/2018 and order dated 22.01.2020 in OA No. 06 / 2012 in the matter of Manoj Mishra Vs. UOI & Ors.

## 5.2 Industrial Effluent Management

DPCC is taking action against the violating Industries/ Units including Water Polluting Industries / Units and imposes Environmental Compensation (EC) on the Polluter Pays Principal.Action taken by DPCC against the Industries / Units and Environmental Compensation (EC) imposed have already been informed to the Hon'ble NGT vide Action Taken Report filed before the Tribunal on 01.08.2019 and 10.12.2029. Inventory with respect to total no of industries in Approved Industrial Areas in Delhi which have not obtained Consent under the Water (Prevention and Control of Pollution) Act, 1974 , Air (Prevention and Control of Pollution) Act, 1981 or Authorization under Waste Management Rules as applicable shall be carried out by the concerned cells of DPCC and action shall be initiated as per the applicable Acts / Rules.

### 5.2.1 Common Effluent Treatment Plants (CETPs)

All the existing 13 CETPs are being monitored by DPCC Laboratory on monthly basis and Analysis Reports are placed on the website of DPCC. Inspections of the CETPs are carried out on quarterly basis and deficiencies observed, if any, during the inspections are conveyed to the CETP Societies/operator of CETPs for rectification of the deficiencies. DSIIDC has engaged NEERI for its action plan and upgradation of CETPs.An Action Plan has been submitted by DSIIDC/ Industries Department to the Yamuna Pollution Monitoring Committee (YPMC) appointed by the Hon'ble National Green Tribunal vide order Dated 26.07.2018 to oversee the execution of directions of Hon'ble National Green Tribunal in the matter of Manoj Mishra Vs. UOI & Ors. The Action Plan includes assessment of the performance of the CETPs for the abatement of pollution in river Yamuna, up gradation of CETPs, feasibility of Zero Liquid Discharge, Reuse of treated water, Management of Hazardous Waste etc and analysis and study of 11 Industrial Areas where CETPs are not installed. DSIIDC has engaged National Environmental Engineering Research Institute (NEERI) as Project Management Consultant at a cost of Rs 5.21 Crore for the impelemntation of Action Plan of DSIIDC / Industries Department including upgradation of 13 CETPs in various Industrial Areas and study whether CETP is required in 11 Industrial Areas not having CETPs. Subsequently, as per the recommendation of NEERI, the necessary action for up gradation of CETPs and for carrying out other activities shall be taken.

- ***Sufficient treatment capacity is available with existing 13 CETPs for management of industrial effluent generated from 17 approved industrial areas.***

- ***The units which are operational in non-CETP industrial areas have individual waste water treatment facilities.***

### 5.2.2 Action plan regarding development of infrastructural facilities in Re-development Areas including requirement of CETPs in these areas.

As per the norms for redevelopment of clusters of Industrial Concentration in Non Conforming Areas as given in point no. 7.6.2.1. of MPD- 2021, the redevelopment scheme of these unplanned Industrial Areas will have to be prepared by the concerned local body/ land owning agency in consultation with the society (to be formed by the land owners). Accordingly, the redevelopment of these 24 industrial areas is to be done by concerned local body/landowning agency.

For the Re-development of above clusters a meeting was held on 06.09.2019 under the chairmanship of Vice Chairman, DDA to discuss various issues related to Re-development of Non-Conforming Industrial Areas as per 'MPD-2021'. The meeting was attended by the officers of Industry Department ,GNCTD, South DMC, North DMC, East DMC and DDA. In the meeting following was decided for 24 Re-development Areas:

(i) The date by which the redevelopment plans will be finalized and approved shall be decided by the concerned MCDs and Industry Department, GNCTD.

(ii) The redevelopment plan shall be prepared as per the provisions laid down in para 7.6.2.1 of MPD-2021 and as per the regulations for redevelopment of cluster of Industrial Concentration in non-conforming areas / unplanned areas notified on 01.05.2012.

(iii) DDA has empanelled Town Planners/Town Planning agencies for preparation of various planning schemes. The society may hire any of the agency, if unable to find an appropriate Architectural/Town Planning agency to prepare the LOP of their cluster and submit to MCD within 1 year from 26.09.2019.

(iv) The implementation of approved scheme shall be completed within three years after approval of the same, as mentioned in clause 7.6.2.1 of MPD-2021.

### 5.2.3 Industries in Non-Conforming Areas

Issue / matter of industries functioning from residential/ non-conforming areas is being monitored by EPCA with Industries Department, DSIIDC, DMCs and DDA. Additionally, a Monitoring Committee under the chairmanship of Chief Secretary Delhi is also monitoring this and reporting compliance to the Hon'ble Supreme Court in the matter of MC Mehta vs. UOI in WP (c ) No. 4677 of 1985.

***As per the decision taken in the meeting of Chief Secretary, Govt of NCT of Delhi held on13.09.2018, action has been taken under Step -1 and Step – 2 and action is going on under Step – 3 (i.e., the Municipal Corporations and the Delhi Development Authority will carry out a comprehensive mapping/ survey to find out details of industries functioning without obtaining prior Municipal Licence in respect of their respective jurisdiction. Once the non- permitted industries are identifiedduring the mapping/survey, notices to close down the industrial activities be issued and effective closure including disconnection of water supply and electricity connection be carried out within 30 days of such detection) for closure of the unauthorized / illegal Industries / Units operating in Non Conforming Areas of Delhi.***

DPCC grants Consent to the units in the Approved Industrial Areas / Redevelopment Areas / Units Operating in conformity w.r.t MPD 2021 only.

Activities mentioned in Annexure – 7.0 (III) of Master Plan of Delhi (MPD) – 2021 (Prohibited / Negative list of Industries) are not permitted in Delhi and therefore, Consent is not granted by DPCC to such industries.

## 5.3 Municipal Solid Waste Management

There is one Integrated Solid Waste Management Facility at Bawana having Waste to Energy Plant, Compost Plant and Engineered Sanitary Land Fill. This Integrated Solid Waste Management Facility is being operated by M/s Delhi MSW Solutions Ltd. One Engineered Sanitary Land Fill is proposed to be developed by South Delhi Municipal Corporation (SDMC) at Tehkhand by 2021. An Integrated Solid Waste Management Facility for 2000 TPD is proposed to be developed by East Delhi Municipal Corporation (SDMC) in joint venture with NTPC at Ghonda Gujran. Besides other facilities the said facility will be having Waste to Energy Plant of 1800 TPD . Site at Sonia Vihar has been indentified for development of Engineered Sanitary Land Fill. After construction / development of proposed SLF by SDMC & EDMC each Municipal Corporation in Delhi will have Engineered Sanitary Land Fill (SLF) in their areas.

### 5.3.1Collection , Segregation & Transpotation of Municipal Solid Waste:

For proper treatment and disposal of the municipal solid waste, waste segregation is pre-requisite and the local bodies are implementing a detailed plan of waste segregation at source, door to door collection, intermediate storage and transport facility with GPS for

the segregated waste including Material Recovery Facility. The municipal bodies of New Delhi Municipal Council and Delhi Cantonment Board have achieved almost complete segregation of waste at source , door to door collection ,transportation and its handling. The rest of the 3 municipal corporations as EDMC, SDMC and NDMC have achieved segregation in 3 Model Wards in each corporation and are in the process to implement the same in rest of the wards.

### 5.3.2 Waste to Energy Plants

Delhi has 3 Waste to Energy Plants (WTE Plants) of capacity 5250 TPD at 3 different locations in Delhi namely Okhla, Ghazipur and Bawana. One New Waste to Energy Plants of capacity about 2000 TPD is proposed at Tehkhand and another 1800 TPD in the Integrated Waste Complex at Ghonda Gujran. After commissioning of these 2 proposed WTEs capacity of WTE Plants will increase from 5250 TPD to 9050 TPD by December,2021.For Waste to Energy Plant at Tehkhand Environmental Clearance has been granted by MoEF&CC vide letter dated 26.07.2018 after Public Hearing on 21.05.2018.

### 5.3.3 Action Plan for Proposed Waste Processing Facilities & Sanitary Land Fill in Delhi

Proposed Waste Processing Facilities & Sanitary Land Fill are given in Table 54

**Table 54 : Proposed Waste Processing Facilities & Sanitary Land Fill in Delhi**

| S. No. | Particulars | Location | Capacity | Timeline for Completion of Project |
|---|---|---|---|---|
| 1. | Waste to Energy Plant | Tehkhand | 2000 TPD | March, 2021 |
| 2. | Integrated Waste Processing Facility | Ghonda Gujran | 2000 TPD | June , 2022 |
| 3. | Sanitary Landfill | Tehkhand | 2000 TPD | December, 2021 |

### 5.3.4 Bio-Remediation and Bio-Mining of Existing SLFs / Dump Sites

There are 3 Dumpsites at Ghazipur, Bhalaswa and Okhla in Delhi where Municipal Solid Waste have been dumped and there is legacy waste of 28 Million Tons. Brief about these dumpsites is given in **Table 23.**

**Order of Hon'ble National Green Tribunal Dated 17.07.2019 regarding Disposal of 'Legacy' Waste dumped at Bhalswa, Ghazipur and Okhla Dumpsites:**

Hon'ble National Green Tribunal vide order dated 17.07.2019 in OA No. 519 / 2019 in the matter of News item published in "The Times of India" Authored by Jasjeev Gandhiok & Paras Singh Titled "Below mountains of trash lie poison lakes" and OA No. 386/2019 in the matter of "Centre for Wildlife and Environment Litigation" Vs Union of India & Ors." has passed detailed order regarding Disposal of 'Legacy' Waste dumped at Bhalswa, Ghazipur and Okhla Dumpsites and given various directions. Hon'ble NGT has directed the Municipal Corporations to go for bio mining using trommels instead of capping of the

dump sites at Bhalswa, Ghazipur and Okhla. The estimated cost to clear the above three dump sites at Delhi may be approx. Rs. 250 Crores as given below :

***i. EDMC -- Rs.125 Crores***
***ii. North MCD -- Rs. 75 Crores***
***iii. SDMC -- Rs. 50 Crores***

The above amount of Rs. 250 Crores is transferred to three separate ESCROW accounts wherein contributions will be as follows:

| | | |
|---|---|---|
| I | EDMC | i. NCT Delhi : Rs. 65 Crore<br>ii. EDMC : Rs. 40 Crore<br>iii. NDMC : Rs. 10 Crore<br>iv. DCB : Rs. 10 Crore |
| Ii | North MCD | i. NCT Delhi : Rs. 35 Crore<br>ii. North MCD : Rs. 30 Crore<br>iii. NDMC : Rs. 05 Crore<br>iv. DCB : Rs. 05 Crore |
| Iii | SDMC | i. NCT Delhi : Rs. 25 Crore<br>ii. SDMC : Rs. 15 Crore<br>iii. NDMC : Rs. 05 Crore<br>iv. DCB : Rs. 05 Crore |

After removing legacy waste from the enterior part of the land, the Committee may consider using part ofthe recovered land for Integrated Waste Processing and Treatment Facility. At the periphery a bio-diversity park can bedeveloped to improve the air quality and ambience.

- **As directed by the Hon'ble NGT, the Committee headed by Chief Secretary, Govt. of NCT of Delhi has been constituted vide order dated 25.07.2019 and the work has already been commenced from 01.10.2019. As per the said order legacy waste dumpsites is to be cleared within one year and substantial progress must be made and demonstrated within six months.**
- **The ESCROW accounts for North DMC, East DMC and South DMC have been opened. Regular meetings of the Committee headed by Chief Secretary are held to review the progress in the said matter, and**
- **The Committee has already prepared the plan under which the legacy waste dumped at the 3 locations is being treated by way of "Bio-mining" utilizing high capacity Trommel machines. The implementation of the project has already started w.e.f. 01.10.2019 and 17 Trommels have already been installed and more than 1 Lakh MT of legacy waste has already been processed. Inert material generated during the process is about 60% to 70% by weight or 40% by volume of the waste being processed, which needs to be disposed of in a scientific manner. It is a major challenge before the municipal corporations to make suitable land available for disposal of this inert material particularly since the availability of land is extremely scarce in Delhi.**
- Out of Rs. 250 Crores, an amount of Rs. 245 Crores have been contributed by the DPCC, DMCs, DCB& NDMC. DCB has deposited only 15 Crores (out of Rs. 20 Crores), despite, filed an application in Hon'ble Supreme Court for exemption of Rs. 5 Crores to be deposited to North DMC, because DCB is not dumping its MSW at Bhalswa landfill site.Chief Secretaryin the meeting held on 20.12.2019 has decided that DCB has to deposit Rs. 5 Crore.

- SDMC on behalf of all three DMCs has moved an application to Forest Department for procurement of space in four empty pits of Bhatti mines for temporarily dumping inert materials generated due to bio-mining. DMCs have empanelled 10 Agencies for providing trommels and started clearing the legacy waste w.e.f 01.10.2019 and the details of processing of legacy waste by each DMC as on 15.01.2020 is given in **Table 55**

**Table 55 : Bio-Mining of Legacy Waste at 3 Dumpsites in Delhi (As on 15.01.2020)**

| S. No. | Name of Local Body | No. of Trommels Installed | No. of Operational Trommels | Total Processed Quantity of Legacy Waste | % of Inert Material |
|---|---|---|---|---|---|
| 1 | SDMC (Okhla Dumpsite) | 1 | 1 | 20,000MT | 60-70% |
| 2 | EDMC (Ghazipur Dumpsite) | 3 | 3 | 27,000 MT | 60-70% |
| 3 | North DMC (Bhalaswa Dumpsite) | 13 | 9 | 65,000 MT | 60-70% |
| | **Total** | **17** | **13** | **1,12,000 MT** | |

## Decentralized Waste Management Facilities (Compost Plants /Biomethanation Plants)

The Government is in the process of installation of decentralized Waste Management Facilities (Compost Plants / Bio- Methanation Plants) so that the solid waste generated is segregated and treated at source and the transport and dumping of waste in far away areas can be done away with. The details of the decentralized plants already commissioned and those at different stages of commissioning are as follows:

## NORTH DMC

### (i) Accelerated Composter / Bio-Methanisation Plant 1 TPD Capacity (6 Nos)

- 2 Plants commissioned at Bhorgarh Nursery and Rajendra Nagar Nursery.
- 4 Plants ( at Sector 11 Rohini, Haiderpur Water Treatment Plant ,Maurya Enclave at Pitampura and one at some other location) to be commissioned by 31.03.2020.

### (ii) Bio-Methanation Plants 5-TPD Capacity (4 Nos)

- 2 Plants commissioned at Roshanara Bagh and MVID Hospital.
- 2 Plants to be commissioned by 31.03.2020.

### (iii) 200 TPD Bio-Methanisation Plant (Based on Cow Dung) at Bhalswa Dairy Colony:

- Work awarded, to be commissioned by 31.12.2020.

## EAST DMC

**(i) Composters of 1 TPD Capacity (10 Nos)**

- 7 Plants commissioned
- 3 Plants to be commissioned by March, 2020.

**(ii) Bio-Methanation Plants 5-TPD Capacity (2 Nos)**

- One Plant at Geeta Colony commissiond.
- Another Plant at Shastri Park to be commissioned by March,2020.

**(iii) 100 TPD Bio-Methanisation Plant at Ghazipur**:

- Clearance from PESO is awaited. The plant is excepted to be commissioned by 31.07.2020.

## SOUTH DMC

(iii) **Four Compost Plants of 1 TPD each**

- Two plants commissioned.
- Two plants likely to be commissioned by March, 2020 .

(iv) **Four Bio-Methanation Plants (5 TPD Each).**

- Two plants commissioned.
- Two plants likely to be commissioned by March,2020

**Proposed Waste Processing Facilities of EAST DMC**

DDA has recently allotted 42.5 acres land at Ghonda Gujjran for development of integrated Solid Waste Management processing and disposal facility. The facility shall consist of-Pre-Processing facilities for MSW, Bio-Methanation Plant, Construction and Demolition (C&D) Plant and Power Plant along with value added product plant from rejects/residue. EDMC has signed an MoU for setting up a joint venture company with NTPC for development of integrated Solid Waste Management Facility of 2000 TPD capacity which will be able to process remaining entire Solid Waste generated in EDMC area targeting almost zero residue and resulting in minimal/ negligible disposal of garbage at landfill. This facility will be developed at Ghonda Gujjran. After singing of Joint Venture Agreement, the JV will required to obtain environmental clearances and other statutory clearances which would take approximate six months time and development of facility will take another one & half year thereafter facility will be operational.

**Estimated Cost:** For formation of joint venture **Rs- 45 Crore** will be required as share of EDMC.

After Construction/ Development of new Engineered SLF by SDMC & EDMC, each Municipal Corporation will have SLF in their areas.After construction of New Waste to Energy Plants and installation of No. of Bio Methanation Plants, Delhi will have sufficient capacity for Waste Management and Disposal.

## 5.4 Construction and Demolition Waste Management

Approximately 3900 TPD of Construction and Demolition Waste (C&D Waste) is generated in Delhi which requires dedicated handling mechanism and disposal thereof. Accordingly, separate collection and transport infrastructure of C&D Waste has been set up under which the C&D Waste is collected at ear marked sites identified by the 3 Municipal Corporations (North DMC, EDMC & SDMC), New Delhi Municipal Council (NDMC) & Delhi Cantonment Board (DCB) and the same is transported to the 3 Construction and Demolition Waste Processing / Recycling Facilities / Plants functioning in Delhi. The existing capacity of Construction and Demolition Waste Processing / Recycling plants in Delhi is 2650 TPD, as given in following **Table56.**

### Table 56. C & D Waste Processing Facilities & Proposed Expansion

| S. No. | C& D Waste Processing Facility | Existing Capacity (in TPD) | Proposed Expansion for Additional Waste Processing Capacity (in TPD) | Time Line |
|---|---|---|---|---|
| 1 | **North DMC**<br>C & D Waste Processing Facility at Jahangir Puri (Being operated by IL& FS) | 2000 | --- | In Operation |
| 2 | **East DMC**<br>C & D Waste Processing Facility at Shastri Park (Being operated by IL&F S) | 500 | 500 | In Operation. Expansion by 30.06.2020 |
| 3 | **DMRC**<br>C & D Waste Processing Facility at D MRC Site Rani Khera (Being operated by IL&FS) | 150 | --- | In Operation |
| | **Total** | **2650** | **500** | |

Proposed new C & D Waste Processing facilities is given in **Table 57.**

### Table 57. Proposed New C & D Waste Processing Facilities

| S. No | Proposed Site of C& D Waste Processing Facility | Proposed Waste Processing Capacity (in TPD) |
|---|---|---|
| **1** | Bakkarwala (South DMC) | 500 (by March, 2020)<br>(expanding upto 1000 TPD) |
| **2** | Maidangarhi (South DMC) | 1000 |
| **2** | Ranikhera (North DMC) | 1000 (by June,2020) |
| **4** | Libaspur(PWD) | 500 |
| | **Total** | **3000** |

In these processing facilities, Paver Blocks, Kerb Stones, Bricks, Aggregates, Sand and Soil of BIS standards are being produced out of the C&D waste which are further used in the infrastructure projects, thus fresh requirement of natural resources is minimized. With the existing and proposed processing facilities, it is expected that the entire C&D waste generated in Delhi will be managed properly in a scientific manner and there will be sufficient capacity to manage C & D Waste in Delhi.

## 5.5 HAZARDOUS WASTE MANAGEMENT

### 5.5.1 Hazardous Waste Generation

Hazardous waste is generated from the Industries / Units and CETPS in Delhi and dealt as per the provisions of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.The Hazardous Waste generated in Delhicomes primarily from processes mentioned in **Schedule- I** of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.

### 5.5.2 Inventorisation of Hazardous and Other Waste in Delhi:

Inventorisation of Hazardous and other Waste in Delhi has been done based on the Annual Returns filed by the Industries / Units for the year 2018-2019 and above mentioned figures are based on the said Inventorisation.The inventory for some of major processes generating Hazardous Waste is to be outsourced and done by reputed agency like IIT- Delhi, NPC or SIIR. The inventory shall be prepared based on CPCB “Guidelines for preparation of inventory on Hazardous Waste Management”, by December 2020.

### 5.5.3 Development of TSDF for Hazardous Waste at Bawana

At present there is no Treatment, Storage and Disposal Facility (TSDF) for Hazardous Waste (TSDF) in Delhi. In the matter of Balam Singh Rawat vs Govt. of NCT of Delhi & Ors, Hon’ble NGT directed vide its order dated 30.03.2015 that the TSDF Project is to be developed by DSIIDC in collaboration with DPCC. Accordingly, 14 Acres of land for development of TSDF at Bawana was handed over to DSIIDC by Department of Environment after obtaining it from North Delhi Municipal Corporation (North DMC). Subsequently the approval of Delhi Cabinet was also sought for setting up of TSDF at Bawana.DPCC has made a payment of Rs. 44.10 Crore to North DMC on account of cost of Land for setting up of TSDF at Bawana. An amount of Rs. 8.05 Crores has also been given to DSIIDC as grant in aid towards 50 % of Capital cost of TSDF.

DSIIDC has awarded the work of development of Treatment, Storage and Disposal Facility(TSDF) for Hazardous Waste at Bawana, Delhi to M/s Tamil Nadu Waste Management Limited (M/s TNWML) on 30.11.2019.***The project shall be completed in 15 months time however M/s TNWML has been requested to start operation of facility from June, 2020 as per the directions of Hon’ble NGT.***

MoEF& CC vide letter dated 06.01.2020 has given Terms of Reference (TOR) for Environmental Clearance for the said project. M/s TNWML has submitted EIA report to DPCC for conducting Public Hearing which is to be held in March,2020. After conducting Public Hearing, DPCC shall submit the details of proceedings to MoEF & CC for Environmental Clearance.

**After development of TSDF( with Incinerator ) for Hazardous Waste at Bawana in Delhi, the hazardous waste generated in Delhi shall be disposed off as per the Hazardous and Other Wastes (Management and Trasnboundary Movement) Rules, 2016 and there will be no Gap w.r.t. hazardous waste management and TSDF in Delhi.**

## 5.6 Bio Medical Waste Management:

Bio-medical Waste is being dealt as per the provisions of the Bio Medical Waste Management Rules, 2016.Inventorization of Health Care Establishments in Delhi has been completed as all bedded and non bedded HCFs from known sources have been covered.**There is sufficient surplus capacity with the 2 CBWTFs operating in Delhi to cater Bio-Medical Waste Generated in Delhi and therefore there is no GAP w.r.t treatment capacity, at present.**

## 5.7 Plastic Waste Management:

(i) Urban Development Department, Govt. of NCT of Delhi shall issue notification for ByLaws at the earliest.
(ii) Action against violating industries /units shall be taken as per the Plastic Waste Management Rules, 2016, as amended to date, including imposition of Environmental Compensation.

## 5.8 Electronic Waste Management:

(i) After getting report from CPCB regarding E Waste Inventorisation /Generation in Delhi necessary action shall be taken.
(ii) Action against the violating / defaulting Industries / Units shall be taken as per Rules including imposition of Environmental Compensation

## 5.9 Protection of Flood Plain & Prevention of Encroachment

### 5.9.1 Dumping of Debris on the Flood Plains:

**(a) Demarcation of 1 in 25 years Flood Plains & Fixing up of Bollards and Fencing,**

The demarcation of 1 : 25 years flood plain of river Yamuna pertains from Wazirabad to Jaitpur on both banks. Work for reinstallation of bollards along with Geo –reference was intitiated / awarded to M/s M & G Associates on 29.08.2019. The flood plains from Wazirabad to ISBT (50 Nos) and from Sun Dial to Dhobighat (56 Nos) was marked and 106 Bollards were installed. The ring road from Yamuna Bazaar to Sun Dial and the road number 13 /A from Dhobighat to Jaitpur Ghat and further embankment upto Delhi Haryana Border acts / mark the foold plain boundary on western bank. Similarly , the Pustha road on the eastern Bank mark the entire flood plain boundary. 90 % work for demarcation of flood plains completed and the balance was held up due to contruction ban.

**(b) Private security** has been engaged to stop illegal dumping: - 100Nos. of security guards have been deployed on 05.12.2018 consisting of the following:

i. 60 Nos. –Responsible for patrolling on the entire stretch of the floodplains
ii. 20 Nos. –Deployed at the most vulnerable locations of the floodplains (6 No. of entry/exit locations identified at the locations.
iii. 20 Nos.– For manning the installed 7 MCR/SCR's (3 guards each) for surveillance to view, process, analysis, to issue warning to approaching vehicles through public

address system in MCR/SCR and to inform the Police and to alert the patrolling party.

**(c) Installation of Electronic Surveillance System:**

CCTV cameras have been installed by DDA from Old Railway Bridge to Yamuna Bank Metro Station, Khijrabad and MCRs (1) at Geeta Colony, (2) at Golden Jubilee Park and Khijrabad respectively.

**(d ) Removal of Encroachment from the flood plain :**

DDA has informed that 550 Nos. Jhuggis/chappers have been demolished and an area of 5500 Sqr. Meter has been freed from encroachment recently. In, all out of 1026 Jhuggis/structures existing of nearly 11.0 Acres of land in Okhla, Khijrabad and Jogabai 600 Jhuggis have been removed and 5.00 acres of land has been reclaimed nearly 2.0 acres of land with 150 Jhuggis could not be removed due to stay by Courts. Balanced Jhuggis are proposed to be removed in due course.

**(e) Possibility of Using Technology like Artificial Intelligence,** Aerial Mapping etc. or Drones to keep a track of quantum and location of debris being dumped is being explored by DDA. An Electronic Surveillance System with patrolling along with a static party has been deployed by DDA. For monitoring of encroachments on vacant land using satellite imageries the subject has been taken up with ISRO and DDA has signed MOU with ISRO on 6th July 2018 . If successful, will be implemented in monitoring of Yamuna River Flood Plain.

**Estimated Cost for the Following Works carried out in the Yamuna Floodplains:**

1. Nizamuddin Bridge to DND Flyway (Western Bank)

   **Estimated Cost: Rs 22, 89, 04,857/-**

2. Construction of wetlands & removal of water hyacinth including RBT fencing at South Biodiversity Park

   **Estimated cost: Rs 6, 97, 00,000/-**

3. Asita: Old Railway Bridge to ITO Barrage (Eastern Bank)

   **Estimated cost: Rs 11, 39, 46,853/-**

**Restoration & Rejuvenation of River Yamuna Floodplains:**

DDA is going ahead with the Restoration and Rejuvenation of the floodplains of River Yamuna. The complete stretch of Zone-'O'falling under the jurisdiction of DDA, has been subdivided into 10 projects for the proper planning and execution. These have been marked on a plan as under:


**Fig. 3: Location Plan of the Areas Taken up/ To be Taken up by DDA for development of Yamuna River Front**

The project is being planned and developed on the basis of the report of the experts of the Principal Committee for the restoration of the floodplains, the following recommendations are given:

(i) The development shall include up to 150 mts wide belt of greenways consisting of pathways, cycle tracks and other passive recreational spaces for the people along the embankments and bund roads,
(ii) wetlands for the restoration of the riverine ecosystem and
(iii) Upto 300 mts green buffer along the river.

**DETAILED AREA FOR ZONE- 'O'**

**Total area: 5128 Hectares**

**Land transferred to different agencies: 3644 Hectares**
**Land under litigation: 216 Hectares**

**Total land available for development with DDA: 1267 Hectares**

## Table 58 : Areas Taken up/ to be Taken up by DDA for development of Yamuna River Front

| S. No. | Project | Effective Site Area for Development | Timelines | Remarks |
|---|---|---|---|---|
| **1.** | Old Railway Bridge to ITO Barrage (Western Bank) **Asita West** | 107 Hectares | By January, 2021* | * Subject to the availability of land if the stays by the Hon'ble Courts is lifted and the land stands vacated for development after Dec'19. |
| **2.** | Geeta Colony Bridge to ITO Barrage (Western Bank) **Eco-Tourism Bundh** | 30 Hectares | By the end of January , 2022 | Procedures for soil detoxification in progress. |
| **3.** | Old Railway Bridge to ITO Barrage (Eastern Bank) **Asita East** | **PART A:** 90 Hectares land within DDA's jurisdiction<br>**PART B:**107 Hectare with UP irrigation Department | **PART A:** By the mid of March , 2020 | **PART A: Work tendered and awarded on 25.10. 2019.**<br>**PART B:** The work for this part will commence if the funds area released by the UP Irrigation Department.. |
| **4.** | NH24 to DND Flyway (Western Bank) | **PART A:** Approx. 100 Hectares (Incl. 25 Ha Art of Living area)<br>**PART B:** Rest is presently occupied by construction activities for DMRC & PWD and other agencies. | **PART A:** For 25 Ha. by October 2019 (For Plantation) and April 2020 (For other works)<br>**PART A:** For 75 Ha. by May 2020<br>**PART B:** Subject to retrieval of land allotted to various agencies like DMRC, PWD etc. for infrastructure projects. | **PART A:** The work awarded on 05.11.2019. Work initiated on 10.12. 2019 but was on hold due to ban on construction.<br>**Part B :** Land is temporarily in use for various Infrastructure Projects. |
| **5.** | DND to proposed Kalindi By-pass (Western Bank) – Khijrabad | 115 Hectares Entrusted to CEMDE | Work awarded to CEMDE. Work was held up due to ban on construction and resumed in December, 2019. (Phase I inclusive of removal of Eichhornia and development of | Water Hyacinth and Alternanthera have been removed.<br>In a small stretch of 500 meter long and 10 meter wide strip along the road plantation has been done.<br>Other related works o |

| | | | | |
|---|---|---|---|---|
| | | | constructed wetlands) | |
| **6.** | NH-24 to DND Flyway (Eastern Bank) Part Area-I | **397.75 Hectares** (235 Hectares with DDA+ 162.75 Hectares with UP) **PART A :** 235 Hectares (With DDA with/with out litigation) and **PART B:** 162.75 Hectares (under UP Irrigation Dept.) | **PART A:** Mid of January 2021** | ** Subject to the availability of land if the stays by the Hon'ble Courts is lifted and the land stands vacated for development after Dec'19.<br><br>Request for the release of funds has been sent to the UP Irrigation Department for 162.75 Ha of land on the basis of thumb rule (tentative) costing. |
| **7.** | NH-24 to DND Flyway (Eastern Bank) Part Area- II- **Hindon Cut Wetlands I&II** | 45 Hectares (15 Ha with DDA + 30 Ha with UP)<br><br>Entrusted to CEMDE | By July 2020 | Water Hycinth from both the wetlands has already been removed. Other works are in progress. |
| **8.** | Wazirabad Barrage to ISBT Bridge (Eastern Bank) around Garhi Mandu Village & Usmanpur Village | 236.5 Hectares | September, 2020 | Study and analysis of the area completed. Proposal is under progress. |
| **9.** | Wazirabad to Old Railway Bridge (Western Bank) | 66 Hectares | June, 2020 | Preliminary estimates for the Qudsia Ghat is under scruitiny and proposal for Sur Ghat area is under progress. |
| **10.** | ITO to NH-24 (Eastern Bank)- Area south of Commonwealth Games Village Area | 90 Hectares | January, 2021 | Preliminary estimates for the civil and horticulture works for the area is under scrutiny. |

**NOTE: All the timelines provided by DDA are subject to:**

1. *Availability of staff, all related Equipment, infrastructure and other requirements thereof.*
2. *Successful award of work as per prescribed procedures in CPWD manual and CVC guidelines, suitable weather for higher survival rate for plantation and availability of stipulated uninterrupted working season, free of flooding of Yamuna River floodplains during monsoon season, excess release of discharge from Hathnikund Barrage. and availability of land free from encroachment retrieved in parallel through demolition programs being conducted with active support of Police and the availability of grasses of riverine ecology at site.*

## 5.10. Utilization of Treated Wastewater

### 5.10.1 Utilization of Treated Wastewater of STPs

At present out of 2273 MLD (500 MGD) treated effluent, Delhi returns 1212 MLD (267 MGD) as a return flow to River Yamuna as per MOU of 1994 and 409 MLD (90 MGD) is being used for Irrigation/ Horticulture/Industrial purposes.DJB has further planned to use about:-

(i) 45.5 MLD (10 MGD) is proposed to be used for Water Bodies, Parks, Ground water Recharge and to be used by other agencies in next 2 years i.e. by2020.

(ii) 895.6 MLD (197 MGD) is proposed to be used as a raw water source at Wazirabad (Coronation Pillar, Rohini, Narela, and Rithala & Keshopur) in next 3 years, i.e. by 2021, subject to approval of Upper Yamuna River Board (UYRB).

(iii) 509 MLD (112 MGD) is proposed to be used for irrigation purposes in U.P. in next 4 years, i.e. by 2022 which is subject to consent of U.P. Irrigation Department – Govt. of U.P. in lieu of raw water supplied for proposed 636 MLD (140 MGD) WTP at Sonia Vihar.

(iv) 45.5 MLD (10 MGD) from Nilothi STP is proposed to be supplied to Haryana Irrigation Department at Jaunti Regulator for irrigation purposes. In lieu of that DJB seeks to receive 45.5 MLD (10 MGD) spare raw water from H.I.D to meet its drinking water needs, it is subject to clearance fromUYRB.

(v) 45.5 MLD (10 MGD) from Rithala STP is proposed to be supplied to Haryana Irrigation Department at Auchandi Regulator for irrigation purposes. In lieu of that DJB seeks to receive 45.5 MLD (10 MGD) spare raw water from H.I.D to meet its drinking water needs, it is subject to clearance fromUYRB.

(vi) 9 MLD (2 MGD) from Okhla STP Phase-VI shall be taken to the abandoned Bhati Mines for ground water recharge. The work shall be completed by 30-11-2023.

(vii) DJB has continuously pursued and data have been received from various agencies like Municipal Corporations, NDMC, DDA and CPWD etc. about various parks maintained by them along with latitude & longitude of the parks.

(viii) The data/ locations of parks received from various agencies have been plotted on the map and number of parks identified which are falling within the radius of 5 Km of the DJB STPs.

(ix) DJB has written to respective stakeholders/ park owning agencies requesting them to start taking treated effluent form DJB STPs for the parks which are falling within the radius of 5 Km of DJB STP by tankers as an interim arrangement. DJB has installed filling points at its all major STPs for filling the tankers.

(x) DJB has written to respective District Magistrate to seal the bore-well of various agencies that are using ground water instead of treated waste water for Horticulture purposes.

(xi) Further DJB has also prepared DPRs for supply of treated effluent through pipe network from different STPs for horticulture purposes as per the demand given by various stakeholders. The DPRs have been sent to all stakeholders for their comments and implementation on 16.12.2019.

(xii) The DJB has also decided to use some of the treated waste water for recharging the Water bodies which will additionally help recharge ground water and indirectly contribute to lean season flows in the river Yamuna. In all 201 water bodies are proposed to be rejuvenated by the DJB and another 96 water bodies are proposed to be rejuvenated by the IFCD in technical collaboration with NEERI.

### 5.10.2 Utilization of Treated Wastewater of CETPs

- 1-1.25 Million Litres of treated water of CETP Narela is being used for horticulture purposes per day in 23 parks & 05 green belts in the Narela Industrial Estate.

- Approximate 1 Million Litre of treated water of CETP Bawana is also being used for Horticulture purposes per day in Green belt and parks in Bawana Industrial Area.

- Treated water of CETP Mayapuri was in use for horticulture purposes by DDA but now DDA has stopped taking the treated water on quality issues.

- Efforts are being made by CETP societies of Okhla Industrial Area and Badli Industrial Area for using the treated water of CETP in nearby parks and green belt of DDA for which they have taken up the matter with DDA.

- NEERI has been engaged by DSIIDC as Project Management Consultant for upgradation of CETPs and other related issues including re-use of treated water by CETPs in order to achieve Zero Liquid Discharge and reducing dependency of greenbelts/parks in and around CETPs on ground water.

## 5.11 Rejuvenation of Water Bodies

### 5.11.1 Rejuvenation of Water Bodies by DJB

Action Plan of DJB for Rejuvenation of 155 Number of Water Bodies

(1) Delhi Jal Board, in consultation with Govt. of NCT of Delhi has prepared an action plan for rejuvenation of 155 numbers of Water Bodies. The process to implement the proposals has started. The scheme amounting to Rs 376.79 Cr for revival of 155 water bodies is already approved by Delhi Jal Board in its meeting held on 24.12.2018.

(2) M/S CSIR-NEERI has been entrusted the work of development of 83 water bodies. IIT DELHI (Indian Institute of Technology- Delhi) was awarded the work of rejuvenation of 72 water bodies in December 2018 resulting in slight delay in progress of works. Out of 83 water bodies entrusted to M/S CSIR-NEERI, DPR of 59 water bodies is received, which are divided into ten phases, depending on nature of water body and receipt of DPRs in phased manner.

A. The work of rejuvenation of 4 water bodies was awarded to M/s CSIR. An agreement was signed on 30.01.2017.
B. In order to further expedite the works of remaining water bodies and to ompensate the delay caused due to IIT(Delhi) and imposition of Code of Conduct , it is now proposed to carry out the work of remaining water bodies (155 – 87), in the following ways, to have multiple methods and distribution to different agencies, for speedy execution of work:
    a) Execution of work of rejuvenation of water bodies through Design-Build-Operate basis.
    b) Execution of work of rejuvenation of water bodies after award of Consultancy to Govt Organization. A proposal of consultancy for rejuvenation of water bodies is

received from Indian Agricultural Research Institute, New Delhi. The case is being processed for award of work.

c) Execution of work of rejuvenation of water bodies after award of Consultancy to specialized consulting firms.

The average time period proposed for execution of work of each water body is about 6 months after award of work, which includes execution, commissioning and trial run period.

(3) Work of creation of new water body at Timarpur oxidation pond at DJB land is processed for implementation on ground. The award of work is approved in the 143rd meeting of Delhi Jal Board held on 19.08.2019.The period of completion is 12 months for execution, 3 months for commissioning and 3 months of trial run period. The work is likely to be completed in September, 2020.

It is proposed to utilize 25 MLD (5.5 MGD) of treated effluent to recharge ground water through lake.

(4) The work of creation of water body at the vacant land of DJB at Dwarka Water Treatment plant was awarded on 23.04.2018 with completion period of 6 months. The work is delayed due to delay in finalization of boundaries of proposed WTP at Dwarka. Now it is proposed to construct a part of lake in the remaining portion of Dwarka WTP and another part in the vacant land of Najafgarh WWTP, adjacent to Dwarka WTP. The project is likely to be commissioned by 31.07.2020. It is proposed to utilize 68 MLD (15 MGD) of treated effluent to recharge ground water through lake.

(5) Delhi Jal Board has proposed to create new water bodies at the vacant land at Rohini and Nilothi WWTPs. The schemes amounting to Rs. 5384.66 lac and Rs. 2349.59 lac have been approved by Delhi Jal Board in its meeting held on 24.12.2018.

Tenders for the work of creation of lake at Rohini WWTP have been received on 16.07.2019. The award of work is approved in the 144$^{th}$ meeting of Delhi Jal Board held on 27.08.2019.The period of completion is 12 months for execution, 3 months for commissioning and 3 months of trial run period. The work is likely to be completed in September, 2020.

It is proposed to utilize 22.7 MLD (5 MGD) of treated effluent to recharge ground water through lake.

Tenders for the work of lake at Nilothi. are likely to be issued in October 2019. The period of completion is 12 months for execution, 3 months for commissioning and 3 months of trial run period. It is proposed to utilize 68 MLD (15 MGD)of treated effluent to recharge ground water through lake.

(6) Proposal for the work of creation of water body at the vacant land of WWTP at Pappankalan has been approved by DJB Board. It is proposed to initially execute the work of creation of lake. The period of completion is proposed as 28.02.2020.It is proposed to utilize 22.7 MLD (5 MGD) of treated effluent to recharge ground water through lake.

(7) A proposal for creation of lake at the abandoned land of Ash Ponds owned by M/S Indraprastha Gas Power Corporation Ltd has been approved by Delhi Jal Board in its meeting held on 27.05.2019 The cost of project is Rs 36.92 Crore. It is proposed to utilize 68 MLD (15 MGD) of treated effluent to recharge ground water through lake.

A scheme for revival of Satpula lake opposite District Court, Saket, amounting to Rs. 22,90,68,486/- has been approved by DJB in the meeting held on 19.08.2019. Period of completion is 9 months.

**List of sites for rejuvenation of Water Bodies is at <u>ANNEXURE- 15.</u>**

### 5.11.2 Rejuvenation of Water Bodies by I&FC Department

Irrigation and Flood Control Department of Govt. of NCT of Delhi had engaged consultants to asses the possibility of Bio-remediation / Phytoremediation in its 27 drains. As per the reports of consultants, Bio-remediation / Phytoremediation is not feasible in these drains.

- 96 Water Bodies allotted to I&FC Department for rejuvenation / revival.
- For 59 Water Bodies, consultants have been appointed, out of which 33 DPR received.
- For remaining 37 Water Bodies matter is under process for appointment of consultant.
- The Budget allocation for Rejuvenation and Prejuvenation of Water Bodies for financial year 2019 - 20 is Rs. 2.5 Crores.

**List of 96 Water Bodies allotted to I&FC Department for rejuvenation / revival is at <u>ANNEXURE-16.</u>**

## 5.12 Plantation in Yamuna Flood Plains by Forest Department, GNCTD

Department of Forests & Wildlife, GNCT of Delhi has carried out plantations on Yamuna Flood Plains from time to time. The details of land handed over to Forest Department in Yamuna Flood Plains under various schemes for carrying out plantation are as follows:

**(i)** Garhi Mandu, Sonia Vihar and Chauhan Patti Plantation areas are situated at eastern bank of river Yamuna and cover total area of 961.50 acres. These are under the ownership of DDA and were handed over to Forest Department in phases during the period w.e.f. 1975 to 2003 for plantation purpose. Details given at **Table 59.**

**Table 59 : Details of existing plantation**

| S.No. | Land Details | Area handed over (in Hectares) | Year of Handing Over | No. of Plants Planted |
|---|---|---|---|---|
| **1.** | Old Garhi Mandu Plantation area | 297.60 | 1975 - 2003 | 125000 |
| **2.** | Sonia Vihar | 60.00 | 1999 – 2000 | 38000 |
| **3.** | Chauhan Patti | 27.00 | I&FCD Land | 30000 |
| | **Total Area** | **384.60 Hectares** | | **961.50 Acres** |

### (ii) Land Handed Over Against DPTA Projects

As per Delhi Preservation Tree Act, 1994, against the permission for felling one tree, 10 saplings are to be planted as compensatory plantation. In major projects, the user agency has to hand over land for carrying out compensatory plantation. The details of lands handed over by user agency through DDA in Yamuna Flood plains and plantation carried out time to time in these pockets of land are given **Table 60**below.

**Table 60. Plantation carried out in Yamuna Flood Plain**

| S.No. | Land Details | Area Handed Over (in Hectares) | Year of Handing Over | No. of Plants Planted |
|---|---|---|---|---|
| 1. | Shastri Park Bela Farm | 9.15 | 2014-15 | 17288 |
| 2. | Shastri Park Bela Farm | 2.07 | 2015-16 | 2310 |
| 3. | Netaji Subhash Chandra Bose Marg | 2.8 | 2016-17 | 3000 |
| 4. | Garhi Mandu Yamuna Foold plains near III Pushta (Netaji Nagar Project) | 14.65 | 2018-19 | 16277 |
| 5. | Garhi Mandu Yamuna Fold plains near III Pushta (Netaji Nagar Project) | 14.45 | 2018-19 | 16056 |
| 6. | Garhi Mandu near Usman Pur (Dwarka Conventation Centre, DMICDC Project) | 20.00 | 2018-19 | 22222 |
| 7. | Shastri Park plantation area near old iron bridge (widening of National Highway Dhaula Kuan to end junction on NH-8, NHAI) | 21.52 | 2018-19 | 23911 |
| | | **84.64 Hectares** | | **211.6 Acres** |
| 8. | Garhi Mandu Yamuna Flood plain near III Pushta (Netaji Nagar Project) | 7.00 | 2018-19 | To be done |
| 9. | Garhi Mandu near Signature Bridge (Integrated Exhibition Cum Convention Centre at ITPO, ITPO) | 17.13 | 2018-19 | To be done |
| 10. | Garhi Mandu Yamuna flood plains near IInd Pushta (Construction of 8 lane of Section NH-44 from Mukarba Chowk to Delhi Border, NHAI) | 19.52 | 2018-19 | To be done |
| | **Total** | **43.65 Hectares** | | **109.13 Acres** |
| | **Grand Total** | **128.29 Hectares** | | **320.73 Acres** |

Total 128.29 hectares of land has been handed over to Forest Department by different user agencies. The Department of Forest & Wildlife has already carried out compensatory plantation by planting 101064 plants over 84.64 Hectares of land under Delhi Preservation of tree Act 1994. The Plantation of 48500 plants on remaining 43.65 Hectares of land will be carried out by Department of Forests & Wildlife during next monsoon season.

### (iii) Land handed over against FCA Projects

As per Forest Conservation Act, 1980 the land has to be handed over by user agency against the clearances issued for utilizing Forest area for non-forestry purposes. The details of land handed over to Department of Forests & Wildlife for carrying out compensatory afforestation under Forest Conservation Act, 1980 are given in **Table 61**below:

**Table 61: Details of Compensatory Afforestation**

| S. No. | Land Details | Area Handed Over (in Hectares) | Year of Handing Over | No. of Plants Planted |
|---|---|---|---|---|
| 1. | Shastri Park Bela Farm | 22.85 | 2014-15 | 36606 |
| 2 | Yamuna Flood Plain area in between Yamuna Bank Metro Station & Railway Line adjacent to CWG Village | 35.73 | 2018-19 | To be done |
| | **Total** | **58.58 Hectares** | | **146.45 Acres** |

Total 58.58 Hectares of land has been handed over to Forest Department by different user agencies, out of which compensatory afforestation of 36606 plants over 22.85 Hectaresof land was carried out under Forest Conservation Act, 1980. The plantation of 39700 plants on remaining 35.73 Hectaresof land handed over in 2018-19, will be carried out by Department of Forests & Wildlife.

Department of Forests & Wildlife, GNCT of Delhi has taken over total 571.47 Hectaresor 1428.68 Acres of land in Yamuna Flood plains under various schemes and carried out plantation over 492.09 Hectares of land. The Department will carry out plantation on remaining 79.38 Hectares of land in Yamuna Flood Plains .

## 5.13 Minimum Environmental Flow

The matter of Environmental Flow in the river Yamuna has been dealt in detail by the Hon'ble NGT in the matter of OA No. 06 of 2012 pertaining to clean and Rejuvenated Yamuna River. The order dated 11th June 2015 includes the observation/ recommendation of the Principal Committee with respect to minimum Environmental Flow in Yamuna required for its rejuvenation and suggested that lower limit (minimum e-flow) in case of Yamuna at Hathnikund Barrage should not be less than 2500 cusec.

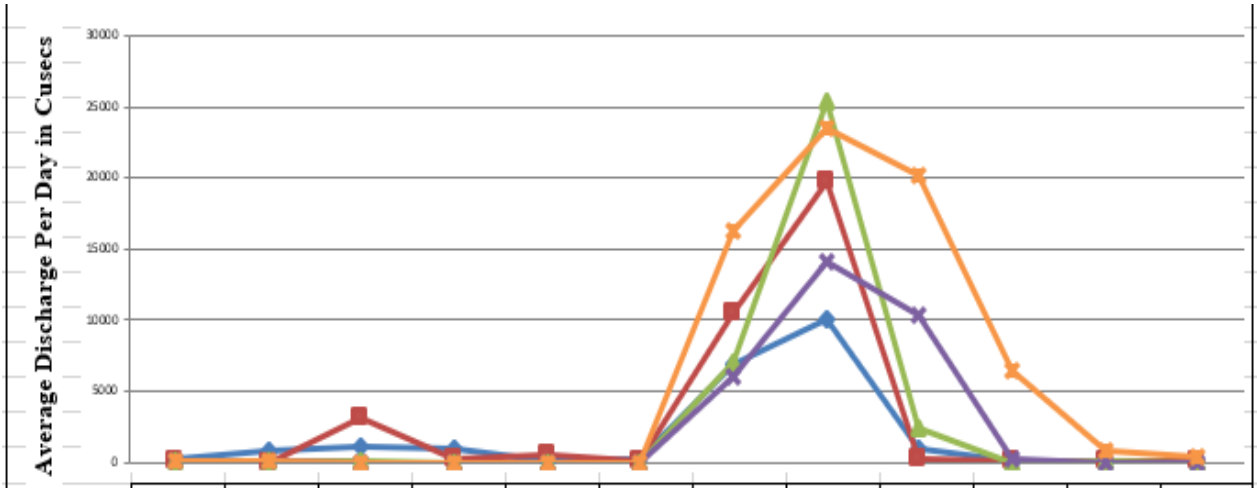
Yamuna Pollution Monitoring Committee has also mentioned in its Action Plan dated 22.10.2018 submitted to Hon’ble NGT regarding requirement of Environmental Flow to boostthe dilution of the river Yamuna in Delhi. In the Action Plan the Monitoring Committee

had recommended that an E -Flow study was necessary for the Delhi stretch of river Yamuna. To assess the minimum required environmental flow of river Yamuna for stretch between Hathinikund to Okhla, a comprehensive study has been assigned to National

Institute of Hydrology (NIH), Roorkee by National Mission for Clean Ganga on 24.12.2018. Interim Report of the NIH has been received and Final Report is awaited.

As per the directions of the Hon'ble NGT in order dated 11.09.2019 in OA No. 06 of 2012 in the matter of Manoj Mishra vs. UOI & Ors., the study being carried out by the National Institute of Hydrology may be completed as per schedule by March 2020 and an interim report be furnished by December, 2019.

The discharge data at Wazirabad with Graph is given at Fig. 4.




| | January | February | March | April | May | June | July | August | September | October | November | December |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Year 2014 | 263 | 743 | 1126 | 937 | 71 | 164 | 6914 | 10020 | 914 | 26 | 67 | 81 |
| Year 2015 | 91 | 7 | 3171 | 157 | 555 | 60 | 10506 | 19816 | 244 | 26 | 25 | 65 |
| Year 2016 | 75 | 135 | 65 | 3 | 0 | 0 | 7049 | 25470 | 2430 | 3 | 40 | 0 |
| Year 2017 | 65 | 75 | 0 | 0 | 0 | 0 | 5997 | 14114 | 10282 | 281 | 3 | 3 |
| Year 2018 | 20 | 29 | 0 | 0 | 0 | 0 | 16253 | 23462 | 20241 | 6477 | 800 | 361 |

**Fig.4.: Wazirabad discharge graph with data**

## 5.14. "CREATION OF WATER BODIES/ RESERVOIRS IN FLOOD PLAINS OF RIVER YAMUNA BY RETAINING EXCESS WATER IN THE RIVER DURING MONSOON SEASON FROM PALLA TO WAZIRABAD"

The Hon'ble NGT vide judgement dated 13.01.2015, while accepting the reports of the three-member expert committee constituted by NGT &comprising of Prof A K Gosain, Prof C R Babu and Prof Brij Gopal on the aspects of preservation, restoration and beautification of the banks of River Yamuna and report dated 13.10.2014 in relation to drainage system in Delhi and action plan prepared by the Delhi Jal Board for the revitalisation of River Yamuna, inter-alia, had recommended creation of water bodies upstream of Wazirabad.

Irrigation & Food Control Department ("I &FCD"), Govt. of NCT of Delhi conceptualized a project for the creation of water bodies/reservoirs in Yamuna Flood Plain area by retaining excess flood water of the river Yamuna during the monsoon season for recharging the groundwater from Palla to Wazirabad in Delhi. The said work was awarded to M/s. INRM Consultants Private Limited by I&FCD for construction/creation of the said water bodies/reservoirs.

A "conceptual plan" was prepared by the Project Management consultant, INRM . Salient features of the conceptual plan are:

i. Creation of recharge ponds/ water bodies for storing excess flood water on right bank of river Yamuna in Delhi between the region from Palla to Wazirabad;

ii. The topsoil in these regions have lower rates of infiltration due to agriculture practices, hence the topsoil would be taken out and surface water storage would be created in order to retain the excess flood water to increase the groundwater recharge.

iii. No permanent structure will be created in the floodplain.

iv. Backfilling with excavated earth for strengthening of existing embankments and creating landscape along the right bank of river Yamuna is proposed by using maximum quantity of Earth so excavated.

v. Considering 2 metre design depth of recharge pit, storage capacity of the reservoirs (recharge pits) have been estimated as 2100 Million Gallons (MG). Expected number of filling in one flood season has been computed as 15 days. Therefore, estimated annual recharge possible (2100 MG x 15) = 31,500 MG, which is equivalent to 391 MLD (86 MGD).

The various agencies, namely, Upper River Yamuna Board (URYB), Central Water Commission (CWC), Central Ground Water Board (CGWB), National Mission for Clean Ganga (NMCG) and Yamuna Pollution Monitoring Committee of NGT have given their respective subjective clearances / NOCs.

As suggested by CGWB, I&FCD has proposed to take up the project on pilot basis, for assessing the results of the groundwater recharge in the floodplain of the River Yamuna.

Delhi Government has also issued approval for payment of an annual rent of Rs 77,000 for an acre of agricultural land to farmers for leasing their land required for the creation of farm ponds/ micro-watersheds/ Ground water recharge i.e. for creation of shallow water bodies/ reservoirs inthe Yamuna River floodplain area for the entire Yamuna Floodplain.

Proposal for pilot project has also been approved by the Hon'ble NGT.

The Pilot Project was inaugurated by the Hon'ble Chief Minister of Delhi, Hon'ble Minister, Jal Shakti, GoI and Hon'ble Minister I&FC on dated 09.08.2019 and the work of development of water body/ reservoir near shank no. 16 was taken up. The work was required to be stopped due to heavy discharge in river Yamuna. Up to the time of receipt of discharge, water body was created in an area of about 17.6 Acre. After recession of discharge in the river, it was observed that complete siltation has occurred in the created water body.

The Project Management Consultant has submitted its report on the Pilot Project executed near shank no. 16 & 17 and the same is under scrutiny. The comments on the report is under preparation and the report shall be shared with various departments like CWC, CGWB, NMCG, Principal Committee etc. for their views and consideration. Based upon the views and recommendations of various stakeholders, decision on implementation of the project on a larger scale shall be taken.

## 5.15 Good Irrigation Practices:

Farmers are being made aware of the following good irrigation practices for water conservation by Development Department, GNCTD:-

1. Farmers are being advised to adopt inter-cropping and multiple-cropping to get maximum returns per unit of area and per unit of time with optimum use of water.
2. Farmers are being advised to grow crop which requires less water.
3. Farmers are being advised to adopt Sprinkler and drip irrigation system to irrigate their crops for conservation of water.
4. Farmers are being advised to use water, as per cop-wise prevailing package of practices to conserve water.
5. Farmers are being advised to conserve rain water, by adopting deep ploughing and bunding etc. of their fields for conservation of water.

## 5.16 Desilting of Drains by I&FC Department

I&FC Department is maintaining 57 No of. drains out of which 19 drains are major drains. All the major drains have been protected with boundary walls in most of the length on both banks to avoid garbage dumping directly. Bridges across these major drains also been provided with steel grill / netting of sufficient height on both side to avoid direct dumping of garbage / MSW into the drains. Dhalaos have been constructed at banks of

I&FC Drains to avoid garbage dumping at various points on banks of drains. Desilting of all drains is a regular feature and being carried out every year. Desilting work in all the drains have been completed. However work for removing of obstructions / floating materials is in progress to maintain free flow condition in drains alongwith repair of boundary wall , the gate, fixing of wire mesh etc. wherever required.

**(i)** Budget allocation for Maintenance of Drainage is **Rs. 160.00 Crores for the FY 2019-20.**

**(ii)** Expenditure incurred **upto 30.06.2019 is Rs. 27.30 Crores**

## 5.17 Idol Immersion

DPCC takes sample of water from the various locations at Yamuna pre, during and post festivals of Ganesh Chaturthi & Durga Puja every year, It is an annual feature, ongoing exercise and to be continued in future also.

DPCC has issued Directions u/s 5 of EP Act on 05.07.2019 for the immersion of idols on festive occasions. Corrigendum regarding size of the Idol was issued on 28.08.2019. As per the said Directions Idol Immersion is not permitted in River Yamuna.

The said directions contain:

**A.** General Directions for Idol Makers/ Sellers of Idols/ Pooja Samitis making Idols in- situ.

**B.** General Directions for Pooja Samitis / General Public.

**C.** General Directions for Local Bodies / Authorities.

Said Directions have been uploaded on the website of DPCC and Environment Department.

Revenue Department has brought out an Action Plan on Idol Immersion for Delhi giving locations for idol immersion including details of artificial ponds proposed for idol immersion in all 11 districts. These locations have been uploaded on Environment Department's website.

District Magistrates (Revenue Department) and Municipal Corporations to enforce the directions given by DPCC w.r.t Idol immersion. Meetings were taken by the Divisional Commissioner and elaborate arrangements were made to prevent Idol Immersion in River Yamuna . Artificial Immersion ponds were created in various parts of Delhi to facilitate immersion of Idols during Ganesh Chaturthi Festival (in Sept, 2019) & Durga Pooja Festival (October, 2019) .

DPCC conducted monitoring of water quality of river Yamuna pre and post of Ganesh Chaturthi Festival & Durga Pooja Festival. Significant improvement in the water quality of river Yamuna at 10 Ghats were observed.

## 5.18 Installation of Real Time Water Quality Monitoring System (RTWQMS) on River Yamuna.

Online Real Time Water Quality Monitoring System (RTWQMS) installed at Wazirabad and Okhla has been taken over by DPCC from CPCB w.e.f 15.02.2019 and Delhi Jal Board has been given link to receive the data.As per the directions of Yamuna Pollution Monitoring Committee, Online Monitoring System for measuring the concentration of Ammonia in Yamuna River at Palla has already been installed.Besides above, RTWQMS is proposed to be installed at following locations **by 31.12.2020**:

(i) ISBT Kashmere Gate; (ii) ITO Bridge

**(iii)** Nizamuddin Bridge; (iv) Downstream of Shahdara drain (After meeting Shahdara drain into river Yamuna)

## 5.19 Public Awareness Regarding Issues Related To River Yamuna:

Several meetings were taken by the Pr. Secretary (Environment), Govt. of NCT of Delhi regarding Public Awareness for controlling pollution in River Yamuna.

(a) A series of meetings were held on 20.06.19, 21.06.19, 24.06.19, 25.06.19 & 26.06.19 in the presence of District Magistrate (New Delhi) and District Magistrate (South East) to discuss modalities for public awareness programs during Idol Immersion on the festivals of Ganpati Visarjan and Durga Puja. Media plan for Idol immersion on Ganesh Utsav and Durga puja has been prepared by Department of Environment.

(b) Meetings with Religious Leaders of all religions held under the Chairmanship of Secretary (Env.) on 13.02.2019 and 02.07.2019. On 02.07.2019, Municipal Corporations and NGOs working in the field of recycling of used puja flowers and puja samagri were involved.

(c ) Signage material to be put 50 meter before the point of collection of pooja samagri / flowers etc. meant to be immersed in Yamuna have been provided by Environment Department, Govt. of NCT of Delhi to Public Works Department(PWD) & 3 MunicipalCorporations.

Media Plan / Public Awareness on the river Yamuna for one year has been prepared by the Environment Department and submitted to Yamuna Pollution Monitoring Committee. The said Media Plan / Public Awareness includes Exhibition, Art Gallary / Kalanidhi, Hoardings, Big Kalash, Competion ,Awareness Workshop , Workshop in Unauthorized Colonies, Nukkad Natak, Temple Flowers management, Radio Jingles, News Paper Advertisement, Expert Talks on Rejuvenation of Yamuna, Audio Visual Clips, Message from Chief Minister / Deputy Chief Minister and Workshop for Farmers.

Media Plan / Public Awareness on the river Yamuna prepared by the Environment Department, Govt. of NCT of Delhi is at**ANNEXURE – 17**

## 5.20 Yamuna Pollution Monitoring Committee (YPMC)

For monitoring of the directions given by Hon'ble National Green Tribunal vide judgment Dated 13.01.2015 in OA No. 06/ 2012 & OA No. 300 / 2013 in the matter of Manoj Mishra Vs Union of India and Others and subsequent orders passed in the said matter a two members Monitoring Committee comprising of Ms. Shailaja Chandra, former Chief Secretary, Delhi and Mr. B.S. Sajwan former Principal Chief Conservator of Forests and former Expert Member of the Tribunal has been constituted by Hon'ble NGT vide order dated 26.07.2018.

The said Monitoring Committee known as Yamuna Pollution Monitoring Committee (YPMC) is working for the abatement of pollution and Rejuvenation of the River Yamuna . Yamuna Pollution Monitoring Committee has submitted its Action Plan Dated 22.10.2018 followed by First Interim Report Dated 16.01.2019, Second Interim Report Dated 27.05.2019, Supplementary Report to the 2nd Interim Report vide letter dated 28.06.2019 and Supplementary Report II to the Interim Report vide letter 02.07.2019 to the Hon'ble National Green Tribunal.

Based on the Action Plan and Interim Reports submitted by the Yamuna Pollution Monitoring Committee,Hon'ble National Green Tribunal has passed orders on 29.01.2019 , 12.07.2019 and 11.09.2019.

Hon'ble National Green Tribunal vide order dated 11.09.2019 in OA No. 06 / 2012 in the matter of Manoj Mishra vs. Union of India & Ors.has passed detailed order giving various directions in respect of NCT Delhi (including Directions to Delhi Jal Board , DDA, DPCC , Municipal Corporations etc), State of Haryana and State of Uttar Pradesh and given timeline of 31.12.2020 to complete all the projects.

Yamuna Pollution Monitoring Committee has furnished its third Interim Report dated 05.02.2020 to the Hon'ble NGT chiefly responding to the specific directions given by Hon'ble NGT in the order dated 11.09.2019.

Yamuna Pollution Monitoring Committee is taking review meetings with various stake holders / concerned Departments from time to time for enforcement of its Action Plan and the directions given by Hon'ble National Green Tribunal through various orders.

It is pertinent to mention that mandate of the Yamuna Pollution Monitoring Committee and River Rejuvenation Committee for Delhi both constituted by the Hon'ble National Green Tribunal are same i.e. Rejuvenation of the River Yamuna and therefore for the same objective there are 2 Committees functioning in Delhi.

## 5.21 Action Plan for Rejuvenation of River Yamuna in Delhi (SummarisedTable)

Action Plan for rejuvenation of river Yamuna in Delhi, implementing Agencies / concerned Departments etc is summarized in the **Table 62**

**Table 62 : Summarised Action Plan for Rejuvenation of River Yamuna in Delhi**

| S.No. | Action points/ Particulars | Sub Action Points | Timeline | Implementing Agency(ies) / Department(s) |
|---|---|---|---|---|
| 1 | **Sewage Treatment** | | | |
| | (i) Completion of Interceptor Sewer Project (ISP) (1100 MLD) (242 MGD) | Laying of Interceptor Sewer along three major drains Najafgarh, Supplementary & Shahdara for abatement of pollution in River Yamuna (For Trapping 1100 MLD (242 MGD) waste water) | **31.03.2020** | Delhi Jal Board |
| | (ii)Trapping of partially / untrapped Drains | (a) Tonga Stand Drain [1.7 MLD (0.38 MGD)] | 18 months* from the date of allotment of land from DDA | Delhi Jal Board |
| | | (b) Sen Nursing Home Drain [9.5 MLD (2.1 MGD)] | **31.03.2020** | Delhi Jal Board |
| | | (c ) Shahdara Outfall Drain | **31.03.2020** | Delhi Jal Board |
| | | (d) Qudsia Bagh +Mori gate Drain [41 MLD (9 MGD)] | Three years after allotment of land by DDA for construction of STP | Delhi Jal Board |
| | | (e) Barapulah Drain [145 MLD (32 MGD)] | **30.09.2022*** | Delhi Jal Board |

| | | | | |
|---|---|---|---|---|
| | | (f) Maharani Bagh Drain [29.5 MLD (6.5 MGD)] | **31.12.2021*** | Delhi Jal Board |
| | | (g) Sonia Vihar Drain, Kailash Nagar Drain Shastri Park Drain, Abul Fazal Drain & Jaitpur Drain | Action as proposed by DJB & mentioned in this Action Plan at Table 42 and 43 | Delhi Jal Board |
| | (iii) Rehabilitation /Upgradation of STPs [Total 1268 MLD (279 MGD) Capacity)] (for BOD 10mg/l & TSS10mg/l) | (a) Kondli STP Ph-I [45.46 MLD (10 MGD)] | **12 Months*** after tree cutting permission. | Delhi Jal Board |
| | | (b) Kondli STP Ph-II [113.6 MLD (25 MGD)] | **31.07.2022*** | Delhi Jal Board |
| | | (c) Kondli STP Ph-III [45.46 MLD (10 MGD)] | **12 Months*** after tree cutting permission. | Delhi Jal Board |
| | | (d) Yamuna Vihar STP Phase-II [45.46 MLD (10 MGD)] | **31.03.2022*** | Delhi Jal Board |
| | | (e) Okhla STPs Phase I, II,III & IV | **31.12.2022*** | Delhi Jal Board |
| | | (f) Rithala Ph-I [181.8 MLD (40 MGD)] | **31.12.2021*** | Delhi Jal Board |
| | | (g) Keshopur Phase-II [90.9 MLD (20 MGD)]& Phase III [181.8 MLD (40 MGD)] | **3 to 4 Years*** from the date of availability of funds | Delhi Jal Board |
| | (iv) Upgradation of Balance 16 existing STPs [Total capacity 1582 MLD(348.06 MGD)] (for BOD - 10mg/l & TSS- 10mg/l including Bio-Nutrient & Pathogen removal & Sludge management) | 16 STPs as mentioned in Table 46& Table 47 of Action Plan | **3 to 4 years*** from the date of availability of Funds | Delhi Jal Board |
| | (v) New Proposed STPs | (a) Construction of 318 MLD (70 MGD) STPat Coronation Pillar | 50% liquid stream along with 4 digesters by 31.07.2020 and entire plant by 31.10.2020. | Delhi Jal Board |
| | | (b) Decentralised 14 STPs of 709 MLD (156 MGD) Capacity at different locations | As mentioned in Table 49 of Action Plan. | Delhi Jal Board |

| | | | | |
|---|---|---|---|---|
| | | (c) 14 Decentralized STPs in Najafgarh area [169 MLD (37.2 MGD)] | **18 to 30 Months*** after approval of funding of balance STPs by NMCG and allotment of land. | Delhi Jal Board |
| | **(vi )**Augmentation of Sewage Treatment Capacity | Upto 2896 MLD (637 MGD) | **31.12.2020** | Delhi Jal Board |
| | | Upto 2987 MLD (657 MGD) | **31.12.2021*** | |
| | | Upto 3214 MLD (707 MGD) | **31.12.2022*** | |
| | **(vii)**Treatment of Sewage | Upto 2455 MLD (540 MGD) | **31.03.2020** | Delhi Jal Board |
| | | Upto 2691 MLD (592 MGD) | **31.10.2020** | |
| | | Upto 2759 MLD (607 MGD) | **31.12.2020** | |
| | | Upto 2850 MLD (627 MGD) | **31.12.2021** | |
| | | Upto 3214 MLD (707 MGD) | **31.12.2022** | |
| **2** | **Insitu Bioremediation / Phytoremediation of sewage in drains of Delhi** | | Necessary action shall be taken by the drain owning / maintaining agencies in consultation with CPCB as per the directions of Hon'ble NGT in OA No. 673/2018 and order dated 22.01.2020 in OA No. 06 / 2012 in the matter of Manoj Mishra Vs. UOI & Ors. | Drain owning agencies (DMCs, Local Bodies,PWD, I&FCD, DSIIDC, DDA, DJB etc.). |
| **3** | **STPs Sludge Management** | | Timelines mentioned at Table 53. | Delhi Jal Board |
| **4** | **Septage Management (Regulations Notified on 21.11.2018)** | | Ongoing exercise to be continued. | Respective DM & DJB |
| **5** | **Prevention of Dumping of Solid Waste in Drains** (to comply with the Directions issued by Chief Secretary vide order dated 09.01.2019 and order dated 15.01.2019 issued by UD Department, GNCTD) | | Ongoing exercise to be continued. | Drain owning agencies (DMCs, Local Bodies,PWD, I&FCD, DSIIDC, DDA, DJB & DUSIB etc. |

| | | | | |
|---|---|---|---|---|
| **6** | **Rejuvenation of 155 Water Bodies by DJB** | | Timelines given at Annexure 13 to be followed.(Completion of projects in Phase–I to XIII by 30.10.2020) | Delhi Jal Board |
| **7** | **Creation of Water Bodies / Reservoirs in Flood Plain of river Yamuna (between Palla to Wazirabad)** | | Pilot project implemented and results to be informed for deciding future expansion of such project. | Irrigation and Flood Control Department, GNCTD (I&FCD) |
| **8** | **Rejuvenation of 96 Water Bodies by I&FCD** | | Timelines given at Annexure 14 to be followed.( Completion By 31.03.2021) | Irrigation and Flood Control Department, GNCTD (I&FCD) |
| **9** | **Idol Immersion (Directions issued by DPCC on 05.07.2019 followed by Corrigendum on 28.08.2019 regarding size of Idols for the immersion of Idols on festive occasions)** | | Ongoing exercise to be continued during Ganesh Chaturthi and Durga Pooja. | Revenue Deptt. , Municipal Corporations, I&FCD & DPCC. |
| **10** | **Protection of Flood Plain of River Yamuna and Prevention of encroachment** | (i) To Stop illegal dumping of debris on the Flood Plains.<br>(ii) Installation of Electronic Surveillance System.<br>(iii) Removal of Encroachment from the flood plain.<br>(iv) Use of Technology like Artificial Intelligence for Aerial Mapping etc.<br>(v) Restoration & Rejuvenation of River Yamuna Flood Plains.<br>(vi) Development of Bio-diversity park near Kalindi Kunj.<br>(vii) Areas taken up / to be taken up by DDA for development of Yamuna River Front. | To adhere timelines given to the Hon'ble NGT in OA No. 06 / 2012 and OA No. 300/2013 in the matter of Manoj Mishra vs. UOI & ors.<br><br>Timelines as mentioned in Table 58 of Action Plan. | Delhi Development Authority |
| **11** | **Industrial Effluent Management** | | | |
| | **(i) Industries operating in 28 Approved Industrial Areas** | 17 Approved Industrial areas connected to 13 CETPs | (i) Regular Action shall be taken against the violating industries / units as per Water Act and Environmental Compensation shall be imposed.<br>(ii) Inventorisation of Industries / Units in | DPCC / Industries Deptt / DSIIDC |

| | | | | |
|---|---|---|---|---|
| | | | approved industrial areas shall be carried out to find out Industri es / Units operating without Consent. | |
| | | 11 Approved Industrial areas not having CETPs | (i) DSIIDC to submit its findings by **31.06. 2020** to ascertain the requirement of CETP in these areas.<br>(ii) DSIIDC to also submit report of NEERI after study in these 11 Indl.Areas. | DSIIDC / Industries Deptt./DPCC |
| | **(ii)Industries in 24 Redeve lopment Areas** | These industrial areas lack infrastructural facilities. | (i) Regular Action shall be taken against the violating industrie s / units as per Water Act and Environment al Compensation shall also be imposed<br>(ii) Industries Deptt.to take necessary action for Development of Infrastructural facilities as Mentioned in the Action Plan. | DPCC / Industries Deptt / DSIIDC |
| | **(iii)Industries in Non-conforming areas** | To be closed down as per Hon'ble Supreme Court judgment dated 07.05.20 04 in WP(C) 4677 of 1985 M.C. Mehta Vs. UOI | Action be taken by concerned Municipal Corporation / DDA as per the decisions taken in the meeting of Chief Secretary, held on 13.09.2018. | Municipal Corporations / DDA |
| | **(iv) CETPs** | (i) Operation and Mainten ance of CETPs<br><br>(ii) Calibration of OLMS<br><br>(iii) Upgradation of CETPs | (i) Action be taken against the violating CETPs as per Water Act.<br>Regular Calibration of CETPs shall be carried out by DPCC Lab as per the orders of Hon'ble NGT in OA No. 06/2012.<br>(ii) DSIIDC to take up the issue of Upgradati on of CETPs after receiving the report from NEERI. | DPCC<br><br>DPCC<br><br>DSIIDC / Industries Deptt. |

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| **12** | **Water Quality Monitoring** | (i) Water Quality Monitoring of the River Yamuna<br>(ii) Major Drains<br>(iii) CETPs<br>(iv) STPs<br>(v) Ground Water Quality near Dump Site/SLFs<br><br>(vi) Installation of OLMS for measuring concent ration of Ammonia in Yamuna at Palla<br><br>(vii) Installation of Additional 4 RTWQMS at following Locations in river Yamuna :<br>1.ISBT Kashmere Gate<br>2.ITO Bridge<br>3.Nizamuddin Bridge<br>4 Downstream of Shahdara Drain<br>(After meeting Shahdara drain into river Yamuna) | (i) Ongoing exercise to be continued on monthly basis<br><br>OLMS for measuring concentration of Ammonia in Yamuna at Palla has been installed.<br><br>By 31.12.2020 | DPCC<br><br>DPCC<br><br>DPCC |
| **13** | **Ground Water Extraction** | Compliance w.r.t. notificat ion dated 12.07.2010 of Environment Deptt., GNCTD and various orders passed byHon'ble NGT/ Supreme Court. | Concerned District Magistrate to take necessary action in consultation with Delhi Jal Board against illegal bore wells. | Revenue Depart ment / District Magistrate / DJB. |
| **14** | **Rain Water Harvesting** | Compliance w.r.t. notificat ions issued by CGWA and various orders passed by Hon'ble NGT. | Concerned District Magistrate / Municipal Corporations / DJB to take necessary action against violators | District Magistrate / Municipal Corporations / DJB |
| **15** | **Plantation in Yamuna Flood Plain** | | Regular Plantation be carried out by Forest Deptt. | Forest Deptt., GNCTD |
| **16** | **Municipal Solid Waste Management** | (i) Municipal Solid Waste Management | Municipal Corporation s/Urban Local Bodies to comply with the orders of Hon'ble NGT in OA No. 606 /2018 Regarding Municipal Solid Waste Managem ent including orders dated 16.01.2019, 11.03.2019 & 12.09. 2019 and adhere to | Municipal Corporations / Urban Local Bodies / UD Department, GNCTD & Other Concerning Departments / Agencies. |

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| | | | the timelines given in the said order in respect of Model Wards etc. | |
| | | (ii) Proposed Waste to Energy Plant at Tehkhand (2000TPD) | 31.03.2021 | South DMC (M/s Tehkhand Waste to Electricity Project limited) |
| | | (iii) Proposed Sanitary Land Fill Facility at Tehkhand (2000 TPD) | 31.12.2021 | South DMC |
| | | (iv) Proposed Integrated Waste Processing Facility at Ghonda Gujran including WTE (2000TPD) | 30.06.2022 | East DMC |
| | | (v) Legacy Waste and Removal of Dump sites | As per order of Hon'ble NGT Dated 17.07.2019 in OA No. 519 / 2019 regarding Disposal of 'Legacy' Waste dumped at Bhalswa , Ghazipur and Okhla Dumpsites these dumpsites are to be cleared within one year i.e. by 16.07.2020. | Municipal Corporations / Urban Local Bodies / UD Department, GNCTD |
| **17** | **Construction & Demolition Waste Management** | (i) Collection and Transportation of C& D Waste | (i) Municipal Corporations/Local Bodies to ensure collection and transportation of C&D Waste<br>(ii) Provide adequate number of C&D Waste processing facilities to handle C&D Waste generated in Delhi | Municipal Corporations / Local Bodies, Urban Development Deptt, |
| | | (ii) Compliance with the C&D Waste Management Rules,2016 | (iii) Action against violators will be taken as per Rules including imposition of Environmental Compensation. | DPCC. |

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| **18** | **Hazardous Waste Management** | (i) Inventorisation of Hazardous Waste | (i) Inventorisation of Hazardous Waste shall be carried out annually as per Rules and sent to CPCB every year by 30th September. | DPCC |
| | | (ii) Development of TSDF | (ii) TSDF for Hazardous Waste shall be developed by DSIIDC keeping in view the orders of Hon'ble NGT in this regard. | DSIIDC |
| | | (iii) Compliance with the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. | (iii) Action against violating industries / units shall be taken as per Rules Including imposition of Environmental Compensation. | DPCC |
| **19** | **Plastic Waste Management** | (i) Notification of Bylawsfor PlasticWasteManagement. | (i)Urban Development Deptt., GNCTD to issue notification for ByLaws at the earliest. | Urban Development Deptt., Govt. of NCT of Delhi |
| | | (ii) Compliance with the Plastic Waste Management Rules,2016 as amended in 2018 | (ii) Action against violating industries / units shall be taken as per Rules including imposition of Environmental Compensation. | Municipal Corporations / DPCC |
| **20** | **E-Waste Management** | (i) Inventorization of E-Waste | (i) After getting report from CPCB regarding E Waste Inventorisation / Generation in Delhi necessary action shall be taken. | DPCC |
| | | (ii) Compliance with the EWaste(Management) Rules,2016. | (ii) Action against the violating / defaulting Industries / Units shall be taken as per Rules including imposition of Environmental Compensation | |
| **21** | **Bio Medical Waste Management** | (i) Inventorization of Health Care Establishments. | (i) Inventorization of Health Care Establishments has been completed as all bedded & nonbedded HCFs from known sources have been covered. | DPCC / Health Deptt. Govt. of NCT of Delhi. |

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| | | (ii) Compliance with the BMW Management Rules,2016 | (ii) Action against violating Health Care Establishments/Other Units shall be taken as per Rules Including imposition of Environmental Compensation. | |
| **22** | **Public Awareness for prevention and control of pollution in Yamuna** | (i) Public awareness programs during Idol Immersion on the festivals of Ganpati Visarjan and Durga Puja.<br>(ii) Awareness regarding not throwing puja flowers and puja samagri into river.<br>(iii) Other MassAwarenes s Programs<br>(iv) Media Plan / Public Awareness on river Yamuna | Ongoing exercise to be continued .<br>Shall be carried out by 31.12.2020 as mentioned in **ANNEXURE – 17** | Environment Deptt.,/ Education Department/ Govt. of NCT of Delhi / Municipal Corporations / Local Bodies / DDA / DPCC etc. |

***Timeline given by DJB vide letter dated 14.10.2019 (ANNEXURE-9) however the timeline given by Hon'ble NGT in its order dated 11.09.2019 in OA No. 06/2012 is 31.12. 2020.**

## 5.22 Time Period for Implementation of Action Plan

Hon'ble NGT had earlier directed to achieve the water quality of bathing standard in river Yamuna within 6 months as mentioned in the order dated 20.09.2018 and accepted the revised time line recommended by CPCB i.e. by 31.03.2021 vide order dated 08.04.2019.

Hon'ble National Green Tribunal vide order dated 11.09.2019 in OA No. 06 / 2012 in the matter of Manoj Mishra vs. Union of India & Ors. has passed detailed order giving various directions & Timelines in respect of NCT Delhi and also directed that timelines have to be compressed so as to complete every action by December, 2020 ( except where shorter timelines are specified in the order or are otherwise possible). DJB has been directed to complete the task of setting up of STPs by 31.12.2020.

However, as per the Action Plan of Delhi Jal Board submitted vide letter dated 14.10.2019, some of the timelines given by Delhi Jal Board particularly in respect of STPs (timeline given to complete some of the projects of STPs is 31.12.2022) are falling beyond the said time line of 31.12.2020. It is mentioned in the said letter that task of

setting up of New STPs can not be completed by 31.12.2020 due to constraint of availability of land and funds. Copy of the letter dated 14.10.2019 of Delhi Jal Board is at **ANNEXURE- 9.**Timelines as provided by the various departments and mentioned in this Action Plan for various projects / activities shall be followed.It is further to be noted that the action plan for Yamuna in Delhi can be successfully implemented to achieve the objectives only when sufficient quantity of water is released from the Hathnikund Barrage and the minimum environmental flow is maintained throughout the year for the 22 KM stretch of Yamuna in Delhi, i.e., from Wazirabad to Asgarpur village.

## 5.23 Monitoring Mechanism for Action Plan

Action Plan for rejuvenation of river Yamuna shall be monitored by the concerned Departments / Agencies for the projects / works pertaining to them.Urban Development Department, Govt. of NCT of Delhi which is the Nodal Department & Co-ordinating the various Departments in Delhi for compliance of the orders and directions given by the Hon'ble NGT in the similar case on river Yamuna i.e. OA No. 06/2012 in the matter of Manoj Mishra Vs. Union of India & others, has been assigned to monitor the implementation of the Action Points & Timelines given in the Action Plan for rejuvenation of river Yamuna from time to time and submit monthly progress report to the Secretary, Ministry of Jal Shakti , Govt of India with copy to Member Secretary, CPCB.

## 5.24 Uploading on Website:

Office Order dated 22.10.2018 regarding constitution of the RRC Delhi and Minutes of the RRC Meetings have been uploaded on the website of DPCC and the Department of Environment, GNCTD at link:

http://www.delhi.gov.in/wps/wcm/connect/environment/Environment/Home/RRC-Delhi/

This Action Plan will also be uploaded after the approval by CPCB.

# CHAPTER: VI

# ACHIEVABLE TARGETS

## 6.0 Achievable Targets:

***In the present scenario Water Quality of river Yamuna can be improved by taking steps as mentioned in the Action Plan and BOD level of 15 - 20 mg/l can be achieved by 31.12.2022.***However BOD level of 3 mg/l (Bathing Standards) in river Yamuna could be achieved only after availability of Environmental Flow which is to be determined by National Institute of Hydrology (NIH).

Yamuna Pollution Monitoring Committee has also mentioned in its Action Plan dated 22.10.2018 submitted to Hon'ble NGT regarding requirement of Environmental Flow to boost the dilution of the river Yamuna in Delhi. In the Action Plan the Monitoring Committee had recommended that an E -Flow study was necessary for the Delhi stretch of river Yamuna.

NMCG has asked National Institute of Hydrology (NIH) Roorkee to study to determine Environmental Flow from Hathnikund to Okhla. NIH has submitted its Interim Report to NMCG and Study is to be completed by March, 2020 as per the Order of Hon'ble NGT dated 11.09.2019 in OA No. 06 / 2012. After receiving the Final Report of NIH Achievable goals can be set.