

Action Plan of the Monitoring Committee

**For Rejuvenation of the River Yamuna,
Appointed by the
Hon'ble National Green Tribunal
Vide Order Dated July 26, 2018.**

**Shailaja Chandra
B.S. Sajwan**

Under the aegis of
The National Green Tribunal

Dated 22nd October 2018.

**ACTION PLAN OF THE
MONITORING COMMITTEE**

**For the
REJUVENATION OF THE
RIVER YAMUNA
&
ABATEMENT OF POLLUTION**

Table of Contents

List of Abbreviations

| | |
|--------------------------------------------------------------------------------------------------------------------------|----|
| <i>Introduction</i> | 1 |
| Core Action Plan. | 3 |
| Action Point 1: <i>Environmental Flow</i> | 3 |
| Action Point 2: DDA and Responsibility for Demarcation of Flood Plain and Conservation Activities Flood Plains | 6 |
| Action Point 3: Quality of River water | 8 |
| Action Point 4: Sewage Treatment Plants (STP) | 9 |
| Action Point 5: Interceptor Sewer Project | 10 |
| Action Point 6: Repair and Maintenance of Drains | 11 |
| Action Point 7: Polluter Pays Principle | 12 |
| Action Point 8: Dredging and Desilting | 12 |
| Action Point 9: Industrial Pollution and CETPs | 14 |
| Action Point 10: Sewage and Faecal Sludge Management | 15 |
| Action Point 11: Online Monitoring of STPs, CETPs and Yamuna River Water | 16 |
| Action Point 12: Use of Treated Waste Water, STPs to be set up by individual commercial/Residential establishments | 17 |
| Action Point 13: Idol Immersion | 19 |
| Action Point 14: State of Haryana- Follow up of Pollution Abatement Measures | 20 |
| Action Point 15: State of Uttar Pradesh - Follow up of Pollution Abatement Measures | 21 |
| Action Point 16: Public Awareness and Information Dissemination Strategies | 22 |
| Action Points 17: Management | 24 |

ISSUES, PRESENT STATUS AND DETAILED ACTION PLAN.

| | |
|--------------------------------------------------------------------------------------|----|
| Chapter 1: Environmental Flow | 27 |
| Chapter 2: DDA and Demarcation of the Flood Plains and Conservation Activities | 29 |
| Chapter 3: Quality of River water | 33 |
| Chapter 4: Sewage Treatment Plants | 35 |
| Chapter 5: Interceptor Sewer Project..... | 38 |

| | |
|---------------------------------------------------------------------------------------------------------------------------------------------|--------|
| Chapter 6: Repair and maintenance of Drains | 40 |
| Chapter 7: Industrial Pollution and CETPs | 44 |
| Chapter 8: Sewage and Faecal Sludge Management | 46 |
| Chapter 9: Online Monitoring of STPs, CETPs and Yamuna | 49 |
| Chapter 10: Use of treated Waste Water | 51 |
| Chapter 11: Idol Immersion | 53 |
| Chapter 12: State of Haryana and pollution of the Yamuna. | 55 |
| Chapter 13: State of Uttar Pradesh and Pollution of the River. | 57 |
| Chapter 14: Creating Public Awareness Through Information Dissemination Strategies | 58 |
| Chapter 15: Establishing a Website for the Monitoring Committee. | 60 |
| Chapter 16: Matters that Influence Monitoring Outcomes | 61 |
| Annexures | |
| Annexure-I: Operative part of National Green Tribunal's order dated 26-07-2018 | i |
| Annexure-II: <i>Actionable points and Letter dated 31-08-2018 to DDA on compliance of NGT directions</i> | iii |
| Annexure-III: Minutes of Meeting held by the Monitoring Committee with the officials of PCB, DPCC and DJB on August 29, 2018 | viii |
| Annexure-IV: STPs commissioned and status of those under construction..... | xiv |
| Annexure-V: Status of construction of 32 STPs as per NGT order dated 13-01.2015..... | xv |
| Annexure-VI: Minutes of Meeting held with the officials of DJB on 4th October 2018 to review Status of STPs and other related matters | xix |
| Annexure-VII: Directions issued on 01-10-18 by Monitoring Committee on Septage Management | xxv |
| Annexure-VIII: Directions by issued the Monitoring Committee for On line Monitoring of STPs, CETPs and Yamuna | xxxiii |
| Annexure-IX Directions by the Monitoring Committee on Idol Immersion | xxxvi |

List of Abbreviations

BOD - Biochemical Oxygen Demand

CCTV - Closed-Circuit Television

CETPs - Common Effluent Treatment Plants

CPCB - Central Pollution Control Board

CSE - Centre for Science and Environment

CWC - Central Water Commission

DDA - Delhi Development Authority

DJB - Delhi Jal Board

DM - District Magistrate

DMC-Delhi Municipal Corporation(Includes North, South and East)

DO - Dissolved Oxygen

DPCC - Delhi Pollution Control Committee

DSIIDC - Delhi State Industrial and Infrastructure Development Corporation

DTTDC - Delhi Tourism and Transportation Development Corporation

DWS &SD - Delhi Water Supply and Sewage Disposal Undertaking

EPCA - Environment Pollution Control Authority

GPS - Global Positioning System

GSDL - Geospatial Delhi Limited

HPCB - Haryana State Pollution Control Board

I&FCD – Irrigation & Flood Control Department

IIT - Indian Institutes of Technology

INTACH - Indian National Trust for Art and Cultural Heritage

MC - Monitoring Committee

MGD - Million Gallons per Day

MLD - Million Litres Per Day

MoEF&CC - Ministry of Environment, Forest and Climate Change

MoWR, RD&GR - Ministry of Water Resources, River Development & Ganga Rejuvenation

MSW - Municipal Solid Waste

NMCG-National Mission for Clean Ganga

NEERI - National Environmental Engineering Research Institute

NGO - Non Governmental Organization

NGT – National Green Tribunal

NIC - National Informatics Centre

PWD – Public Works Department

RWA - Resident Welfare Association

SMP - Sewerage Master Plan

SOP - Standard Operating Procedures

STP - Sewage Treatment Plants

UYRB - Upper Yamuna River Board

ZLD- Zero liquid discharge

Introduction

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.

Large volumes of treated /untreated sewage and industrial effluent are discharged into the river first from townships in Haryana and Uttar Pradesh and later through 22 drains within Delhi. Encroachments and rampant dumping of municipal and construction waste on the floodplains has stultified the river and impaired its natural ability to rejuvenate itself. Confronting this brooks no delay as it affects the well-being of the river and the health of citizens who are subjected to hazards of polluted water in the drainage system, in the river and through percolation into the ground water.

Taking adverse note of this situation the National Green Tribunal in the Original Application Number 06 of 2012 and 300 of 2012 passed a judgement dated 13-01-2015, giving comprehensive directions for compliance by a large number of stakeholders including the Delhi Jal Board (DJB), the Municipal Corporations, DDA, the states of Haryana, UP, the Irrigation and Flood Control Department of NCT of Delhi and the Ministry of Water Resources, River Development and Ganga Rejuvenation among others.

The implementation of the Judgement dated 13-01-2015 was thereafter monitored by the Tribunal and several detailed directions were subsequently passed for prompt compliance. On 26-07-2018 the Tribunal recorded dissatisfaction over the repeated failure of the Administration in carrying out binding directions issued from time to time during the last 3 three and a half years and ordered day to day monitoring to be undertaken by a Monitoring Committee (MC) consisting of Ms Shailaja Chandra former Chief Secretary of Delhi and Mr. B.S. Sajwan former Principal Chief Conservator of Forests and former Expert Member of the NGT. The operative part of the order dated 26-07-2018 is placed **Annexure I**.

The ensuing Core Action Plan has been prepared in compliance of NGT's order dated 26-07-2018 and provides a roadmap for monitoring various directions of the Tribunal, activity wise and agency wise. The detailed Action Plan highlights the issues, presents the latest

status which the MC has gleaned through numerous documents and discussions held during the last 2 ½ months since work commenced. This is followed by a detailed Plan.

While every effort has been made to provide timelines, this could not be realised fully because each thematic group has more than one stakeholder which required the goals to be first subdivided into measurable activities. Although this has been done substantially, the inadequacy of response in the case of major stakeholders have left some milestones indeterminate. Appurtenant processes had also to be factored in order to make the subsequent monitoring effective and minimise the possibility of prevarication. Owing to these reasons and having to await substantive responses which had been sought from several stakeholders, the Action Plan could not be submitted by 15-09-2018 as directed by the Tribunal.

The Monitoring Committee values the opportunity provided by the Hon'ble Tribunal to do something meaningful and which affects the well-being of millions of citizens.

Core Action Plan

Preamble

This Action Plan has been prepared in compliance of the orders of the Hon'ble National Green Tribunal dated 26-07-2018 and provides a roadmap for monitoring the directions of the Tribunal, activity wise and agency wise. It has been drawn up after review of the status of implementation of various projects and activities and by holding detailed discussions with the key stakeholders. On each matter the MC has taken note of the delays in implementation and the reasons therefor.

The Core Action Plan contains the most important aspects to be monitored. This is followed by Chapters 1-15 which follow provide details of the issues, the present status of the matters referred by the Tribunal and set out a detailed Action Plan to monitor each activity. The record notes of important meetings held are given in Annexures 2-9.

Although included in the Action Plan, some additions would be made after meetings with Haryana and Uttar Pradesh authorities which have been organised, are held in the next 15 days.

ACTION POINT 1.

Environmental Flow:

Short Term Measures

Environmental flow is essential for the Yamuna to regain the characteristic of a living river. The release of E flows prescribed in the NGT orders has to be monitored at the two major points, namely, Hathanikund barrage and the Wazirabad barrage. Though the State of Haryana has not provided any response, the UYRB has confirmed that 10 cumecs, as ordered by the Apex Court is indeed being released at Hathanikund barrage. Neither Delhi nor Haryana state has expressed any doubt on the score of the quantities released.

In December the MC will visit the site and satisfy itself about the way in which release of 10 cumecs of water at Hathanikund barrage is being managed. Delhi Jal Board, I&FC Department and the Department of Irrigation of Haryana would be associated.

(i) **Avoidance of Pollution Upstream of Wazirabad Barrage.**

The pollution at this point has been reported by DJB as being intermittent with periods of near normalcy. During the period 30th December, 2017 to 11th March, 2018, however, there was continuous pollution.

A suggestion for re-routing has been made by engineers dealing with the subject on the spot. The Monitoring Committee has after discussion decided to set up a group of experts from Upper Yamuna River Board, Central Pollution Control Board, the Delhi Government and Haryana Government to look at the risks and benefits of an alternative way of routing the same quantity of water which has been claimed will reduce pollution in the critical months.

The Committee will be asked to submit a report by 15th December so that NGT can be apprised of the advice received.

Long term Action Plan for Improving E-Flow

From discussions held with experts and representatives of the Upper Yamuna Canal Board, the experts on the Principal Committee and even the Haryana state representatives it is evident that in the lean months the release of 10 cumecs of water as ordered by the Supreme Court and NGT is completely insufficient to sustain the flow in the river. This is because 10 cumecs released at Hathankund evaporates or percolates into the ground as it flows downstream. Resultantly, most parts of the river remain completely dry. There is presently no possibility of the release of more water in the river by the upper riparian states of Haryana and UP.

- (i) The BOD standards of 30 mg/L and 10 mg/L for treated waste water when released into a water body assume there would be dilution with fresh water several times over to achieve a BOD level of 3 mg/L. With about 3911 MLD of waste water (both treated and untreated) in the drains, the river Yamuna will require much more fresh water to have any impact. This has been projected to the extent of 451 cumecs and 135 cumecs for achieving BOD levels of 30 mg/L and 10 mg/L respectively. Harnessing such enormous volumes of water to boost dilution of the river in the Delhi stretch is not feasible in the foreseeable future.
- (ii) On the analogy of a study done for E flows by CWC for the Ganga a similar study for the Yamuna it is necessary to generate data before the question of apportionment of more water through stringent conservation measures can be even broached. The MoU on water sharing amongst the Basin States of Yamuna was signed nearly 20 years back in 1994. Many things have changed and many developments taken place since then. It

is time to revisit this instrument to explore the possibilities of higher ecological flow. This would be useful even in the long term when the three storage projects of Renuka, Kisau and Lakhwar Vyasi are completed.

MC has asked NMCG and the Principal Committee to commission a similar study through CWC to assess E-flows in the Yamuna in the stretch between Hathanikund to Okhla. This had already been recommended by the Principal Committee in the report dated 01-08-2014 and referred in the NGT judgement dated 13-01-2015.

The response of the Principal Committee to order such a study and the progress made thereon will be reported to NGT by December 31st. Such a study will highlight periodic deficiencies that confront the water flow and the measures that would contribute significantly to improve the situation.

- (iii) The possibility of notifying the flood plains from Hathanikund to Okhla as an Eco-Sensitive Zone or Conservation zone under the Environment (Protection) Act 1986, DDA Act of 1957 or the UP state Act will be discussed with the MoEF&CC, MoWR, RD&GR, State of UP, Haryana, NCT of Delhi and DDA if the Principal Committee feels this would help in safeguarding this zone. Many of the powers in the EP Act stand delegated to the NMCG and therefore an overall assessment of where the balance of advantage lies has to be made. Alongside the feasibility of creating constructed wetlands on the floodplains of some selected drains at the outfall point into Yamuna will be also be examined in the light of success stories on other rivers (namely, Assi Ghat pilot done by INTACH.)
- (iv) Already several broad suggestions have been made which include the creation of off river reservoirs; deepening of wetlands; recycling all treated waste water; rainwater harvesting and promoting water conservation and efficiency in agriculture to reduce the irrigation requirements. These suggestions, all of which had been recommended by the Principal Committee constituted by the NGT, will also be made a part of the proposed study.

The ownership for this rests with the Principal Committee but the MC will spearhead a beginning in respect of each measure and report progress by 31st December.

ACTION POINT 2.

DDA and Responsibility for Demarcation of Flood Plain and Conservation Activities Flood Plains

- (i) Timelines for award of flood plain development including nurturing the wetlands and the creation of more biodiversity parks cannot be decided without DDA's involvement. The outgoing Vice Chairman did not meet the Committee despite several communications written and telephonic over 2 months.

DDA was asked to demarcate parcels of the flood plains on which the rejuvenation plans can be implemented concurrently instead of moving incrementally Phase by Phase as proposed by DDA. This is needed urgently as the land is getting encroached upon with each passing day and DDA's approach to prevent it appears to be feeble.

In the MC's meeting held with the new Vice Chairman, DDA on 15-10-18 the directions given by the NGT and activities that are required to be undertaken by DDA were recapitulated one by one. The VC DDA has assured the MC that detailed work Plan and time lines for starting and for completion both for the flood plains and the portions beyond will be submitted to the MC by November 15, 2018 after holding a workshop with concerned experts.

Constructed wetlands can help recharge groundwater. Therefore, a number of such wetlands can be constructed in the flood plains of Yamuna all along Wazirabad to upstream Yamuna Nagar to harness flood waters for this purpose. Part of groundwater recharge would also appear as surface water flow in the river both being complementary to each other. Unfortunately the DDA, Government of UP and Department of I & FC who can undertake such measures have not given primacy to such well-known strategies. It has been discussed with DDA and has still to be taken up with the UP authorities before time lines can be given.

- (ii) The MC has also informed the Chairman of the Principal Committee and Secretary, MoWR, RD & GR about the need for plans and milestones for flood plain preservation and wetland development and requested that this be addressed in parallel by the Principal Committee as both Committees have to work in tandem.

Timelines will be added after the two meetings are held in October or November.

Encroachment and unauthorized construction:

The responses received from DDA show that after lodging FIRs against such illegal activity there is no follow up. The result of CCTV monitoring is vague and gives no confidence that the footage has been reviewed and acted on. On the use of remote sensing the same vague response have been repeated orally and in writing but without any specificity.

The MC had taken the initiative to contact the National Informatics Centre (NIC) which has been handling ISRO related activity and has an official position on the GSDL Board of Government of Delhi. Certain technological options for monitoring activity on the flood plain have been suggested by the Director in charge of GIS. These have been discussed with the new VC DDA on 15.10.18 and timelines will be added after getting the report that has been assured after 15.11.18.

The removal of encroachments from the floodplains is impossible without pursuing specific strategies, reporting the action taken and maintaining a follow up with the police. The VC DDA agreed to change the present administrative structure which requires an efficient mechanism for enforcement and follow up.

The MC will track this with the new VC DDA and yet untried mechanisms like using satellite imagery and if possible drones would be pursued to be fortified with sustained physical patrolling.

Feasibility of engaging a Force like Ganga Vahini

Such a force of ex-servicemen has been deployed around the Kanpur/Allahabad stretch and the feasibility of doing this in Delhi was discussed with Department of Irrigation & Floods and DDA. The representative of MoWR, RD&GR agreed to share the details of the MOU through which ex-servicemen have been engaged for patrolling. This has been suggested by MC to Secretary I7FC and VC DDA and will be pursued with them as well as with MoWR, RD & GR which had facilitated this for the Ganga. A report would be given to NGT by 31st December on the action taken.

Stoppage of cultivation on the flood plains

The repeated response is that a stay from the Supreme Court which is in force until December 2019 prevents ejection of the cultivators.

- MC has asked to see the Apex Court's order although during discussions it was recently reported that there is a likelihood of the matter getting decided sooner. Despite being asked twice DDA has not given the Khasra wise demarcation of land which is free from

court stay although it was assured. MC will monitor receipt of data and see that cultivation on land which is not under stay is stopped by DDA and the khasras where the activity is illegal are identified for removal in the event of the stay being modified. If no action is still taken by DDA it will be reported to NGT.

- Meanwhile DDA/PWD and I&F C Department will be asked to put up notices that such horticultural produce being sold on bridges and motorways carry health hazards.
- The DMCs and police would be asked to report enforcement action against unauthorised sale of such produce on bridges and near the river.
- Action taken by DDA, PWD and I&F CD (the latter two Agencies own the motorways, roads and bridges) but are also not stopping sale of vegetables grown in the vicinity using public property. The outcome will be reported to NGT by 31st December.

Monitoring DDA's Enforcement action

Each month MC will monitor:

- Status of cases reported for police action, arrests made, whether police follow up has been adequate enough to deter people.
- trucks / tempos impounded
- Compensation levied.
- Independent physical inspection of the flood plains will be set up to see whether DDA's action has had substantial impact.

This will need to be an on-going exercise. Since there has been no response relating to time periods when enforcement action was taken in the past a mechanism has to be put that in place.

ACTION POINT 3.

Quality of River water

Although the Yamuna River flows only for 54 KM from Palla to Badarpur though 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 22 drains that join the river Yamuna during its journey through Delhi.

NGT had directed setting up of Sewage Treatment Plants (STPs) and Common Effluent Treatment Plants (CETPs) to ensure that the sewage/industrial effluent does not find its way to drains which eventually join the river.

- (I) With no flow in the river downstream of Wazirabad and 3911 MLD of sewage (both treated and untreated) released into the river 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, there is no possibility of achieving a BOD level of 3 mg/L for a C Class river as categorised by the CPCB. The MC therefore, will monitor incremental change in the quality parameters of river flow consequent to commissioning of Interceptor Sewer projects, setting up /Up gradation of STPs and other connected activities.
- (II) MC will examine the adequacy of the water quality monitoring stations set up on Yamuna by DPCC and CPCB. A mechanism to undertake joint online monitoring by quality testing of water in Yamuna at Palla and Wazirabad, to test standards parameters including Ammonia has already been set in motion by the MC.
- (III) Time has been given until November 15th 2018 to the two regulators and DJB to generate exception reports on specific parameters and to raise the level of reporting if the situation exceeds the agreed threshold. Progress will be reported by 31st December.

ACTION POINT 4.

Sewage Treatment Plants (STP)

i) Functioning and Upgradation of Existing STPs

The order dated July 26, 2018 of NGT gives a list of 41 STPs at 22 locations. Of these 6 STPs are closed. Five out of these 6 are proposed to be rehabilitated or upgraded. Twenty (20) STPs are receiving waste water (sewage) below their installed capacity, ranging from 10% to as high as 90%.

There are variations in the claims of DPCC and DJB regarding the need for the number of STPs that require renovation and upgradation. This is being followed up to reconcile the statements based on technical opinion.

ii) Setting up of new STPs

NGT's order dated 13-01-2015 records that 32 new STPs will be set up by the DJB. This was based on the recommendations of the Expert Committee appointed by NGT and DJB's own Sewerage Master Plan 2031. Accordingly MC has drawn up the following plan:

Existing STPs

For each STP a time frame for up gradation / modification has already been received by the MC. In the coming two months this will be got a reduced into short and medium term milestones including making DPRs, getting financial and administrative sanctions and tendering the work. The initial progress made will be reported to NGT location by location and the milestones to be crossed, thereafter, will form part of a longer term plan.

New STPs

The DJB has been following the Master Plan formulated for 2031. The revised list has not yet been prepared by the DJB. The need for funding will emerge only thereafter. Interim progress will be reported to NGT.

ACTION POINT 5.

Interceptor Sewer Project

The ISP which is due to be commissioned in December 2018 will trap 108 drains and the project as a whole is 92% complete. Already some 99 MGD of Sewage is being trapped and treated at the STPs. Once commissioned, 242 MGD of sewage is expected to be trapped. However the project is being implemented in six packages and by December 2018 only 180 MGD of sewage would be trapped. However the STPs in some phases will still not have been commissioned. Treatment of all the 242 MGT of sewage intercepted through the project will be possible only when all the STPs in six phases are completed by December 2019. Details are in the Detailed Action Plan.

Revised timelines for synchronised development have been sought and would be added after joint discussions with the Concessionaires as giving open ended dates which keep

changing will serve no purpose. This is being monitored by MC. Progress will be reported to NGT

ACTION POINT 6.

Repair and Maintenance of Drains

- (I) DJB has informed that a number of drains still remain to be trapped in the catchment of Najafgarh, Supplementary and Shahdara drains. This will be got assessed and plans formulated by DJB for their trapping and conveyance to STPs will be reviewed bi-monthly.
- (II) Six out of 11 drains had been identified by the Principal Committee in a meeting held on 18-07-2018 where sewage was flowing into the drains. DJB has been asked by MC to start plugging the drains which will be monitored every month.
- (III) Progress on DJB's plan for 148 locations where drains in sewerage were found carrying sewage and 344 where storm water from the drains was forced back into the sewer network will be monitored. The names of the Chief Engineers in charge of groups of drains will be recorded so that there is accountability. The MC proposes to mount using students of IIT under charge of a faculty member or using individual experts familiar with the drains. Preliminary discussions on engaging such expert assistance to conduct inspections have been held with a Professor of IIT and two drainage experts.
- (IV) Through such inspections the assurance given by DJB that at 69 locations where sewage was flowing into the drains have been plugged, would be checked randomly.

Time lines can only be given after an approved plan for phased inspections is put in place. That would depend on finding willing faculty members to have the inspections conducted as agreed assisted by students; alternately independent experts (already identified) who know the locations and trouble spots will be asked to undertake the inspections. Each month 50 locations are proposed to be taken up for inspection.

ACTION POINT 7.

Polluter Pays Principle

MC has been pursuing implementation of the Polluter Pays Principle in compliance of NGT directions for imposition of environmental compensation both for sewerage and non-sewerage areas. MC has issued specific directions on:

- Levying compensation/ user charges for generating sewage and being exempt from any payment.
- Fining privately engaged contractors who are collecting and emptying sewage and septage into storm water drains and water bodies.
- Making unauthorised colonies pay for sewage collection and treatment even if as the MC has been told it has been decided to waive charges for development and household connection.

The binding directions of NGT were that payment/compensation charges must be levied on those responsible for pollution. Directions have hereafter been issued by the MC to bring all households generating sewage into a scheme for overall payment of compensation without reference to water subsidies. Even where water is subsidised by the Government, every resident of Delhi who inevitably generates sewage should be obliged to pay user charges or compensation.

This has not resulted in any visible action (as reported by concerned engineers in DJB) despite issuing strict directions. It is being brought to the notice of the Chief Secretary as there appears to be reluctance to even prepare a scheme to make people pay for the sewage generated which is being conveyed and treated at heavy public cost.

This will be monitored twice more during November and December and a progress report will be given to NGT.

ACTION POINT 8.

Dredging and Desilting.

This aspect has seasonal importance and has to be monitored during the pre-monsoon months when such activities are taken up.

The MC proposes to get:

- (I) Secretary PWD, Secretary I&FC and DMCs to give a calendar for dredging and desilting of drains which will be placed on MC's website by April 2019. MC will direct that it be placed on the websites of the respective agencies also. The schedule will ask to be provided ward wise so that the public is informed along with the concerned Zonal Engineer's designation and number. The MC will ask for geospatial maps of the drains and schedule for desilting and dredging to be put up on the Agency's website and an advertisement or a news story generated to let the public report if work done is unsatisfactory. They can report to the MC also on its website. The possibility of associating CAG empanelled surveyors will be examined.
- (II) For better monitoring a system of getting the Revenue DCs and SDMs involved in checking complaints which appear to have substance will be set up. Such instances of laxity in performing desilting activity will be reported to the Chief Secretary NCT Delhi with names of Departmental Supervisor at the Zonal level requesting that action for dereliction of duty be started. If the response is insufficient it would be reported to NGT.
- (III) In the case of the Ganga the services of the Inland Waterways Authority of India was used and monitoring was reported to be successful. Whether this can be done for patches of Yamuna would be followed up with the Principal Committee. The news item linked below gives some details.

<https://timesofindia.indiatimes.com/india/dredging-of-ganga-at-different-locations-to-be-monitored-via-cctv-live-feeds/articleshow/65692612.cms>

- (IV) For longer term controlled dredging of Yamuna River as directed by NGT, as a first step, the issue will be discussed with the Secretary MoWR, RD&GR and Chairman Principal Committee for funding the feasibility study. A preliminary discussion with Director NEERI was found helpful but such activity has to be undertaken with precautions and hence other experts from IIT Delhi and Delhi University (Prof AK Gossain and Prof CR Babu respectively) may need to be associated. A feasibility report will be got prepared through an expert institution preferably NEERI.
- (V) I&FC Department has been directed to do aeration/ozonation under the supervision of CPCB in selected drains like the Najafgarh drain as directed by the NGT. Progress on this will be monitored and technical help of Institutes like NEERI will be sought.
- (VI) Directions have been issued to I&FCD for placing a boom at the mouth of drains joining Yamuna and at some other selected points so as to collect floating plastic and other waste entering Yamuna. First report has been sought on 01-11-2018. The progress achieved will be reported to NGT.

Inspections to Identify Debris and Effluent.

Building contractors and individuals continue to throw C& D waste into drains. Industrial pollutants and sewage are still flowing in the drains. Therefore MC has asked for:

- ✦ CPCB and DPCC to give reports on location specific basis where such activity has worsened. Such periodic measurements will be taken through joint team of CPCB and DPCC scientists who will cover both flow measurements as well as quality parameters.
- ✦ Report on the adequacy of testing stations for long drains like the Najafgarh drain.
- ✦ Identify hot spots of industrial pollutants in selected drains through joint inspections with the drain owning agencies e.g. DMCs, I& FC, PWD and take action against polluting industries immediately.
- ✦ Teams of students from Delhi College of Engineering/IITs Delhi under the leadership of faculty members will be sent out to carry out surprise and random checks on selected drains. A plan of action for quarterly independent monitoring would be given by MC to IIT Delhi or any reputed public sector Engineering institution. DJB has been asked to pay any experts engaged for their time and for transportation if not provided by the organisation where they work.
- ✦ Specific locations where CPCB and DPCC find a worsening situation would be reported on the MC's website and directions given for immediate rectification. The response of CPCB and DPCC will be monitored in November and December and the outcome included in the progress report being sent to NGT by 31st December.

ACTION POINT 9.

Industrial Pollution and CETPs

There are 28 industrial clusters in Delhi out of which 17 clusters are connected to 13 CETPs. The remaining 11 clusters are not connected to any CETP. In addition there are reportedly 51837 industries in non-conforming/residential areas which are completely unregulated and are releasing their effluent, consisting of heavy metals and other toxins into the drains which then get mixed with domestic sewage. All this muck is eventually discharged in the Yamuna. These industrial pollutants when mixed with domestic sewage

are not amenable to treatment even by the STPs due to the limitation of treatment process/technology. The capacity utilisation of the CETPs is as low as 25% and has been attributed to industries having moved out. Retrofitting some of the CETPs to treat sewage will also help enhance capacity presently available with the DJB for sewage treatment.

- Director NEERI, with whom the matter was discussed by the MC, confirmed that it is quite feasible to retrofit some of the CETPs to treat sewage. The MC will get a plan prepared involving DSIIDC, CETP societies and the DJB with technical support from NEERI.
- The decisions taken in the meeting of the Principal Committee on 08-05-2018 will be followed up in meetings with CETP societies, DSIIDC, CPCB and DPCC.
- Joint Inspection Teams of CPCB and DPCC will be constituted to monitor the performance of CETPs, both in terms of quality parameters and capacity utilization.
- Hotspots of pollution emerging from residential colonies dealing with dyeing and polishing/pickling will be got identified and closed.
- A plan for achieving zero liquid discharge (ZLD) and for water recycling will be prepared after meeting with CETP societies, DSIIDC, CPCB and DPCC with the presence of NEERI.

A Joint inspection was ordered on 29-08-2018 relating to 11 clusters which do not have CETPs. The DPCC report on hazardous waste like the used oil, grease etc. covered in the NGT direction in its order dated 05-08-2015 has been included. Further action may, however, need to be taken in coordination with the EPCA which also has similar mandate. A request was made to EPCA to permit the MC to discuss the way of avoiding overlap and duplication but no response was received even after receipt.

The next round of meetings would be held by end of November 2018 and the next milestone would be included thereafter only. Whatever progress is made by 31st December will be reported.

ACTION POINT 10.

Sewage and Faecal Sludge Management

- i) One of the major sources of high level of pollution in the drains is the absence of sewer network in unauthorised colonies and slums. Delhi has 1797

unauthorised colonies which have a population of 40 lakhs which is growing. There is no regulated system of emptying the septic tanks and the faecal sludge, containing very high levels of Faecal Coliform which is got collected and discharged into drains and water bodies which ultimately pollutes river Yamuna.

- ii) Sludge generated by the STPs, CETPs and settled at the bottom of the major drains and the river if not removed periodically and managed/disposed of in a scientific manner, including the usage of sludge as a manure or fuel, can result in environmental harm to the river. A safe and scientific method has also to be found for disposal of sludge generated by the STPs of DJB and CETPs. DJB and DSIIDC have been asked to prepare action plans for disposal of sludge generated by STPs and CETPS.
- iii) Based on NGT directions, every one of the concerned officers have been alerted in person and detailed instructions have been issued, thereafter, by the MC to the Chief Secretary, the Secretary UD, the DMC Commissioners, DJB and the Divisional Commissioner under whom the District Magistrates work to address the issues of contamination of the drains, non-issue of septage regulations, absence of linkage with designated sewage dumping stations. The total absence of enforcement by DJB, DMCs and the Environment Protection Officers (Revenue Deputy Commissioners) has been highlighted . Follow up would be maintained in November and December including the issue of Septage Regulations which have been delayed inordinately.

MC will report progress by 31st December.

ACTION POINT 11.

Online Monitoring of STPs, CETPs and Yamuna River Water

Regular monitoring of the functioning of STPs and CETPs with respect to the quality of treated waste water is essential not only for timely intervention but also to ensure accountability in the functioning of public bodies. The review carried out with DJB, DPCC and CPCB in the two meeting that the MC held showed that despite a lapse of three and a half years since the judgement delivered on 13-01-2015 the connectivity between the servers of DJB, DPCC and CPCB has not become functionally operational.

Out of 13 CETPs to which 17 industrial clusters are attached, only nine (9) have been linked with the servers of DPCC and CPCB and four (4) CETPs are still to be linked.

Also, one of the DJB STPs has no equipment for online connectivity. Among immediate measures:

- (i) DJB has been directed to provide connectivity to their server to CPCB and DPCC for real time connectivity of quality parameters of treated waste water from each of the STPs. CPCB and DPCC and DJB have been directed to coordinate to make the system functional.
- (ii) A system of generating SMS alerts for all the STPs when the quality parameters are exceeded was recently accepted by the three agencies. Such alerts will have to go on mobile phone to the CEO, DJB and the MC which will intervene where necessary.
- (iii) DJB has been directed to take steps to put the test results, manual and real time online data, in public domain by providing access to its website for each of the STPs.
- (iv) The Standard Operating Procedures (SOPs) for calibration of sensor transmitting data has been asked to be installed and checked.

The above directions will be monitored monthly and progress reported to NGT.

ACTION POINT 12.

1. Use of Treated Waste Water

The STPs of DJB treat about 475 MGD of waste water. Only about 90 MLD of this waste water, some of which BOD as low as 10 mg/L, is presently being used by DJB and the rest released into drains which also carry untreated waste water.

Since most of this water is suitable for various non-potable uses like horticulture, agriculture, irrigating parks and gardens, washing, cooling in power Plants and even for flushing in the toilets NGT had vide order dated 07-06-2016 directed the VC DDA to take a meeting with DJB, DMCs and other agencies and Institutes and prepare a report on the use of treated waste water. Reuse of treated waste water was reiterated by NGT vide order dated 19-05-2017 and directed DJB to prepare a proposal in this regard.

A detailed plan will be got prepared keeping in view the total treated water available and likely to be available once the ISP and STPs under construction get commissioned, the location of STPs, facilities like parks and gardens, water bodies or housing colonies where such water could be used for non-potable uses, the length of the conveyance system required etc. The road map will include increasing the recycling from present 20% to say 50% and higher and lay down monitorable timelines.

In short term DDA, DJB and DMCs will be asked to prepare a plan for switch over to use of treated water for irrigating parks/gardens and stop use of ground water. Quarterly monitoring would be done by MC.

Use of the treated water for rejuvenating some of the water bodies will be also considered after discussion with experts and agencies owning such water bodies.

The feasibility of CETPs, which presently release treated waste water into drains or reuse it for horticultural uses, achieving ZLD, as directed by the NGT will be examined with the help of Expert institutions like the NEERI and pursued with CETP societies and DSIIIDC.

No time lines can be given until the response from the concerned agencies is available.

2. STPs to be set up by individual commercial/Residential establishments:

- (i) Under the existing building bye laws issued in 2003 and rewritten thereafter for MPD 2021 it is stated that all consumers of water who are generating more than 10,000 litres of waste water must have their own STP before releasing their waste water into public sewers. Treated effluent has to be recycled. The availability of such bye laws was shared with the MC by an independent expert but not by any Government agency.

The MC will take up with DDA why the bye laws have not been enforced and the steps DDA proposes to take. No time lines can be given at this stage as a meeting with the new VC DDA would be needed to ascertain reasons for delay and approach of the Authority.

- (ii) DJB Board has approved policy of waiving 90% sewerage charges on construction of decentralized STP in consumers like schools, colleges etc. and financial support for installation of STPs in parks and gardens. The MC instructed DJB to submit a plan and timelines to increase utilization of treated water involving the DDA, DJB and DMCs. The plan for providing connectivity to the sewer line for accessing waste water for treatment has to be prepared. Quarterly monitoring of this would be done by MC.

ACTION POINT 13

Idol Immersion

Idol immersion during festival seasons like Ganesh Chaturti, Durga Pooja and religious activities during Chhat Pooja cause extensive damage to the river as the idols mostly made of Plaster of Paris, and using toxic paints and synthetic material including plastics are released into the river. CPCB and DPCC reports reviewed by the MC showing river quality before and after Ganpati Visarjan have shown unacceptable rise in levels of pollutants. The magnitude of increase in BOD varied from 0.3 to 9.5 times. Faecal coliform increased 141 times at individual ghats. Significant increases in heavy metals, viz Chromium 2.4 times, Lead 12 times and Mercury 15 times were observed post immersion. This shows that use of toxic materials continues in a big way. There is an urgent need to build awareness about how dangerous this can be and to show no latitude when CPCB guidelines are being defied.

This is dangerous and no longer can a routine persuasive approach be followed.

The MC had held two meetings and issued directions to the Divisional Commissioner, NCT Delhi and other public authorities, like DMCs, IFCD, DDA, CPCB and DPCC for

- (i) Establishing a system for giving registration, getting undertakings to abide by the CPCB guidelines before granting approval to Pooja pandals. If use of prohibited material is noted on random inspection the pandal societies who have given an undertaking would need to be fined heavily besides taking other legal action for causing nuisance.
- (ii) Getting idols deposited on the river banks lifted by crane and sent to the SW sites the next morning itself.
- (iii) The possibility of not using the river for immersion as done successfully for 5 years by one of the Chittarnjan Park Durga Pooja Societies has been suggested by MC to the 3 DMCs. The Society representatives shared their strategy at the meeting. DMCs and Divisional Commissioners representative have agreed to try and introduce it through persuasion from this year itself in some other pooja societies.
- (iv) It was noted during the review that as directed by MC the Divisional Commissioner had inserted public advertisements and prepared leaflets, banners and hoardings to build public awareness. These were seen by the MC and found to be better than

previous notices. However until the reports asked for by MC pre-and post-immersion came from CPCB, the extent of heavy metal levels was not known. Clearly soft, sporadic attempts to persuade the pandal organisers and those selling the idols will not help. These need to be replaced by organised campaigns right from July which was badly delayed this year and will be monitored accordingly.

ACTION POINT 14.

State of Haryana- Follow up of Pollution Abatement Measures.

The major steps which had been directed by NGT to be taken by Haryana State include providing STPs and CETPs in all cities and industrial clusters located on the banks of the river and in the catchment area of Najafgarh drain and where the drains enter Delhi. In addition there was a direction to do:

Online linking with HPCB and CPCB.

Closure of industries not complying with standards and not connected to CETPs.

The State was required to submit a status report along with the approved plans within four weeks of July 26, 2018.

Unfortunately the level of representation of the state and complete absence of any knowledge of the issues sent in advance was most unsatisfactory. Though the state had constituted a state specific MC on 23rd August it had yet to become functional when the MC held meetings in September and October. The lackadaisical approach was then brought to the notice of the Chief Secretary over telephone and his attention drawn to NGT orders and detailed communications sent by the MC. He has since informed that he will come personally on 23.10.18.

The following are the points which will be taken up and monitored once more in November/ December 2018.

- (i) Action taken by the state in compliance of the NGT directions given in orders dated 11-06-2015, 28-07-2015 and 08-08-2017.
- (ii) MC will undertake a field visit to evaluate the status of drains carrying sewage/Industrial effluent from the towns of Yamuna Nagar, Karnal, Sonapat and Panipat which eventually join Yamuna and the steps taken by the state so far for

setting up STPs and CETPs and proposals to set up new STPs and CETPs. Advance reports have been sought from DJB, CPCB and DPCC.

- (iii) Timelines cannot be given in the absence of any response which is likely to get generated after the meeting with the Chief Secretary.
- (iv) A field visit will also be undertaken to monitor the status of work relating to establishing STPs and CETPs under Leg 1, Leg 2 and at the Badshahpur drain at Gurgaon which joins Najafgarh drain before it enters Delhi. Monthly monitoring of flow and quality of waste water in Najafgarh at the point of entry into Delhi will be monitored through DPCC and CPCB.
- (v) CPCB and HPCB will also be directed to carry out inspections of STPs and CETPs and stand-alone ETPs of big industries in Haryana along with the Haryana MC, submit reports and report action taken to the MC.

A synopsis of the findings would be given to the NGT in the progress report.

Unrelated to pollution there is a need for preparing a technically viable plan for introducing water conservation measures, increasing water use efficiency in agricultural practices and creating ponds and reservoirs on the floodplains. This was raised with the Principal Committee of Ministry of Water Resources who have been asked to lead and co-ordinate such efforts with Ministry of Agriculture and the Haryana State Government. Progress would be reported to NGT.

ACTION POINT 15

State of Uttar Pradesh - Follow up of Pollution Abatement Measures

A substantial portion of the floodplain in NCR falls within UP state. NGT had on 04-07-2015 directed demarcation of floodplains to which the state of UP had informed that 75% of the floodplains stand demarcated and the balance shall be completed within one week.

The officials of the state of UP who attended the meeting called by the MC on 25-09-2018 were unable to give any information on the subject. The MC had apparently not been appointed and the officers who came were from the Pollution Control Board and Environment & Forest Departments and their knowledge and understanding was very poor making it a complete waste of time.

This was reported to the Chief Secretary UP over telephone including the fact that no Monitoring Committee had been set up as directed by NGT. Only then did the State Environment & Forest Secretary contact the MC and alerted the actual Departments in charge of the subjects.

The MC proposes to hold a meeting with Government of UP officers in November to review the action taken on flood plain demarcation in the area that falls within the control of the State of UP. In the meantime as DDA has since undertaken to finalise the date for commencement of flood plain development to be developed concurrently and not Phase by Phase as originally planned. The VCDDA has offered to take up the UP flood plain rejuvenation activity if UP Government pays for it. This will be co-ordinated by MC.

ACTION POINT 16

Public Awareness and Information Dissemination Strategies

NGT has directed that awareness building activities have to be taken up on a wide scale. Being the capital there should be shared ownership and a healthy spirit of volunteering promoted by Governments. Needed is:

Citizen involvement requires that each ward gets adequate coverage in awareness building activities. Unless the river and its relevance to human habitations and people's lives, it will not generate any interest. A Media plan would be needed with several activities to be taken up in different ways.

Projects related to the Yamuna River.

- a) A Nodal Agency would need to be created which can approve plans, budgets and can pursue imaginative ideas and act as a clearing house for approved and prohibited activities as the preservation of the river bed is sacrosanct. The Monitoring Committee will be discussing the broad approaches possible with the Chief Secretary and will engage with MOWR, RD & GR, NMCG, MoEF&CC and MoUD as they all have budgets to support activities which lead to awareness building about the environment and the River..
- b) Beyond the flood plains cycling, walking dance performances and cultural events associated with the river can be supported.

- c) Installing a biogas plant for handling buffalo dung instead of letting it flow into drains at Ghazipur is a good way to make a visible impact and contain pollution. TERI has such a technology available.
- d) The Nodal Agency should involve Green Corporates located in Delhi, Delhi Government Corporations like DSIDC + DTTDC, schools, Eco clubs, RWAs, Rotary , Inner Wheel, Industry Associations, Market Associations, Parks & Gardens Society and support them in taking up activities.
- e) The green model adopted by the B block Chittranajan Park is to immerse the Durga idol into a 4' deep pit filled with water and after four days to return the wooden scaffolding to the seller .This has been demonstrated to the concerned officers in MCD by the office bearers of the Society. The DMCs and Divisional Commissioner have been asked to popularize it. Delhi can become a leader in this movement by highlighting the unacceptably high levels of heavy metals which were found to be present in the river post-Ganesh immersion. However even this method has to be without risk of contamination of the soil and ground water.
- f) Waste from the river Yamuna needs to be mined out and recycled or up cycled. The waste includes flowers, coconuts, cloth etc. and can either be composted and its collection and sorting would give livelihoods to waste pickers. The Nodal Agency would have to pilot such an initiative in coordination with Irrigation and Flood Control Department.
- g) The Yamuna is a unique birding destination. Therefore, birding needs to be popularized amongst schools. There is a need for DDA to preserve the birding hot spots with inputs from an established birder group in Delhi.

Ownership for Creating Public Awareness.

Ordinarily this should be co-ordinated by the Department of Environment & Forests of Government of NCT of Delhi. The field functionaries should be the DCs of the Districts, the Commissioner Lands and Director Horticulture of DDA, the Directors of Horticulture of DMC. Apex level NGOs need to be associated in such activities – not just concerned with environmental issues but culture and recreation (beyond those demarcated as flood plains.) It is unlikely that any functionary will readily agree to take this up because of an absence of ownership and it being considered as low priority work. The MC will therefore request the Chief Secretary to set up an Apex level consortium that can approve of specific awareness building projects. Alternately it can be done by NMCG which can entrust the tasks to Culture Ministry's Institutions like the Indira Gandhi National Centre for the Arts.

These ideas have been given by a range of people but the first step is to set up a Nodal Agency to execute different ideas. The response from the Chief Secretary and NMCG would be included in the progress report.

ACTION POINTS 17.

MANAGEMENT

The demands on the river are ever increasing as almost 85% of its fresh water is diverted for drinking and agriculture. The unplanned in-migration and settlement into highly congested unauthorised colonies has challenged what could be called a semblance of urban planning or a decent urban quality of life.

Several strategies have been set in motion to improve the quality of river water and these will continue to be overseen through intensive monitoring. Public involvement will be sought as a comprehensive website is shortly to be launched once the NIC Security Clearance is available. This Action plan with salient supporting data will be placed in public domain the press informed of its existence.

Despite concurrent action being taken on several fronts simultaneously, regrettably it is all too apparent that even if all the measures are executed with utmost resourcefulness and the use of deterrence is resorted to whenever warranted, in the foreseeable future, the quality of the Yamuna will not improve to levels prescribed by CPCB. Even so it cannot be converted into a receptacle for filth.

If one thing would make a difference it is to put a septage management plan into operation in 3 months and manage such sewage as many Indian cities are already doing. When nearly half the population of an 18 million city live without sewerage, the limitations on river cleaning are self-evident. The situation is so bad that it will be no wonder if an epidemic of water borne diseases break out even as water and sewage pipes laid by lakhs of households has every chance of getting mixed up. Many of the factors which have left planners and administrators helpless have been caused by acute congestion, an absence of designated outlets for different kinds of waste and a complete lack of enforcement.

The second step relates to giving overall authority for enforcement of to the DMCs which is their statutory responsibility under the DMC Act 1957. The administrative decision that the drain owning agency is responsible for its maintenance is the surest way

of creating confusion and diffusing responsibility. Maintenance of drains including hardware issues like repair, modifications, new drains, de-silting and dredging can continue to be done by ownership. But when solid waste, sewage and plastics are being thrown into the drains every day, visible enforcement is needed. DMC has an army of staff as well as powers to fine. The situation of filthy drains being "no man's land" with responsibility shared between DMC, PWD, Irrigation & Floods and DJB, no one has responsibility to fine and take other action against contractors, commercial establishments and the general public. In its absence every Department is taking shelter behind administrative orders which cannot belie the need to provide sanitation in the drains and enforce the law.

The third step needed is to immediately post a full time Chairman DPCC who has to perform regulatory functions and divest him of other responsibilities like the Delhi Jal Board, Secretary of Environment & Forests, Irrigation & Flood Department as there is no time left to oversee functions besides there being a conflict of interest as DPCC reports on the work of DJB. This applies to the Member Secretary DPCC also who holds other administrative responsibilities which overtake his attention to pollution related activities. Besides, this is in conflict with the statutory provisions under the Water (Prevention and Control of Pollution) Act 1974 and Directions of NGT.

All three steps are therefore included in the Action Plan and will be followed up and intervention of NGT sought if there is no response.

The MC has been given a rare opportunity to do something meaningful and having enormous substance. It will perform the functions relentlessly and looks forward to apprising the Hon'ble NGT of progress that is possible in the forthcoming months.

Issues, Present Status and Detailed Action Plan

Chapter 1

Environmental Flow

Issues

As a living river the Yamuna should be able to fulfil its own ecological functions. These include recharging the ground water aquifers, carrying nutrient rich alluvial sediment while also supporting biodiversity and aquatic life. A river passing through the capital of the country can realistically be expected to be a source of well-being for the citizens by promoting a range of cultural and ecological activities in tune with the special place accorded by many civilisations that came up on the river banks.

This legitimate expectation is belied because the river is presently fighting for just oxygen to stay alive. The Central Pollution Control Board has specified that the river must achieve at least bathing standard. Presently the pollution in the Yamuna is far in excess and no impact on river quality is likely unless there a minimum environmental flow. The situation is exacerbated by a suffusion of sewage, industrial effluent and municipal waste which is also responsible for near destruction of the river.

NGT in its orders dated 13-01-2015 and 11-06-2015 had referred to the Order of Hon'ble Supreme directing release of 10 cumecs of water and reiterated that the state of Haryana must release at least 10 cumecs of water in the river, downstream of Hathnikund barrage.

NGT had additionally directed that the water bodies and wetlands upstream of Wazirabad should be deepened for improving ground water recharge and increase flow in the river during the lean seasons. The Principal Committee in its report submitted to NGT on 6th May 2015 had also recommended a slew of measures including creating off river reservoirs along the floodplains, recycling of treated waste water in all urban centres along the Yamuna, improving water use efficiency in agriculture and giving much greater thrust to mandatory rain water harvesting.

Present Status:

The Executive Director, NMCG (National Mission for Clean Ganga) who is also the Member Secretary, Upper Yamuna River Board (UYRB) confirmed that 10 cumecs of flow is being released by the State of Haryana at Hathnikund. However, most of it evaporates or percolates before it reaches Palla during the lean season.

No action has, however, yet been taken on the other measures to augment flow in the river as suggested by the Principal Committee.

Action Plan

First, the release of E flows prescribed in the NGT orders would be monitored and reported on by 31st December. MC proposes to visit the site and satisfy itself about the 10 cumecs release at Hathanikund barrage and to understand whether either of two alternatives which have been suggested for improving the river flow have substance and are prima facie feasible.

Second, from discussions with all experts it emerges that in the lean months 10 cumecs of water as ordered by the Supreme Court and NGT would be completely insufficient to sustain the flow in the river as the 10 cumecs released at Hathanikund evaporates or percolates as it flows downstream. Resultantly, most parts of the river are completely dry. There is presently no possibility of the release of more water in the river by the upper riparian states like Haryana and UP howsoever much the river runs dry downstream of Hathanikund.

The Executive Director of NMCG informed the MC that a study of E- Flow for Ganga has been done by Central Water Commission (CWC) with the help of Experts and such a technical assessment was needed if justification for augmenting the water discharge was to be based on factual data .The authority which can assign more water would be the MoWR, RD&GR.

The MC, therefore, proposes to get a study done through CWC to assess E-flows for Yamuna in the stretch between Hathanikund to Okhla as recommended by the Shashi Shekhar Committee in its report dated 01-08-2014 which forms part of the judgement of NGT dated 13-01-2015. This has to be related to monthly data and the changing temperatures.

The scope for introducing other measures to enhance the lean season flow in the river e.g. through creation of off river reservoirs, deepening of wetlands, recycling all the treated waste water, rainwater harvesting and promoting water conservation and efficiency in agriculture, including growing less water intensive crops, all of which had all been recommended by the Principal Committee constituted by the NGT, will also be made a part of the proposed study.

The MC is working in tandem with the Principal Committee under the Chairmanship of the Secretary, MoWR, RD&G who heads both NMCG and the Principal Committee set up by NGT. The Terms of Reference would accordingly be discussed with the Ministry and with experts who have been identified.

A progress report would be given to NGT by 31st December.

Chapter 2.

DDA and Demarcation of the Flood Plains and Conservation Activities

Issues

Floodplains play an important role in maintaining the flow in the river, help recharge ground water and provide a habitat for aquatic biodiversity. They are integral to river hydrology. The Expert Committee which gave its report on demarcation, protection of floodplains and removal of debris from the floodplains had recommended demarcation of 1 in 25 years floodplains and its mapping both in Delhi and UP portion of NCR by DDA and state of UP. It recommended total removal of all encroachments and solid waste and reclaiming possession of the floodplains; prohibition of growing agricultural crops and vegetables and permitting only floriculture and tree planting; and creation of biodiversity parks in four phases.

There were recommendations for creation of constructed wetlands on the floodplains at the outfall points of all drains before they join the river so as to improve the quality water, constant monitoring of illegal activity on the floodplains, the use of technology/remote sensing and creating a task force to prevent dumping on the floodplains'

It was also recommended that Environmental Compensation of Rs 50,000 should be levied on anyone found dumping construction and demolition waste or Municipal Waste on the floodplains and Rs. 5,000 on anyone throwing pooja material into the river. Special Ghats were proposed to be created for idol immersion in the river.

The Expert Committee's report dated 01-08-2014, has been treated as a part of the judgement which had also recommended declaration of river floodplains in the Delhi stretch both in UP and Delhi, as an Eco-sensitive river conservation zone under provisions of the Environment (Protection) Act 1986 or the DDA Act 1957 as well as relevant Acts of the State of UP.

Present Status:

Demarcation of 1 in 25 year's floodplain within Delhi as confirmed by DDA has been done. The authenticity of this needs to be accepted by expert agencies which would be ascertained.

DDA claims to have removed encroachments that had come up over 400 acres of land and had reported that more than 17500 cum of malba (C&D waste) has been removed. Moreover 155 vehicles had been seized. Data referring to the periods when this was done has not been given to the MC despite being asked twice. No plan for regularly taking action has been provided. There is

apparently no strategy for day to day surveillance of activities on the flood plains. The effectiveness of the CCTV surveillance depends on studying the recordings, identifying and taking deterrent action against defaulters and not by simply having the footage. The receptivity to the MCs questions was routine and did not inspire confidence.

The experience of deploying 'Quick Response' teams and the use of private security to guard the land were not commented upon. From the reports given (that too after several weeks), it is unclear how much of the floodplain is under encroachment and how much of it has been repossessed by the DDA or is completely unencumbered. No khasra wise survey appears to have been undertaken. The road map for future reclamation which had been sought by the MC is hazy and too broad to enable monitoring in terms of timelines and deliverables. Whether DDA can use drones or remote sensing technology for surveillance of the floodplains has been received with repetitive responses, "still under consideration" three times.

As to what happened to the 243 FIRs registered and other achievements related to NGT's specific orders issued over the last six months, there is no response. During two meetings it was apparent that follow up with the police to see that arrests are made and charge sheets issued to at least some defaulters is not considered a responsibility. In such a situation there can be no deterrence against illegal and unauthorised activities on the flood plains which are inviolable.

Despite assertions by the DDA that Phase I of the Biodiversity Park has been completed and phase II, III and IV are in the final stages of starting, there is no tangible progress. Even phase I has been completed only partially. A recent proposal sent by DDA for restoration of the flood plain sent to the MC for perusal was more in the nature of creating cycle tracks, concrete pathways etc. which negate the very concept of floodplain development.

DDA has also not clarified if agricultural activity is still continuing in portions of the flood plains which are presently not under a Court stay.

Environmental Compensation which was imposed by DDA under Polluter Pays Principle was stated to have been opposed by the people. This reply is not acceptable and raises the question whether this was dropped out of fear of consequences or apathy. In any case it was not reported to NGT. No meeting with the Vice Chairman could be held despite a suggestion by the members that they would visit his office as the subjects referred by NGT were receiving perfunctory treatment.

Finally a meeting with the new Vice Chairman could be held after 8 weeks when not even phone calls were responded to. On 15th October MC took the new VC through all the pressing subjects one by one and his response was receptive and he expressed concern over disregard of earlier efforts. To start with the MC advised him to revamp the administrative structure responsible for

flood plain preservation and rejuvenation so that there is a single dedicated project team in charge of all matters including enforcement. This was agreed to by the VC.

The DDA have given the work of detailing an Action Plan for flood plain development to Professors of the Jamia Millia Islamia University .The rejuvenation plans are reported to be in the final stages of completion and were shown to the MC along with timelines. However there was no description of the plans and activities envisaged. The VC undertook to have the plans placed before experts and knowledgeable people in a workshop to elicit wider opinion and get more participation and involvement.

Action Plan

The MC's letter delineating what was needed to be done is at **Annexure II** and forms the basis for monitoring.

All the directions of the Tribunal were gone over and since the new VC had just taken over time was given until 15th November to give time lines for each action point already delineated by the MC.

- (i) DDA officers told the MC that these plans are ready and are based on the advice provided by the University as a part of a paid consultancy. The VC said the plans would be discussed in a workshop where a cross section of experts and knowledgeable people would be invited, including those who have actually executed such projects. This would be reviewed by MC.
- (ii) Specificity would be brought into implementation of enforcement measures in particular the follow up on FIRs, removal of illegal cultivators and structures that had mushroomed up after the cut-off date and who had no legal protection to continue.
- (iii) DDA would specifically try and identify existing and future encroachment and unauthorized construction through the use of technology. The National Informatics Centre (NIC) has been handling ISRO related activity and has an official position on the GSDL Board of Government of Delhi. Certain technological options for monitoring activity on the flood plain had been suggested by the Director in charge of GIS. The Vice Chairman told the MC that he would convene a meeting to decide how best technology could be used as a tool to enforcement – in particular the use of remote sensing and drones.

The Activities that are proposed to be monitored and reported in the progress report on Dec 31, 2018 are;

- i. Progress in demarcation and mapping of floodplains falling within Delhi and UP.
- ii. Progress on the removal of encroachments from floodplains and agreement on a practical mechanism to prevent fresh encroachments. The possibility of using technology like

4/11

drones or satellite imagery, CCTV cameras supported by physical patrolling will be reported.

- iii. The scope for use of technology to monitor access points to the floodplains through installation of CCTV camera to enable identification and apprehension of those found dumping C&D waste; MSW, biomedical waste and pooja material and action taken will be reported.
- iv. Steps taken for stoppage of cultivation of agricultural produce on the flood plains and alerting consumers of the hazards of eating such produce.
- v. Quarterly status of cases reported, arrests made, trucks / tempos impounded, compensation levied and police follow up undertaken with results would be monitored.

Separately, the Chairman of the Principal Committee/ Secretary MoWR, RD&GR has been contacted by the MC and a joint meeting of the MC and the Principal Committee is now proposed in two parts:

- To jointly with the help of experts see how best the rejuvenation of the floodplain and creation of bio diversity enclaves can be promoted concurrently. This is needed as the progress will have to be a continuum of past decisions and a common understanding of the road map and funding where needed.
- To jointly consider whether the issue of notifying Hathnikund to Okhla portion of the floodplains as Eco-Sensitive Zone or Conservation zone under the Environment (Protection) Act 1986, DDA Act of 1957 or the UP state Act has the support of, MoWR, RD&GR, the State of UP, Haryana, NCT of Delhi and DDA before it is taken up with MoEF&CC . The progress would be reported in December 2018.

MC would get a committee of experts to advise on the feasibility of creating constructed wetlands on the embankments of selected large drains at the outfall point into Yamuna. This subject came up in the light of some success stories reported in respect of other rivers (namely, Assi Ghat pilot done by INTACH). The UP authorities would also be involved as there are floodplains lying within the UP sections of the river. Timelines are not being given but the effort would be to do this by 31st December.

Chapter 3

Quality of River water

Issues

Although the Yamuna River flows only for 54 KM from Palla to Badarpur through Delhi, the 22 KM stretch from Wazirabad to Okhla, which is less than 2% of the river length of 1370 Km from Yamnotri to Allahabad, accounts for about 76% of the pollution in the river. During the dry season, spreading over nearly nine month 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 22 drains that join the river Yamuna all through its journey from end to end within Delhi.

NGT had directed setting up of Sewage Treatment Plants (STPs) and Common Effluent Treatment Plants (CETPs) to ensure that the sewage/industrial effluent does not find its way to drains which eventually join the river, besides several other measures, and that the quality of river water be monitored by CPCB and DPCC.

Present Status:

As per the report of CPCB (2017) the river receives about 3911 MLD of sewage, which includes industrial effluent, and has a BOD at Okhla ranging from 31 mg/L to 64 mg/L with virtually no DO and a Total Coliform varying from 1.3 million to 16 million MPN/100 ml. The limits prescribed for the Delhi stretch are 3 mg/L and 5000 MPN/100 ml respectively. Specifying a goal which is clearly unattainable needs to be revisited.

The DJB has raised the issue of intermittent pollution, including high levels of Ammonia in river at Wazirabad with periods of near normalcy. During the period 30th December, 2017 to 11th March, 2018 however there was continuous pollution.

A suggestion has been made to MC that this can be prevented by bifurcation of e-flow (352 cusec) into two parts- wherein 176 cusec is to be released through River Yamuna and the balance at DD-8 (Bindroli, Sonipat, Haryana) near Palla. It has been assured by DJB engineers that this will circumvent the water getting polluted on the way and would greatly improve the quality of water. DJB's CE Water has stated that Haryana authorities would have no objection to making this arrangement.

There are two stations set up CPCB for online monitoring of water quality in river Yamuna which are non-functional. Separately, DPCC on a monthly basis carries out manual quality testing of river

Yamuna at 9 places and CPCB at 5 places. Whereas DPCC test results for water quality at Palla show a BOD level of 3 mg/L, CPCB test results show BOD levels varying between 2 and 9 mg/l.

Action Plan:

1. MC proposes to examine the adequacy of the water quality monitoring stations set up on Yamuna by DPCC and CPCB. Already both organisations have been told to simplify reporting systems and to invariably give a critical analysis which can be compared with the month on month and year on year data. Hence comparative reports on these lines would become available.
2. A mechanism will be worked out jointly with DPCC and CPCB to install an online system for quality testing of water in Yamuna at Palla and Wazirabad. Not only standard parameters would be included but also Ammonia because this is brought up as a recurrent problem which impacts drinking water supply to Delhi.
3. MC, in response to media reports and information as and when received through informal sources about pollution in Yamuna or any other violations of NGT orders, has decided to constitute team of Scientists from CPCB, DPCC and other Institutions like the IIT Delhi or NEERI to carry out inspections and submit reports to MC for issue of directions to concerned agencies for remedial action. The instructions issued by MC to CPCB and DPCC are at **Annexure III**.
4. With no flow in the river downstream of Wazirabad and 3900 MLD of sewage (both treated and untreated) released into the river with a BOD level in excess of 30 mg/L and virtually zero DO for most part of the year there is no scope for any dilution which can improve the quality significantly. In the short and medium term, therefor there is no possibility of achieving a BOD level of 3 mg/L for a C Class river as categorised by the CPCB. The MC therefore will monitor incremental change in the quality parameters of river flow consequent to commissioning of the Interceptor Sewer projects, setting up or upgrading the STPs and other connected activities like creation of biodiversity parks and wetlands on the floodplains.

Chapter 4.

Sewage Treatment Plants (STP)

Issues

Delhi which has a population of 18 million, as per DJB estimates consumes 900 MGD (4086 MLD) of water (both surface and ground water) and generates 720 MGD (3268 MLD) of waste water, reckoned at 80% of the fresh water used. The present capacity of all the existing STPs in Delhi is 607 MGD (2756 MLD) against which the sewage actually received at the STPs is 458.75 MGD (2083 MLD) - which means there is only a 75% capacity utilization. Out of the 458.75 MGD of treated sewage, only 89 MGD is presently being utilized, mainly for irrigating parks and gardens and the rest is being released into drains, where it gets mixed with untreated sewage, and eventually empties into the river Yamuna.

i) Functioning and Upgradation of Existing STPs

The order dated July 26, 2018 of NGT gives a list of 41 STPs at 22 locations, although the Judgement dated 13-01-2015 had listed 23 locations. Out of these 41 STPs, 6 STPs are closed and 5 out of these 6 are proposed to be rehabilitated/ upgraded. Twenty (20) STPs are receiving waste water (sewage) below their installed capacity, the deficit ranging from 10% to as high as 90%. Five plants as per the DJB test reports are not meeting design parameters, although as per DPCC's test report dated 23-08-2018, as many as nine (9) STPs are not meeting the standards. NGT in its order dated 13-01-2015 and 08-05-2015 had directed that plans should be prepared for the up gradation of STPs, optimal utilisation of capacity of those STPs that are receiving waste water/sewage below capacity and removing deficiencies in the STPs that are not meeting design parameters for treated waste water.

Setting up of new STPs

NGT's order dated 13-01-2015 records that 32 new STPs will be set up by the DJB. This was based on the recommendations of the Expert Committee appointed by NGT and DJB's own Sewerage Master Plan 2031.

Present Status:

MC has reviewed the matter in detailed meetings with the Delhi Jal Board and based on the review the DJB has been asked to furnish information on the STPs commissioned during the last three and a half years after the judgement. In particular details were sought on:

- STPs under construction,

- The progress of construction and
- STPs which are still at the planning or tendering stage,
- STPs for which financing or land issues still remain to be resolved.

The DJB has clarified that the 32 new STPs were to be constructed as per the Sewerage Master Plan (SMP) 2031 and that none of the 32 planned under that Plan have been commissioned. These included 14 STPs proposed to be set up in Najafgarh basin. Seven out of 14 STPs have been sanctioned by the NMCG and Rs 45 crores released in July 2017. No construction has yet commenced even in these seven STPs after a lapse of more than a year. The reasons are mostly non availability of land. Even the two sites where land is in possession of DJB, work has not commenced as the Board is undertaking a fresh sewage flow study. This clearly shows a complete lack of direction and seriousness on the part of DJB to move forward on its commitment to NGT given from time to time.

Though not part of 32 STPs covered in the order dated 13-01-2015 four (4) STPs of a total capacity of 80 MGD have been commissioned during the last three and a half years and seven (7) STPs are under construction/up gradation/rehabilitation. The list of STPs commissioned and those under construction is at **Annexure IV**. The status of 32 STPs as per the SMP 2031 which includes 14 STPs that are proposed to be set up on Najafgarh drain and its tributary drains are at **Annexure V**. After a joint meeting with all engineers and CEO DJB held on 04-10-2018 the same points were repeated. A time of one week was agreed upon for giving the fresh time lines which was not received by the time this report was going for printing. The minutes of the meeting held by the MC with the officials of DJB are placed at **Annexure VI**

Based on the information received new timelines and deliverables will be worked out and finalised and reflected in a modified Action plan and included in the Progress report to be sent to NGT as directed by 31.12. 18.

The Plans for up gradation of the STPs functioning below capacity and those not meeting standards are also a part of this exercise and had not been provided earlier.

Action Plan

Existing STPs

Sewage treatment at the optimal level is partially a design problem and partially because the sewage does not reach the STP. For each STP a time frame for up gradation / modification, reduced into short and medium term milestones like making DPRs, getting financial and administrative sanction and tendering the work will be got prepared with milestones to be crossed. Thereafter, every quarter this would be updated on the basis of information provided. The sources from where

funding is likely to become available would be asked for as the only two sources are budgetary support and funding from NMCG.

New STPs

New timelines for completion of new projects broken down into the various sub activities like DPR, land, sanction, tendering and construction will be got prepared and new timelines reported to NGT. A revised list of STPs required, if different from the original planned 32, will be got projected so as to cater to all the sewage likely to be generated in Delhi in the next 10 years with plants adhering to the new standards for STPs. The revised schedule will be informed to NGT.

Chapter 5

Interceptor Sewer Project

Issues

Out of all the drains out falling into the river Yamuna, 75% of pollution is contributed by three major drains i.e. Najafgarh, Supplementary & Shahdara. Untreated sewage which comes from smaller drains all flows into these three major drains. This sewage is coming from 1800 unauthorised colonies with a population of 68.40 lakhs as per DJB Report. Most of these colonies are unsewered. Since laying sewer lines and providing connectivity of each household to sewage treatment plants is a long term goal, in a short and medium term, the Interceptor Sewer Project seeks to trap sewage at the point of confluence of the smaller drain and a larger drain, like the Najafgarh drain, and to convey the sewage through a trunk sewer line.

The engineering plan is to trap the sewage by constructing Intercepting Chambers and laying Interceptor Sewers along the banks of the drains.

Approximately 57 kms of sewer lines are to be laid by Micro Tunnelling and Pipe Jacking method. This project has been subdivided by DJB into six “Packages” as given below:

| Package No. | Package description | Sub-drains being trapped (in Nos) | Discharge (in MGD) | |
|-------------|----------------------------------|-----------------------------------|--------------------|--|
| 1 | Dwarka | 2 | 13.80 | |
| 2 | Nilothi & Keshopur | 37 | 63.10 | |
| 3 | Coronation Pillar & Bharat Nagar | 19 | 69.10 | |
| 4 | Rohini & Rithala | 19 | 26.0 | |
| 5 | Shahdara North (Yamuna Vihar) | 15 | 31.80 | |
| 6 | Shahdara South | 16 | 37.20 | |
| | Total | 108 | 242.00 | |
| 1 | Najafgarh | 28 | 87.00 | |
| 2 | Supplementary | 49 | 86.00 | |
| 3 | Shahdara | 31 | 69.00 | |
| | Total | 108 | 242.00 | |

Present Status of the Project

The ISP which is due to be commissioned in December 2018 will trap 108 drains and the project is 92% complete. At present 98.9 MGD of Sewage is being trapped and treated at the STPs. Once commissioned, this is expected to trap 242 MGD of sewage. However the project which is being taken in six packages will be able to treat only 180 MGD of sewage by December 2018 as the STPs in some phases will still not have been commissioned. Treatment of all the 242 MGT of sewage intercepted through the project will possible only when all the STPs in six phases are completed by December 2019.

Action Plan:

MC will monitor commissioning of ISP by 31.12.18 and the remaining STPs included in the six packages one of which has been commissioned. The revised timelines as fixed in consultation with DJB will be monitored jointly with DJB and the Concessionaires.

MC will also monitor improvement the water quality in the river Yamuna, the reduction in the BOD load in stages, with the commissioning of each package of the ISP and report this to NGT.

water up to 20 KLD should be exempt from paying sewage charges even if water is subsidised by the Government.

- Secretary PWD, Secretary I&FC and DMCs will be asked to draw up calendar for dredging and desilting of drains and bring it in public domain for better compliance. The authorities will be asked to keep the public informed about nodal officer's numbers on websites and through public notice and they can what's app details to the zonal engineer in case drains are being misused or not being dredged as per the Calendar.
- NGT has already placed a ban on concretisation of natural storm water drains. Any violation of this direction if reported to the MC will be taken up at the highest level of the Agencies/Departments and also reported to the Tribunal.
- For controlled dredging of Yamuna River as directed by NGT, as a first step, the issue will be discussed with the Secretary MoWR, RD & GR and Chairman Principal Committee for funding the feasibility study. A feasibility report for de-sludging and controlled dredging in Yamuna can be got prepared through expert institutions like NEERI, IIT Delhi and Delhi University under the technical supervision of Experts like Dr Rakesh Kumar Director NEERI, Prof CR Babu, and Prof AK Gossain. Co-option of other Experts will be suggested, if considered necessary, in consultation with the Principal Committee.
- The Action plans for enforcement action against people throwing C& D waste or letting sewage flow into drains will be followed up and results obtained from DMCs, DJB and DMs will be displayed on the website of the concerned agencies and the MC. There was however a tendency to disown responsibility with arguments that the drains belong to PWD, I& FC and MCD is only responsible for storm water drains. The I& FC and DJB tried to disown the problem as one where they have no powers to take punitive or deterrent action. This continued deflection of responsibility has been brought to the notice of all the Heads of the organisations and the Chief Secretary. If the apathy continues it will be reported to NGT on 31 .12. 18.
- The only way of judging whether the action taken is showing is to have samples of waste water from various drains taken by CPCB and DPCC and to ask for location specific action started against concerned staff in whose jurisdiction things have worsened. Such periodic measurements will be taken through joint team of CPCB and DPCC scientists and will cover both flow measurements as well as quality parameters. Adequacy of the number of testing stations for long drains like the Najafgarh drain will be decided in consultation with the DJB, CPCB and DPCC.
- Hot spots of industrial pollutants in selected drains will got identified after sending out team of scientists from CPCB and DPCC and drain owning agencies/DMCs and based on such reports Action Plan will be got prepared for trapping industrial effluent in the drains for treatment through existing CETPs or by setting up new ones or even action under the law against such

point sources of pollution. This is ongoing activity and reports would be sought every 2 months.

- Directions have been issued to Dept. of Irrigation & Floods for placing boom at the mouth of drains joining Yamuna and at some other selected points so as to collect floating plastic and other waste entering Yamuna. First report has been sought on 01-11-2018. The progress achieved will be reported to NGT.
- I&FCD has been directed to do aeration/ozonation under the supervision of CPCB in selected drains like the Najafgarh drain as directed by the NGT. Progress on this will be monitored and technical help of Institutes like NEERI will be sought. No time line is possible but action on this would be co-ordinated by the MC by 15th December subject to NEERI agreeing to carry this out within November and December.
- Teams of students from Delhi College of Engineering/IITs Delhi under the leadership of some faculty will be sent out to carry out surprise and random check on selected drains, prioritised in consultation with DMCs and DJB, and report on dumping of septage, C&D waste or biomedical waste into the drains. Specific locations where CPCB and DPCC find a worsening situation would be reported on website and directions given for immediate rectification. This has been arrangement has been discussed with Professor Gossain of IIT Delhi. A plan has still to be drawn up depending on student availability. They would need to be compensated for out of pocket expenses. A system for doing this does not exist presently and by 31.12.18 the progress made would be reported.

Chapter 6

Repair and Maintenance of Drains

Issues

There are 22 drains that join Yamuna in Delhi, including Shahdara outfall drain which joins downstream of Okhla. These drains carry 3911 MLD of waste water, both treated and untreated, (CPCB report for the year 2017) which is released into the river Yamuna. Though the Report of Expert Committee dated 13-10-2014 had stated that there are 210 natural storm water drains of which 157 could only be located, as per the information now received from DJB, the number of drains (natural and artificial) in the catchment of Najafgarh, Supplementary and Shahdara drain is 376

NGT had given detailed directions which are recounted below as they are all monitorable.

- i. Actual number of drains which are connected to STPs either directly or indirectly should be mapped and no sewage or industrial effluent be allowed to flow through the drains and drains joining larger drains should be trapped at the outfall point and conveyed through Interceptor sewer line to STPs.
- ii. In respect of the Interceptor Sewer project (ISP) which proposed to trap 108 drains and 242 MGD (about 1100 MLD) of sewage it should have been commissioned by March 2016. As per DJB the revised date now is Dec 2018.
- iii. Sewage flow from eleven drains out falling into Yamuna which have been trapped and sewage conveyed to STPs should be sewage free as six of these drains on inspection, were found having sewage in them.
- iv. Six drains, namely, Shadara, Qudasia bagh (Mori gate), Barapulla,, Maharani Bagh, Kalkaji and Tekhand drains have to be trapped.
- v. As per the Expert Committee report there were 148 locations in sewerred areas where the drains were found carrying sewage due to puncturing of sewer lines and 344 locations where storm drains join sewers thereby causing surcharging of sewers resulting in flooding. This is where sewage gets mixed with storm water overflowing in the area. DJB had already identified and mapped such locations and has been directed to prepare an Action Plan to remedy this.
- vi. IFCD, PWD and Municipal Authorities are expected to undertake periodic dredging and de-silting of drains within their jurisdiction and dispose of the silt/dredged material as designated landfill sites.
- vii. No MSW, C&D waste or faecal sludge should be allowed to be deposited into drains and the authorities owning the drains should have plans to clean drains. Also, Environmental

Compensation under Polluter Pays Principle of Rs 5000 on individuals should be imposed in addition to action under municipal laws.

- viii. No concretisation or covering of the drains should be permitted as any such action adversely affects the biodiversity present in the drains and affects the ground water recharge.
- ix. Drains carrying both industrial effluent and domestic sewage should be identified and effluent from such point sources of industrial pollution conveyed to CETPs as the STPs are not designed to treat industrial effluents.
- x. All the drains should be subjected to flow measurement and testing of quality of waste water by CPCB and DPCC

Present Status:

An Action Plan for sewage flowing through drains in sewerred areas at 148 locations and 344 locations where storm water is being forced into sewers, has been prepared by DJB and out of 148 locations, at 69 locations the sewage flowing into drains has been plugged and the action plan for plugging the balance 79 locations is under implementation.

Action Plan:

- In order to make an assessment of the number of drains, DJB through IIT Delhi has prepared a Drainage Master Plan for Delhi. DJB has informed that the number of drains that still remain to be trapped in the catchment of Najafgarh, Supplementary and Shahdara drains which will be assessed and plans formulated for their trapping and conveyance to STPs. MC will monitor this.
- Progress of plugging sewage in drains flowing through sewerred areas will be monitored on quarterly basis and the progress covered in the progress report. Already 79 out of 148 such spots have been stated to have been plugged by the DJB. These will also be subject to independent verification.
- DJB has been asked to prepare an action plan for plugging six (6) out of 11 drains where sewage was found in the drains despite the same having been trapped. The DJB will also be asked to take follow up action on recommendations in respect of each of the six drains as decided in the meeting of the Principal Committee held on 18-07-2018. The Action taken by DJB will be monitored by the MC.
- Compliance of NGT directions for imposition of Environmental Compensation under Polluter Pays Principle for those generating sewage, whether in sewerred areas or unsewerred areas, which despite NGT's directions in May 2015 has not been complied with so far, will be pursued. Separate directions have been issued asking NCT Delhi as to why those consuming

Chapter 7

Industrial Pollution and CETPs

Issues

There are 28 industrial clusters in Delhi out of which 17 clusters are connected to 13 CETPs. The remaining 11 clusters are not connected to any CETP. In addition there are reported to be 51837 industries in non-conforming/residential areas which are completely unregulated and who are releasing their effluent, consisting of heavy metals and other toxins, into the drains which then gets mixed with domestic sewage. All this muck is eventually discharged in the Yamuna. These industrial pollutants when mixed with domestic sewage, are not amenable to treatment even by the STPs due to the limitation of treatment process/technology. It also was brought to the notice of the NGT that most of the CETPs are receiving effluent much below their designed capacity.

NGT vide orders dated 02-03-2015 directed that

- i. All the industries in 17 clusters should be connected to CETPs. Industries not connected should be asked to connect through conduit pipes to CETPs and in event of failure such industries should be ordered to be closed by DPCC.
- ii. Eleven clusters which do not have CETPs are stated to be dry industries and do not consume water in the process. Such Industrial clusters will be subjected to joint inspection by CPCB, DPCC and DSIIIDC and MCDs verify the claim and also assess the manner in which hazardous waste like used oil, lubricants and grease if any used in the process it is disposed of.
- iii. No drains should carry industrial effluent and if found in the drains CETPs should be set up to treat the effluent before being taken to STPs as the STPs are not capable of treating industrial effluent.
- iv. Hazardous waste generated at the CETPs should be disposed of at the designated hazardous waste sites
- v. NGT vide order dated 19th may 2017 and later through an order dated 23-08-2018 in OA no. 601 of 2018 has directed the MC to monitor functioning of the industries located in non-conforming/residential areas.

Present Status:

Against an installed capacity of 212 MLD, the effluent received by all the 11 CETPs is only 52 LMLD thereby 160 MLD capacity lying unutilised. The capacity utilization varies from 10% to 41%. As per the minutes of the Principal Committee held on 21-05-2018 seven out of 13 CETPs were not meeting the standards. The reason for low capacity utilization as pointed out by the DPCC was that some of the

Industries have closed or moved out. Some of the industries may not be connected to the CETPs. The stand of DSIIDC and DPCC in respect of 11 clusters not connected to any CETP is that industries in these clusters are not water consuming.

Most of the CETPs are not utilising the treated waste water, while some using it for horticultural purposes. The CETPs continue to draw ground water with very little recycling and no CETPs have ZLD.

The industries located in residential areas/non-conforming areas are quite dispersed and DPCC does not exercise any control on them. As per the DPCC such industries can be regulated by the DMCs and DDA.

Action Plan:

Monitoring the compliance of these instructions will be undertaken by MC. However no timelines can be given presently until the feasibility of the solutions are available. A second review would be held in November/ December 2018 and the outcome reported to NGT. The methodology is given below:

1. The overall capacity utilization of the CETPs is as low as 25%. The DSIIDC and the concerned CETP societies will be asked to prepare an Action Plan for better utilization of this spare capacity. Director NEERI with whom the matter was discussed by the MC, confirmed that it is quite feasible to retrofit some of the CETPs to treat sewage. Action Plan for this will be got prepared involving DSIIDC, CETP societies and the DJB with technical support of NEERI.
2. The decisions taken in the meeting of the Principal Committee on 08-05-2018 will be followed up in meetings with CETP societies, DSIIDC, CPCB and DPCC.
3. Special Joint Inspection Team of CPCB and DPCC will be constituted to monitor the performance of CETPs, both in terms of quality parameters and capacity utilization.
4. Action Plan for achieving ZLD and water recycling will be prepared after meeting with CETP societies, DSIIDC, CPCB and DPCC.
5. Special teams of DMC, DPCC and CPCB will be constituted and hotspots of pollution emerging from residential colonies into drains identified for area specific action initially for selected industries like dyeing and polishing/pickling. Such action will be taken in coordination with the EPCA which also has similar mandate.

Sewage and Faecal Sludge Management

Issues

One of the major sources of high level of pollution in the drains is the absence of sewer network in unauthorised colonies and slums. Delhi has 1797 unauthorised colonies which have a population of 40 lakhs which is growing. There is no regulated system of emptying the septic tanks and the faecal sludge, containing very high levels of Faecal Coliform, gets deposited in drains and water bodies which ultimately pollutes the river. By not confronting what is happening it is putting the entire population at risk and cannot be ignored on grounds of public health.

Sludge generated by the STPs, CETPs and the legacy sludge at the bottom of the major drains and river Yamuna, if not removed periodically and managed/disposed of in a scientific manner, including the usage of sludge as a manure or fuel, can result in environmental harm. A safe and scientific method has also to be found for disposal of sludge generated by the STPs of DJB and CETPs.

The NGT in its orders dated 08-05-2015 had directed that:

DJB should provide by itself or through an appropriate agency de-sludging vehicles which will collect faecal sludge from septic tanks in the colonies and take it to the nearest STP and that such vehicles should be provided with GPS to ensure proper collection and transportation to the designated location.

The sludge generated by the STPs and CETPs, including the hazardous waste, generated by the CETPs should be disposed of in accordance with SWM rules 2016 and the Hazardous waste management rules.

Present Status:

The directions of the NGT have remained unimplemented so far and the faecal sludge from septic tanks in unauthorised colonies continues to be dumped in an unregulated manner. In fact the Centre for Science and Environment (CSE) in its survey has reported on the absence of sewerage network in 90% of the 1797 unauthorised colonies in Delhi and the use of privately hired services for periodic pumping out of septage from house owned pits into drains and water bodies. The CSE Report has shown how the privately contracted “emptiers” collect the septage from household pits against payment and empty the contents into drains, water bodies and pits so causing unacceptable health hazards and polluting the major drains meeting the river. This cannot be tolerated anywhere but least of all in the capital when several cities and even large states had notified the Faecal Sludge Management regulations. These were reported by CSE and are being implemented properly even in neighbouring Ghaziabad which had put a system in place. Apparently, DJB had prepared draft regulations in 2015, which were revised in 2018, but were not pursued and were reported to be awaiting Government approval for over 6 months. One

positive outcome is that the Principal Secretary (UD) has, after intervention by the MC, since informed that he has moved the file for Cabinet approval for the Regulations.

DJB, the Municipal Commissioners and the Deputy Commissioners all have the authority singly and jointly to prevent such sewage/septage discharge by using provisions of the EP Act 1986 and the DMC Act even without waiting for the formal notification of the regulations. In several meetings with DJB, the three Municipal Commissioners and the Principal Secretary Urban Development of GNCT, it was apparent that the agencies are not alive to the problem. DJB's a vision and goals only relate to sewerage the colonies entirely but without reference to any budget provision or commitment on user charges for household connections. Only some 14% of the 1797 colonies have been provided sewage pipe lines but even there the offtake is extremely poor as the residents are reported to be unwilling to pay the charges. DJB now says the Government will be paying for the connections but there is no such policy on paper or funding or time lines. This is a public health hazard.

As regards the sludge generated by the STPs of DJB or the CETPs, there is no management plan with either the DJB or the CETPs for disposal of the sludge.

Action Plan

The MC has reviewed this situation with all authorities and issued comprehensive directions at **Annexure VII**. These seek the intervention of the Chief Secretary as neither are the Regulations being notified and nor is anything being done to stop sewage being discharged in the drains and water bodies. The Chief Secretary has been told about the importance of co-ordinating this activity which has little ownership presently.

- The Commissioners of DMCs have a primary duty for sanitation in the whole of the Municipal area. Therefore each DMC Commissioner has been directed to submit an Action Plan for prevention of such pollution and to oversee proper sanitary disposal of faecal sludge and other waste under the powers vested in the DMC Act. This has been directed to be taken up first to cover all drains nearest to the 3 major drains out of the 22 drains which empty into the river irrespective of whether they come under I& FC Department or PWD as enforcement powers are not with those Departments. Periodic reviews will be carried out with three Municipal Commissioners to monitor compliance of the directions.
- The DJB has concurrent but also direct responsibility under the Delhi Water Board Act 1998 and Section 31 of the Act specifies that all drains which were municipal drains under the erstwhile DWS &SD Undertaking shall vest in the Board. Under Section 79 (subsection 1) DJB has powers to impose a fine up to Rs 5000 for discharging filth and garbage into the drains.
- The District Magistrates (DM) possess powers under Section 133 of the CrPC to take action to remove a public nuisance. The Deputy Commissioner (Revenue) is designated as the District Environmental Protection Officer under Section 4(1) of Environment Protection Act, 1986. These

powers have to be used by the officers within their jurisdiction in coordination with DJB which has overall responsibility for sewage management. Reviews will also be taken with DJB and Revenue Deputy Commissioners/DMs for action under the powers vested in them under respective statutes.

- The MC will pursue this with DJB, the Revenue Deputy Commissioners and Municipal Corporations to oversee that discharge of the “emptier’s” dumping of septage into drains is stopped and designated pumping stations are used without waiting for the Regulations to be notified and enforced.

The magnitude of the problem and the seriousness of the situation has already been brought to the notice of all key officers namely the Chief Secretary, the CEO DJB, the Secretary UD in NCT of Delhi and the 3 DMC Commissioners. MC will monitor the issue of regulations, their implementation and enforcement action undertaken by the three DMCs, DJB and DMs month to month and report progress by 31st December.

Online monitoring of STPs, CETPs and Yamuna

Issues

Regular monitoring of the functioning of STPs and CETPs with respect to the quality of treated waste water is essential not only for timely management intervention but also to ensure accountability and transparency in the functioning of public bodies. The judgement dated 13-01-2015 and subsequent orders directed that:

- i. All the STPs and CETPs should have online monitoring system installed which should function 24*7, provided with power back up for uninterrupted functioning and linked to the servers of CPCB and DPCC.
- ii. DPCC and CPCB should also monitor on a real time basis water quality in Yamuna by setting appropriate water quality testing station.

Present Status:

The review carried out with DJB, DPCC and CPCB in the two meeting that the MC had with these agencies brought out that despite a lapse of three and a half years since the judgement delivered on 13-01-2015 the connectivity between the servers of DJB, DPCC and CPCB has not become operational though equipment is said to be in place and the DJB is receiving the data on real time basis. Also, out of 13 CETPs to which 17 industrial clusters are attached, only nine (9) have been linked with the servers of DPCC and CPCB and four (4) CETPs are still to be linked. Also, one of the DJB STPs has no equipment for online connectivity. Despite clear orders of NGT, the information available through online monitoring is not available in public domain. DJB has also no system of generating alerts in the event of some STPs exceeding parameters.

There is a clear violation of NGT orders not only by the DJB, DSIIDC, and the CETP societies but even by the DPCC and CPCB-the regulatory bodies.

Action Plan

The Instructions issued are at **Annexure VIII**.

1. DJB has been directed to provide connectivity to their server to CPCB and DPCC for real time connectivity for data transfer in respect of the quality parameters of treated waste water from each of the STPs. CPCB and DPCC shall also liaise with DJB to make it functional. Within one month a system of generating SMS alerts for all the STPs in the event of parameters being exceeded by any of the STPs is a goal now accepted by the three agencies and will be monitored by the MC who had

- arranged for exchange of basic formats and exception reporting. Such SMS alerts will also go to the CEO, DJB and the MC
3. CPCB and DPCC will designate Scientists/Engineers within their respective organizations to be responsible for monitoring such online reports from DJB and send SMS alerts to CEO DJB. If corrective action is not taken even after a lapse of one week, DPCC and CPCB shall report the matter to the Monitoring Committee.
 4. DJB has been directed to take steps to put the test results, manual and real time online data, in public domain by providing access to its website for each of the STPs.
 5. DJB shall ensure that the online connectivity for data transfer is provided for all the STPs under its control.
 6. DJB has been asked to prepare an action plan to improve the functioning of two STPs, namely, Keshopur Ph II and Phase III, which as per Chief Engineer DJB, are not meeting the design parameters. This has been asked to be done within one month.
 7. The Standard Operating Procedures (SOPs) for calibration of sensor transmitting data online shall be observed in letter and spirit to ensure that the results of online monitoring correspond with manual testing, within acceptable margin of error. CE, DJB informed that such calibration is done once a month although it is required to be done once in a fortnight.
 8. DPCC shall while carrying out inspection jointly as directed by this MC on 29-08-2018 shall also measure effluent received at each CETP, its quality both at the inlet and outlet, and compare the total flow so measured with the total discharge from all the industries as contained in the Consent to Operate order. The DPCC has been directed to take action against the CETPs/industries concerned strictly in accordance with the law and submit a compliance report. If inspections show continuance of hazardous activity in non-conforming areas it will be treated as dereliction of duty and reported to NGT.
 9. The Joint inspection as ordered on 29-08-2018 has asked for inspection of selected Clusters out of the 11 clusters which do not have CETPs to ensure that they do not release any liquid effluent. The DPCC has made statements before NGT and the MC and have been directed to ascertain facts through inspection and report as to how and where the auto service stations discharge their hazardous waste like the used oil, grease etc. This was also covered in the direction given by NGT in its order dated 05-08-2015 also.

The above directions will be monitored monthly and progress reported to NGT.

Use of treated Waste Water

Issues

The STPs of DJB treat about 475 MGD of waste water. Only about 90 MLD of this waste water is presently being used by DJB and the rest released into drains which also carry untreated waste water. Some of the waste water, as per the DJBs report, has BOD as low as 10 mg/L. In fact with installation of more and more STPs and commissioning of ISP, more and more treated waste water treated to very high level of purity (tertiary standards) will become available. It is, therefore, incumbent upon the authorities to find most appropriate use for this water so as to reduce overall demand for fresh water which indirectly helps rejuvenation of the river.

Since most of this water is suitable for various non-potable uses like horticulture, agriculture, irrigating parks and gardens, washing, cooling in power Plants and even for flushing in the toilets NGT had vide order dated 07-06-2016 directed the VC DDA to take a meeting with DJB, MCDs and other agencies and Institutes and prepare a report on the use of treated waste water. Reuse of treated waste water was reiterated by NGT vide order dated 19-05-2017 and directed DJB to prepare a proposal in this regard.

Present Status:

Neither DDA nor DJB has shared any report prepared by the Authority/ Board in compliance of NGT's orders or provided a road map with deliverable and timelines for use of treated waste water for agriculture, maintenance of parks and gardens for horticultural uses, for non-potable domestic use including flushing through dual plumbing, in power houses for cooling, for washing purposes or even to recharge water bodies. DJB has also brought to the notice of the MC, their proposal to convert the treated waste water through a pipeline upstream and release it into Yamuna.

The DJB and the NCT Delhi has, however, been asked whether such a proposal has been examined from the point of view of its technical feasibility, whether any expert body has been consulted and whether the treated water so released has been treated for Total Coliform /Faecal Coliform.

Action Plan:

A detailed plan will be got prepared keeping in view the total treated water available and likely to be available once the ISP and STPs under construction get commissioned, the location of STPs, facilities like parks and gardens, water bodies or housing colonies where such water could be used for non-potable uses, the length of the conveyance system required etc. The road map will include increasing the recycling from present 20% to say 30% and higher and lay down monitorable timelines.

In short term DDA, DJB and DMCs have been asked to prepare a plan for switch over to use of treated water for irrigating parks/gardens and stop use of ground water. Quarterly monitoring would be done by MC.

Use of the treated water for rejuvenating some of the water bodies will be also considered after discussion with experts and agencies owning such water bodies.

The feasibility of CETPs, which presently release treated waste water into drains or reuse it for horticultural uses, achieving ZLD, as directed by the NGT will be explored and pursued with CETP societies and DSIIIDC.

Idol Immersion

Issues

Idol immersion during festival seasons like Ganesh Chathurti, Durga Pooja and religious activities during Chhat Pooja cause extensive damage to the river as the idols mostly made of Plaster of Paris, and using toxic paints and synthetic material including plastics are released into the river. NGT has given specific direction to the public authorities to follow CPCB guidelines and the NGT orders regarding the use of material for making idols, use of nontoxic paints and immersion either in tanks built in colonies or by drawing a separate stream of the river. The left over idols and those recovered from the river will be disposed of in accordance with the SWM Rules 2016.

Action Plan

The MC has already given and will continue to monitor its directions as issued to the Divisional Commissioner, NCT Delhi and other public authorities, like MCDs, IFCD, DDA, CPCB and DPCC for establishing a system for giving registration and approval to Pooja pandals. The minutes / instructions issued are at **Annexure IX**.

1. It was directed that an undertaking be obtained from the organisers about adherence to the CPCB guidelines. In particular, the material which should not be used and the height of the Murti were emphasised in terms of NGT orders and CPCB guidelines.
3. A route map to be followed for immersion should be ascertained and mapped in advance along with the plans for immersion at specific ghats. Departments in charge of sanitation in the MCD will coordinate with Irrigation and Floods so that minimum time lag exists in picking up the immersed idols and sending them to the disposal sites.
4. The DMC, the Delhi Police and Irrigation and Flood Departments have a supportive role which has to be mapped out and shared in advance with each agency so that each organisation works in tandem with the other.
5. The Revenue Deputy Commissioner were asked to ensure that the facilities for immersion and retrieval of the Pooja remnants are adequate and the disposal to the landfill sites is prompt.
6. Creating public awareness should be such as would make people understand why it is important to desist from using paints, plaster of Paris and also to ensure that the synthetic material used not thrown into the river.

7. Bill boards at suitable locations should be also erected highlighting NGT directions and the prohibitions, both in Hindi and English, that applies to plastic bags containing flowers, garlands and other offerings which are being immersed into the river even now every day.
8. The Divisional Commissioner has been directed to prepare a budget and take pro rata contributions from the departments in terms of their responsibilities for abatement of river pollution if needed.
9. Undertakings were asked to be obtained from the Pandal in charges who should be held responsible in case of infringement.
10. The Monitoring committee will appoint teams to visit the ghats on a random basis and put up the findings on the website by location.
11. The I&FC Department has been asked to make available trash skimmer in the river during the period of idol immersion, particularly in the Ghats which receive most number of idols for immersion.
12. The CPCB and DPCC have been mandated to take samples of river water both upstream and downstream of the Immersion ghats independently and submit test reports of water quality along with reports of previous five years so as to assess the impact of awareness creation and enforcement.
13. The Divisional Commissioner has been asked to hold preparatory meetings well before the festival/immersion and submit a report on compliance of directions and CPCB guidelines at the end of each such immersion event.
14. The MC held a meeting after Ganesh Chathurti and before Dussera immersions and was informed by CPCB that the magnitude of increase in BOD varied from 0.3 to 9.5 times. Faecal coliform increased 141 times at individual ghats. However, the connection with idol immersion needs to be looked into if at all. **Significant increases in heavy metals, viz Chromium 2.4 times, Lead 12 times and Mercury 15 times were observed post immersion.** This shows that use of toxic materials continues in a big way. There is an urgent need to build awareness about how dangerous this can be and for the authorities to be much more vigilant.
15. The DDA and the Irrigation & Flood Department was asked to have videography done of the Immersion Ghats both during the process of Immersion and after the event and submit to the MC immediately thereafter with an analysis of what was going as planned and transgressions where found which would enable better arrangements in future if needed.
16. The NCT Delhi and regulatory bodies have been asked to propagate use of innovative messages for off river immersion like immersion in small ponds created in RWAs and even in buckets using clean water as opposed to use of river channel. The representatives of DMC and Divisional Commissioner were introduced to the B Block Society of Chitranjan Park as they have been digging a pit and carrying out immersion on a tarpaulin filled with water for 5 years already.

The steps outlined above have already been initiated and will be followed up with the concerned authorities during all the religious/cultural events which has potential for causing pollution in the river.

State of Haryana and Pollution of the River

Issues

Hathanikund Barrage about 240 Km upstream of Delhi, regulates flow of water and is also the point where most water in the river gets diverted through Western Yamuna canal and Eastern Yamuna canal. Additionally there are cities of Yamuna Nagar, Panipat, Sonapat, Karnal, Kundali and Barhi which not only release domestic sewage through various drains but also industrial effluent. Najafgarh drain which originates in Haryana also carries domestic sewage and industrial effluent of Gurugram and industrial clusters in Bahadurgarh.

The directions of NGT pertaining to Haryana not pertain to but refer to;

- i. Release of minimum E flow of 10 cumecs from Hathanikund
- ii. Setting up of STPs and CETPs in all cities and industrial clusters located on the bank of the river and online linking with HPCB and CPCB and closure of industries not complying with standards and not connected to CETPs.
- iii. Blocking the drain under Leg I of Najafgarh basin joining the drain
- iv. Setting up CETPs and STPs in Leg II area of Gurugram joining drain Najafgarh drain
- v. Setting up STP at Badshahpur drain before it joins Najafgarh drain

Present Status:

As per MS, UYRB state of Haryana is releasing 10 cumecs of water in the river at Hathanikund barrage. As regard pollution caused by the industries located in Yamuna Nagar, Karnal and Sonapat the MC has received no information from the state. No information has also been received about the action taken by the State to set up CETPs and STPs on Leg 1, Leg 2 and Badshahpur drain which join Najafgarh drain before it enters Delhi. Despite three letters and telephonic requests to the state of Haryana through the Chief Secretary, the MC has not received any status report which the State was required to submit to the MC within four weeks of July 26, 2018. The representation of the state in the review meeting called by the MC has been at very junior level and the Departments responsible for setting up STPs and CETPs have not been represented. The review meeting called by the MC have therefore proved infructuous. Though the state has constituted state specific MC on 23rd August, the MC has yet to become functional.

Action plan:

1. A lackadaisical approach that the state has followed in far has been brought to the notice of the Chief Secretary, who has now informed that he will personally attend the meeting called by MC or depute senior officers of the Department responsible for setting up STPs and CETPs in the state. Action taken by the state in compliance of the directions given in orders dated 11-06-2015, 28-07-2015, and dated 08-08-2017 of NGT will be monitored in October/November.
2. MC will also undertake field visit to apprise itself of the status of drains carrying sewage/Industrial effluent from the Cities of Yamuna Nagar, Karnal, Sonapat and Panipat which eventually join Yamuna, the steps taken by the state so far for setting up STPs and CETPs and proposals to set up new STPs and CETPs.
3. Field visit will also be undertaken to the monitor status of work relating to setting up STPs and CETPs under Leg 1, Leg 2 and Badshahpur drain which join Najafgarh drain before it enters Delhi.
4. Monthly monitoring of flow and quality of waste water in Najafgarh at the point of entry in Delhi will be monitored through DPCC and CPCB.
5. CPCB and HPCB will also be directed to carry out inspections of STPs and CETPs and stand-alone ETPs of big industries and submit report and issue directions, if so warranted
6. Preparation of an Action Plan for water conservation measures, increasing water use efficiency of agriculture and creating ponds and reservoirs on the floodplains will be pursued with the state and progress reported to NGT and taken up with Principal Committee for supporting a study, if warranted.

State of Uttar Pradesh *and Pollution of the River*

Issues

A substantial portion of the floodplain in NCR falls within UP state. NGT had 04-07-2015 directed demarcation of floodplains to which the state of UP had informed that 75% of the floodplains stands demarcated and the balance shall be completed within one week. Directions were also given on 08-08-2017 for preventing sewage and industrial waste water flowing into drains joining Shahdara drain from industrial areas in Shahibabad, and residential areas of Loni, Indirapuram and Noida.

Present Status:

Though the state of UP, as recorded in NGT's order dated 04-07-2015 had completed 75% work of demarcation of the floodplains within its jurisdiction, the present status of demarcation and whether there are any encroachments on floodplains and what steps, if any, have been taken for their eviction is not available on record. The officials of the state of UP who attended the meeting called by the MC on 25-09-2018 were also not able to give any information on this. In fact, no senior officer from Environment and Forest or Irrigation or Public Health Engineering two specific requests having been made in writing addressed to the Chief Secretary and reminded over phone through the Resident Commissioner. Only some local level functionaries of the UP Pollution Control Board attended the meeting who were not conversant with the orders of NGT on various aspects pertaining to pollution points in the Yamuna. The matter was again brought to the notice of the Chief Secretary UP fully and he had directed the Secretary Environment and Forests UP to meet the MC. This meeting is still to be held. The MC is, however, not aware if the State has set up a Monitoring Committee without which matters remain without focus.

Action Plan:

The MC proposes to hold another meeting with the Secretary Environment & Forests UP who has since contacted the MC to review the action taken on flood plain demarcation in the area that falls within the control of the State of UP and also review various measures that were required to be taken pursuant to the directions of NGT dated 08-08-2017. Timelines will be drawn up once there is clarity about what the state proposes to do.

Creating Public Awareness Through Information Dissemination Strategies

Issues

Much as the River Yamuna is revered as a sacred river and has deep religious, mythological and cultural association for Indians it has not received commensurate respect in contemporary times. Except at the time of idol immersion during Ganesh and Durga Pooja festivities, it has no human activity which would enhance its habitat. On the contrary it is a receptacle for waste generated through human activity river which makes it imperative to building sustained awareness about several different aspects of river cleaning and cleanliness. NGT has directed that awareness building activities have to be taken up on a wide scale.

Present Status

Presently there is no ownership for the river Yamuna. That is because it means nothing to the citizens as it is providing no opportunity for cultural activities, leisure or recreation. There is little knowledge about why flood plains are sacrosanct and why they must be preserved and protected. There is a need to plan for awareness building and permissible activities beyond the flood plains but for that there has to be a nodal Department to build awareness by spearheading permissible events and activities. Presently vertical responsibility lies with DDA, Irrigation and Floods and the Department of Environment & Forests. Others like DJB, the DMCs only look at sewage and maintenance of storm water drains but the connection with the river is remote.

Citizen involvement requires that there is knowledge of why the river is important, and why it is worth preserving and restoring.

Action Plan

The Monitoring Committee proposes to discuss a broad approach with the Chief Secretary and engage with MOWR, RD& GR, NMCG, MoEF&CC and MoUD to support activities which lead to awareness building. However without a media and awareness building plan the resources even when received can get scattered in small activities which would not attract visitors. There is a need for assigning nodal responsibility for creating public awareness to a consortium of agencies with an interest which can include international and national level NGOs engaged in building awareness about the environment, Delhi Government Corporations like DSIDC + DTTDC, schools, Eco clubs, RWAs, Rotary , Inner Wheel, Industry Associations, Market Associations and the Parks & Gardens Society.

The Chief Secretary needs to assume nodal responsibility or give it to an officer who has an interest and adequate field staff. In the totality of things it is a minor activity and concerns something that the public is not interested in presently. Ordinarily this should be co-ordinated by the Department of Environment & Forests of Government of NCT of Delhi by involving the DCs of the Districts, the Commissioner Lands and Director Horticulture of DDA and DMC.

The MC will ask the Chief Secretary to set up an Apex level consortium that can approve of specific awareness building projects. The response would be included in the progress report.

- a) MC would ask the Chief Secretary to encourage programmes that prevent gobar from dairies going into the river. Installing a biogas plant with the support of the Ministry of Renewable Energy for making gas out of gobar instead of letting it flow into drains at Ghazipur would make a visible impact. Technology for this is easily available and this can become an interesting school field trip too.
- b) The green model adopted by the B block Chittranajan Park is to immerse it in a deep pit with water in a local park in conformity with CPCB guidelines. This has been demonstrated to the concerned officers by the office bearers and DMCs and Divisional Commissioner have been asked to popularize it. This can build awareness about the dangers of river pollution.
- c) Waste from the river Yamuna (plastics, Pooja samagri and suchlike) needs to be mined out and recycled or up cycled. The waste includes flowers, coconuts, cloth etc and can either be composted and its collection and sorting would give livelihoods to waste pickers. The Chief Secretary would be requested to see whether any NGO can be asked to undertake a pilot in coordination with Department of I& FCD for turning the waste into marketable products to be done through a co-operative effort of waste pickers.
- d) The Yamuna is a unique birding destination. Therefore, birding needs to be popularized amongst schools. There is a need for DDA to preserve the birding hot spots with inputs from an established birder group in Delhi.

A periodic progress report would be given.

Establishing a Website for the MC's Activities

The NGT had directed that the MC sets up a Website and encourage public participation. In compliance thereof, a comprehensive website has been constructed from scratch as an in house activity. However to have credibility and legitimacy it needs to be hosted by NIC. It could have been done by now through a private vendor but that would give the impression that the MC is a private body which would detract from its status as an NGT appointed committee.

The website has several drop down lists which inter alia cover NGT's orders; the Action Plan of the MC in an abridged form; a Power Point Presentation which gives a bird's eye view of all issues and challenges; a Contextual Note for the educated, curious viewer the entire gamut of activities and how each activity is interrelated and what aspect fits in where.

The website has over 50 pictures and maps without copyright issues which have been given pro bono by some NGOs and photographers depicting the "good, bad and ugly" aspects of the river.

There is a prominent **Contact Us** button which opens to a template seeking comments and suggestions from academic experts and separately from members of the public but in both cases there is a requirement for registration and giving the name, phone number and address to avoid frivolous correspondence and complaints.

The website is undergoing security clearance as required by NIC after which it would be uploaded. The number of hits will be shown as well as the date the website has been up dated. The minutes of meetings taken by the MC will also be up loaded so there is satisfaction that things are progressing.

Matters that Influence Monitoring Outcomes.

The demands on the river are ever increasing as almost 85% of its fresh water is diverted for drinking and agriculture. The unplanned in-migration and settlement in highly congested unauthorised colonies has defeated even what could be called a semblance of a decent urban quality of life. To address the expanding needs several projects are at various stages of planning and execution- even commissioning. Measures like water recycling, water conservation, building public awareness will lead to incremental improvement. But achieving the goal of category B or even C water quality in the river with a BOD of 3 mg/L is difficult to achieve in the short term.

The strategies which have been set in motion to improve the quality of river water will continue to be overseen through intensive monitoring, including public oversight as the progress will be on a website where suggestions can be made.

But it is apparent that even if all the measures are executed with commitment, in the foreseeable future, the quality of the Yamuna will not improve dramatically at levels prescribed by CPCB. When nearly half the population of an 18 million city lives without sewerage, the limitations on river cleaning are self-evident. The situation is so bad that it will be no wonder if there are outbreaks of water borne diseases as water and sewage pipes laid by lakhs of households can get mixed up.

If one thing would make a difference it is to put a septage management plan into operation in 3 months and manage the sewage from the unauthorised colonies in a ways that many Indian cities are already doing.

The second step needed is to immediately appoint a full time Chairman and Member Secretary of the Delhi Pollution Control Board who should have experience. The arrangement whereby the CEO Jal Board doubles up as the Chairman DPCC is a clear conflict of interest and the DPCC can hardly perform as per its statutory mandate.

The third step is to make a single body responsible for sanitation of drains. According to the prevailing administrative orders the smaller storm water drains are under the management of the three Municipal Corporations, the larger ones running contiguous to PWD roads (having a depth of 4 ft.) are with the PWD and the largest natural drains¹ are under the jurisdiction of the Irrigation & Flood Control Department. Although each of these three Departments has responsibility for desilting and dredging which activity is outsourced, none of them accept responsibility for enforcement.

¹ Supplementary drain, Najafgarh Drain, Trunk Drain No.I & Trunk Drain No. II, Gazipur drain, Pankha Road Drain, Palam Drain, Nasirpur Drain, Mungeshpur Drain, Nangloi Drain etc

Only the DMCs have enforcement powers to deal with day-to-day pollution. DJB too has authority over all drains under the Delhi Water Act 1998 but this has been interpreted as drains carrying sewage only. DJB has no enforcement wing (although powers of fining are given in the Schedule to the Act.) In effect neither DJB, PWD, nor Irrigation and Flood Department accept responsibility for keeping the drains under their jurisdiction in a sanitary condition. Accountability for sanitation of drains needs to be specified through Government directions as solid waste, sewage, and industrial effluent are being discharged or dumped into the drains. Unless sanitation of all drains rests with an authority that has the power and the staff to impose heavy fines for misuse and causing pollution, the filth that is generated will continue to be disowned and will flow into the river.

Meanwhile every effort is being made by the Monitoring Committee to see that the Action plan leads to reducing pollution in the River Yamuna and its appurtenant drains in consonance with the Hon'ble Tribunal's detailed directions. The progress will be reported before 31st December as directed.

Annexures

Operative Directions of the National Green Tribunal Order dated 26.7.2018

The order dated July 26, 2018 directed constitution of the monitoring Committee with the terms of reference as under:

- To take stock of all the actions taken so far in the light of the various directions of the Tribunal.
- Propose time bound action plan to deal with the problem. The time lines prepared by the committee will be treated as revised time lines to substitute the time line earlier laid down by the Tribunal.
- The committee may requisition services of any technical experts.
- The action plan should also include creation of Biodiversity Parks created by the Centre for Environmental Management of Degraded Ecosystems (CEMDE) of University of Delhi, A Centre of Excellence of the Ministry of Environment and Forest & Climate Change, Government of India and City Forests of Urban Forests belt of suitable species that are capable of capturing pollutants from environment on the entire Yamuna flood plains right from Wazirabad to Okhla in NCT of Delhi. For this Purpose, the DDA, who is the owner of the land in Yamuna flood plains, shall make the entire flood plain available to the Forest department after demarcating the land on the ground. All such lands should be cleared of all the encroachments if any.
- After assessing the current status of Yamuna, they may clearly indicate the reasons for delay in implementation of our orders issued from time to time. m.
- Ozonation and aeration in some of the drains may be experimented. It is to be ensured that the treated effluents should not be mixed with untreated effluents and the treated effluents are utilised for horticulture and other relevant purposes.
- The online mechanism for monitoring the sewage treatment plants should also be connected to the servers of CPCB and DPCC so that the CPCB can also monitor the data.
- The Monitoring Committee may also setup a website for receiving and giving information on the subject.
- The Committee may also involve educational institutions for expectations, awareness and feedback about the results.
- The Monitoring Committee will have powers to make such inspections as may be necessary including having the water quality inspected from time to time.
- The Committee may also call for such help of security forces as may be necessary and require dedicated forces being made available for removing the encroachment on the floodplains of river Yamuna. The Delhi Police may make temporary recruitment to be funded out of the present project if so suggested by the Committee.

- The mandate of the Monitoring Committee is to ensure requisite level of standard of water at the entry point and the exit point of river Yamuna as well as the in drains which meet river Yamuna so that there are no pollutants beyond the determined standards.
- If the final plans are likely to take longer time, interim targets may be fixed for the specific purpose. The existing STPs may be planned to be fully operational within the specified time. Terminal points of the drains should be first cleaned.
- The Monitoring Committee may also consider and approve any plan for collection of funds on the Principle of Polluter Pays apart from requisitioning funds from the concerned authorities in terms of the orders already passed by this Tribunal.
- The Committee will also issue directions to deal with the problems of idol immersion in the river Yamuna taking into account the guidelines of the CPCB to ensure that no pollution is caused in Yamuna at Delhi.
- No application in respect of work to be executed by the Committee will henceforth be moved before this Tribunal directly till further orders.

Actionable points and Letter dated 31-08-2018 to DDA on compliance of NGT directions

OFFICE OF THE YAMUNA POLLUTION MONITORING COMMITTEE
APPOINTED BY HON'BLE NGT
ROOM NO. 58, INDIA INTERNATIONAL CENTRE
40, MAX MUELLER MARG, LODHI ESTATE
NEW DELHI – 110003

No. YPMC/2018/

Date: 31.08.2018

| Main Judgement dated 13.01.2015 (Page 85 to 89) | |
|-------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Page/ para | Actionable Points |
| Page 85, point v (a) | <p><i>"Having given our considered view to the various reports placed on record, submissions made by the Learned Counsel appearing for the parties and the Experts, we are of the opinion that presently the flood plain should be identified for the flood of once in 25 years in the interest of ecology, bio-diversity and the river flow. Thus, we direct accordingly and also direct that the DDA shall prepare a map in this regard and would physically demarcate the entire flood plain."</i></p> <p><i>At the meeting held on 24th August, 2018 officers from DDA were asked to prepare a map demarcated in terms of broad percentages of the total land area of the flood plain on both sides of the river by location, size and activity. Thereafter each slice of the pie chart was asked to be divided into simple charts to be able to understand the ownership, how much of each segment was encumbered with officially sanctioned construction and activities and what portion was unauthorised and liable for demolition. The requirement was explained to Commissioner Lands, Chief Engineer and Ms Savita, Ms Poonam and Ms Nilima Soni from DDA. Ms Soni had agreed to have it done.</i></p> <ul style="list-style-type: none"> ▪ <i>The pie charts were asked to be supported by a legend through which unauthorised occupation or activities and land at risk of encroachment could be identified wrt to</i> • <i>NGT's orders to have all unauthorised structures on the flood plains demolished.</i> ▪ <i>The biodiversity efforts which have been made and are presently under</i> |

| | |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| | <p>progress; along with plans for the remaining land in terms of the NGT orders for rejuvenation were also asked to be mapped. The mapping exercise was expected to show the status on date and plans for rejuvenation already undertaken by location and activity.</p> <ul style="list-style-type: none"> ▪ The preparation of these maps/pie charts were further clarified at length to Ms Soni who had been requested to meet the Committee when it was apparent that the work on preparation of the maps had not begun. <p>From the responses received the Committee did not get confidence that the work would be completed quickly enough. The VC DDA is requested to give this a direction as this is an essential tool for monitoring and has to go on the website of the Committee.</p> |
| <p>Page 86, point (d)</p> | <p>“We direct all the concerned authorities including the DDA, Municipal Corporations and the NCT of Delhi, to take immediate and effective steps for repossessing the Flood Plain area under the unauthorised and illegal occupation of any person and/or any other body.</p> <p>This direction is also necessitated for the reason that as per the records before the Tribunal, out of total area of 9700 hectares for River Front Development (‘O’ Zone), only 1452 hectare is presently available with the DDA for development and the remaining area is occupied in an unauthorised manner and is under agriculture activity for which leases had been granted by the DDA or even otherwise.”</p> <p><u>This is directly related to the requirement already spelt out above and monitoring can only be done if the information is provided in the manner sought. If this is not provided, one would have no option but to tell the Tribunal that the monitoring committee has not been provided with the basic information required to undertake monitoring in a meaningful way.</u></p> |
| | <p>In the same order, the Tribunal, while invoking the ‘Polluter Pays’ Principle, directed that any person who is found dumping debris on river bank in Geeta Colony site and for that matter in any site, shall be liable to pay compensation of Rs. Five Lakhs for causing pollution and/or destroying the riverbed and flood plain and the time and man power taken for removal of the said debris from the site in question.</p> <p><u>At the meeting, the commissioner and chief engineer were asked to give instances of when this has been found by the DDA authorities, reported to the police, FIRs filed, arrests made and the polluter pays principle applied as directed by NGT.</u></p> <p><u>The responses received at the meeting were vague and unsupported by any data whatsoever although the notice had clearly stated that the position would be reviewed at the meeting. It gave the distinct impression that such activities had not been undertaken except perhaps to write some letters on which again no follow up action has been taken by the authorities.</u></p> |

| Summary of Questions raised by the Monitoring Committee | |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | What is the mechanism being employed by Delhi Development Authority to stop the dumping of debris on the floodplain? |
| 2. | Is employing quick response teams the only solution? Has any possibility of using technology like Artificial Intelligence, aerial mapping etc or drones been considered to keep a track of quantum and location of debris being dumped. |
| 4. | Have there been any check posts provided on the access roads leading to the floodplain to check/ ingress of trucks/ tempos carrying malba? |
| 5. | Delhi Development Authority was given authority by NGT to impose environmental compensation under 'Polluter Pays Principle'. What is the status of environmental compensation imposed and if difficulties were faced were they reported to NGT with alternatives? The dates and copies of such submissions may be given to the Committee. |
| 6. | Delhi Development Authority was directed to bring information regarding land in its possession and land under different heads as in the Zone 'O' in percentages and area both through a simple mapping exercise (not GIS or survey maps) which was readily agreed to. |
| 7. | Delhi Development Authority had been asked to prepare an action plan to keep the floodplain encroachment free, by using strategies like the Ganga vahini or home guards or by fencing etc and to apprise the Committee of action taken. |
| Order dated 22.07.2013 | |
| Page/ para | Actionable Points |
| Page 2, point (a) | <i>"The State of Uttar Pradesh and all Authorities particularly, DDA, East Delhi Municipal Corporation and DMRC shall ensure removal of all debris lying on the river bank from the Geeta Colony site positively by 15th August, 2013."</i> |
| Page 2, point (b) | <i>"We hereby direct the Managing Director of DMRC and Vice Chairman of DDA to hold a meeting not later than one week from today and mutually decide as to who is responsible for removal of this debris from the western bank. In the event they are unable to arrive at a decision mutually, we direct both the authorities to remove the debris in equal share on their own. This should also be removed by 15th August, 2013."</i> |
| Questions raised by the Monitoring Committee | |
| 1. | Were the debris removed from the banks of the River in accordance to this order? |

| | |
|----------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Order dated 19.05.2017 | |
| Page/ para | Actionable Points |
| Page 7, para 1 | <i>“Similar approach should be adopted by all the Public Authorities including Delhi Development Authority, Corporations, Irrigation Department of NCT, Delhi and Delhi Jal Board to restore/revive the water bodies existing within their jurisdictions in various parts of NCT, Delhi and Uttar Pradesh Irrigation Department and ensure that the water bodies actually remains clean, rather than a dumping yard for waste and open defecation.”</i> |
| Questions raised by the Monitoring Committee | |
| 1. | How many Water-bodies does DDA have in its jurisdiction, their current status of rejuvenation? Whether they are functioning as an ecological entity. Monitoring committee expressed the desire to setup the inspection teams for the same. Kindly give us the areas and locations etc so that some team may be constituted to inspect the site situation. |
| 2. | Delhi Development Authority was asked to give the details that in how many green areas are they using ground water for irrigation. By when the linkage to decentralized sewage system will be done for use of treated sewage water for parks and gardens? |
| Order dated 21.11.2017 | |
| Page/ para | Actionable Points |
| Page 3, Para 1 | <i>“Learned counsel appearing for the Delhi Development Authority has submitted that in furtherance to the main judgment of the Tribunal dated 30th January, 2015 as modified on 08th May, 2015, that the Delhi Development Authority has prepared the plan of setting up of bio-diversity park and beautification of the flood plain of River Yamuna falling in NCT of Delhi. According to him it has been divided into 4 phases, as far as the first phase is concerned which is Maily Se Nirmal Yamuna Revitalization Plan, 2017. The work has been awarded and work is in good progress. The First Phase is to be completed by April, 2018.”</i> |
| Page 3, Para 2 | |
| Page 3, Para 3 | <i>“As far as Phase II, III and IV are concerned the project has already been approved by the Screening Committee. The Delhi Development Authority and plan has been prepared, however the same is pending for preparation of final details and for awarding of tenders in relation to these phases.”</i> |
| | <i>“We direct Delhi Development Authority to expedite the work of the flood plain restoration in relation to providing of bio-diversity parks and beautification in terms of the judgment of the Tribunal without any further delay submit compliance report to the Tribunal within four weeks from today.”</i> |

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Questions raised by the Monitoring Committee | |
| 1. | How much of work has been done by Delhi Development Authority in its Phase-I and what are the hindrances in starting work in all phases concurrently. |
| Order dated 07.06.2016 | |
| Page/para | Actionable Points |
| Page 7, point 8 | <i>"We direct Vice Chairman DDA to hold a meeting within two weeks from today of DJB, all the Municipal Corporations of Delhi, CPCB, DPCC, CPWD, PWD power plants, and DMRC to find out the possible end use of the treated sewage and to identify the lands and the activities for which such water is used. The Vice Chairman of DDA is at liberty to ask any other organization and Institute, Body to participate in the meeting. The Minutes so recorded shall be binding on all the parties concerned. The report should be submitted within six weeks from today."</i> |
| Page 8, Point 9 | <i>"The DDA shall bring to the notice of the all concerned that the extraction of ground water without compliance of the directions issued by the Tribunal, is prohibited."</i> |
| Questions raised by the Monitoring Committee | |
| 1. | Does Delhi Development Authority propose to use dual plumbing scheme to enable use of treated wastewater? |

We request you to please give a direction to this important work which will not move forward without your involvement. We know you are extremely busy but we too are bound by a strict time schedule in which NGT has directed us to have a Monitoring Action plan ready by 15 th Sempember. Therefore rather than have more meetings which will not take us forward, kindly call a meeting under your Chairmanship which we would attend. We expect that instructions would be given by you for immediate completion of the points highlighted above which stem directly from NGT's orders.

My telephone number is 9810501172 and Mr Sajwan's is 9911508171.

We are available even during the forthcoming holidays should you wish to talk to us individually. I hope we can expect a response which helps us to move forward quickly.

**OFFICE OF THE YAMUNA POLLUTION MONITORING
COMMITTEE
APPOINTED BY HON'BLE NGT
ROOM NO. 58, INDIA INTERNATIONAL CENTRE
40, MAX MUELLER MARG, LODHI ESTATE
NEW DELHI - 110003**

**Minutes of Meeting with held by the Monitoring Committee with the
Officials of CPCB, DPCC and DJB on August 29, 2018**

The Monitoring Committee (MC) held a meeting with the officials of CPCB, DPCC and DJB on August 29, 2018. List of the official who attended the meeting is annexed.

- At the outset the Monitoring Committee (MC) pointed out that there is a general perception within the public that enough is not being done by the DPCC as a regulatory body to control pollution. About 51 thousand industries are operating in residential/non-conforming areas releasing harmful emissions into the air and throwing effluents which eventually reach the Yamuna. This is widely known to result in serious health hazards.
- On being asked about the availability of technical staff to undertake physical checks and laboratory testing, Member Secretary DPCC intimated that as of now there are 55 scientific and technical posts besides other category of posts lying vacant presently. The organisation had moved DSSSB for getting the posts filled which might take around one year. Such a large number of vacancies in technical and scientific posts is unacceptable. No worthwhile monitoring can be done with such a high deficiency of technical staff.

- CPCB has designated Category B status to the river Yamuna stretch in Delhi which requires the water quality to achieve bathing standards with BOD levels of less than 3mg/L. However, as per the reports of both CPCB and DPCC, not only are BOD levels of Yamuna water in Delhi in excess of 20 mg/L but also the DO levels are zero for most part of the year with complete absence of any aquatic life.
- There are a number of drains which have industrial clusters in their catchments and sewage which flows through drains gets mixed with Industrial effluent. What is, therefore, required is to divert all industrial effluent from industrial clusters to the CETPs and ensure that CETPs function properly and meet the standards laid down for CETPs.
- There are 13 CETPs receiving 52 MLD of industrial effluent against the installed capacity of 212 MLD. DPCC should examine the reasons for this and if any is industry not connected to CETP, orders should be issued for closure of such an industry. DPCC however informed that in the authorised industrial clusters all the industries are connected to CETPs.
- Online monitoring of STPs and CETPs is mandatory for ensuring that the CETPs and STPs are functioning optimally and alerts are issued to the agency operating the CETPs and STPs for taking immediate remedial measures. It has separately brought to the notice of the MC that the DJB receives no feedback from either the DPCC or the CPCB if the parameters of treated sewage exceed the norms. This is unacceptable. Also, this work cannot be a onetime activity and the data generated has to be maintained to enable monthly/ quarterly and annual comparisons as applicable being made.

- CPCB informed that while the bigger polluting industrial units can be identified and action taken in case of violations under the Environment Protection Act which empowers the CPCB to issue directions for closure, it is the smaller ones in non-conforming areas which are required to be tackled by MCD and DPCC. It was decided that a meeting of Municipal Corporations and DPCC would be called to identify areas having industries in Residential areas and take action in accordance with law.
- Monitoring Committee (MC) desired to hold a separate meeting with UYRB and CE (P)Water DJB regarding the minimum lean time flows of the river Yamuna from HathniKund to Wazirabad since it was intimated by CPCB that despite directions from Hon"ble Supreme Court for releasing minimum 10 Cumecs of water Haryana is not releasing the same. This has direct relationship with the survival of the river and efforts to maintain its flow.
- DPCC and CPCB gave conflicting versions regarding the quality of raw water at Palla and thus MC desired that they both should reconcile on the quality standards of water at Palla.
- On the inspection of polluting industries located in Haryana, upstream of Delhi, CPCB intimated that notices were sent to 73 Polluting industries in Haryana and all of them have been closed. This has to be confirmed from Haryana PCB.
- The MC was informed that DPCC/CPCB are taking only one sample in the month at Palla whereas DJB is monitoring raw water quality at Wazirabad on daily basis. As and when there is an increase in levels of ammonia beyond permissible limit, water treatment in WTP's has to be stopped. In order to be alerted about ammonia levels in raw water at Palla, MC desired that **DPCC should set up Continuous**

Ammonia Monitors at Palla and Wazirabad during the relevant months December onwards.

After discussion the following directions were given:

- DPCC should leave no stone unturned to get the 55 posts filled. Since DSSSSB cannot fulfil the requisition for another 8-12 months alternate arrangements must be made. The technical and scientific staff were critical for monitoring and unless these are filled the work output and quality would suffer and affect not only environmental and water quality monitoring but public safety. Therefore, the Committee directed that the Secretary Environment & Forests, Chairman DPCC and MS DPCC should put out a short term advertisement for contractual appointment only of the technical and scientific staff. Alternately the IIT Delhi, and Engineering colleges under Delhi Government may be asked to provide 3rd year or PG students who can work as interns under regular staff.
- A joint team of CPCB and DPCB would be constituted by September 26th to check
 - i) Functioning of CETPs
 - ii) Whether all industries in conforming areas are connected to the system or not with details of those who were not complying, and action taken thereon.
 - iii) Whether primary treatment is taking place in the industry or not?
 - iv) Are the CETPs meeting standards?
 - v) In view of the low capacity utilisation which is unlikely to change, whether some of the plants can be modified to accept sewage. If not why not and whose opinion was taken on this ?.
 - v) Whether tamper proof flow meters have been installed both at the inlet and outlet of the CETPs. Also whether the treated waste water

is being put to any use for commercial/horticultural etc activity and whether the CETPs have achieved ZLD.

vi)The arrangements for sludge and hazardous waste handling should be commented upon CPCB and DPCC. They should also constitute joint inspection team within a fortnight and submit its first report within a period of one month.

- The Joint Inspection Team shall also examine the efficacy of the online monitoring system and whether the server of CETPs are linked to the servers of DPCC and CPCB and whether there is a system of alerts and a mechanism exists for remedial measures when the norms are exceeded.
- Another joint inspection team be set up consisting of officials of CPCB, DPCC and DJB to inspect all the STPs and submit report with respect to functioning of STPs, inflow meters both at the inlet and outlet points, compliance with standards, capacity utilisation and what use the treated waste water was being put to. Also arrangements for sludge handling.
- The Tribunal had directed that all STPs should be linked to servers of CPCB and DPCC. Unless STPs have been connected to the servers of CPCB and DPCC there can be no system for generating alerts and taking remedial measures. Also, the DPCC and CPCB should have a dedicated cell to monitor the functioning of STPs and CETPs as part of rejuvenation of Yamuna and to closely monitor NGT orders on the subject. This should be got done through NIC or any other agency and a compliance report submitted within two months.
- The CEO DJB/ Secretary E&F and Chairman DPCC will set up the teams primarily involving MS,CPCB and MS,DPCC within one week i.e. by 11th September and inform the MC once orders are

issue. Action asked to be taken and compliance would be included in the MC's Action plan which will form the monitoring platform as ordered by NGT. The Team referred so established should submit a report on the points listed by 4th November 2018.

- For non-conforming areas, initially the focus should be on dyeing and electroplating industry/ activities even at a household level. Based on the inspections by the team of MCD and DPCC Municipal Commissioners would need to be directed to take action in accordance with law. To start with it can be in East Delhi and Karol Bagh Areas.
- DPCC and CPCB to provide separate reports for the last five years regarding the water quality parameters in the river before and after Idol Immersion and also what is observed this year 2018. This exercise be taken both before the idol immersion and after at different locations. The water quality test reports be submitted within one week after idol immersion along with the trends for the last five years.
- I & FC department had been asked to consider using a trash skimmer in the river during the period of idol immersion so as to capture the floating material. This was agreed to be done in a meeting attended by Secretary I&F.
- I & FC department should on an experimental basis undertake ozonation/aeration at the outfall point of the drain in coordination with DPCC and CPCB and study the efficacy to improve the quality of waste water as a result of ozonation/aeration. Concept paper for this be provided by CPCB and the activity monitored. The MC be apprised of the progress on this.

Status of STPs commissioned**Report regarding status of STPs after 13.01.2015****1. New STPs constructed**

| Location | Capacity of STP (MGD) | Date of commissioning | Treated effluent parameters (mg/l) |
|------------------------|------------------------|-----------------------|-------------------------------------|
| Nilothi Phase-II | 20 | April, 2015 | BOD - 10, TSS -10 |
| Pappankalan Phase-II | 20 | May, 2015 | BOD - 10, TSS -10 |
| Yamuna Vihar - Ph.-III | 25 | Sept., 2015 | BOD - 20, TSS – 30 |
| Delhi Gate Phase-II | 15 | March, 2016 | BOD - 10, TSS -10 |

2. STPs under construction

| Location | Capacity of STP (MGD) | Target Date of commissioning | Treated effluent parameters (mg/l) | Remarks |
|------------------------------------|------------------------|------------------------------|------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Coronation Pillar | 70 | 31.12.2019 | BOD - 10, TSS -10 | Capacity addition will be only 40 mgd as existing STPs of 30 mgd capacity shall be put out of operation. |
| Rithala | 40 | 14.12.2021 | BOD - 10, TSS -10 | There will be no capacity addition only existing STP of 40 mgd capacity shall be rehabilitated with upgraded parameters of 10/10. |
| Kondli | 45 | 09.02.2022 | BOD - 10, TSS - 10 | Two existing STPs of 10 mgd capacity each shall be rehabilitated and put into operation. Further, existing STP of 25 mgd shall be upgraded to 10/10 parameters. |
| Okhla | 124 | 31.05.2022 | BOD - 10, TSS - 10 | Capacity addition will be only 30 mgd as one existing STP of 30 mgd capacity shall be put into operation. Also, in place of four existing STPs of total 94 mgd capacity a new plant of 124 mgd shall be constructed with upgraded parameters of 10/10. |
| Najafgarh Drainage Zone (9+5) STPs | 39 | 20.04.2020 | BOD - 10, TSS - 10 | 14 decentralised Sewage Treatment Plants having capacity 0.66 MDG to 7.92 MGD are to be constructed in the Najafgarh Drainage Zone. Initially, sewage from the drains in the command area shall be taken to these STPs so that no untreated waste goes to the drains etc. |

3. Future STPs

In future decentralized STPs shall be constructed for which land pieces belonging to Gram Sabha have been identified and process of allotment of the same is in progress.

Status of construction of 32 STPs as per NGT order dated 13-01.2015.

| ZONE | S.No | WWTP Location | Phase-I MGD | Whether land sanctioned or not? | What is the land acquisition status? | Date of start, if any | Date of completion, if any | Remarks / any other information |
|-------------------|------|------------------------------|-------------|---------------------------------|-------------------------------------------------------------------------------------------------------|-----------------------|----------------------------|--------------------------------------------------------------------------------------------------------------|
| SHAHDARA | 1 | Sonia Vihar | 7 | | Land for STP available | | | Land for SPs is yet to be made available. |
| OKHLA | 2 | Tajpur | 10 | | | | | |
| SOUTH DELHI | 3 | Mahipalpur | 3 | | | | | |
| OUTER SOUTH DELHI | 4 | Fatehpurberi and Chandanhola | 5 | | | | | |
| | 5 | Rajpurkhurd | 5 | | | | | |
| NARELA | 6 | Palla | 6 | No | Land identified. Request for allotment / acquisition of land sent to DM (North), Revenue Dept., GNCTD | - | - | Estimate and tender documents for construction of STP will be prepared after allotment / acquisition of land |
| | 7 | Zindpur | 10 | No | Land identified. Request for allotment / acquisition of land sent to DM (North), Revenue Dept., GNCTD | - | - | Estimate and tender documents for construction of STP will be prepared after allotment / acquisition of land |

| | | | | | | | | | |
|-----------|----|------------------|-------------|-----|--------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|---------------------|----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| NAJAFGARH | | 8 | Tikri Kalan | 2.7 | No | Land identified. Amount of Rs 3,35,66,667/- dated 23.8.17 has been deposited in the Revenue Deptt. | - | - | |
| | 9 | Mitrao | 5.6 | Yes | Land has allotted by Revenue deptt to DIB | | - | - | Funding for this STP has not been approved by NMCG |
| | 10 | Dichao Kalan | 5.6 | No | Land identified but not acquired | | - | - | After the intervention of Hon'ble NGT a joint inspection with Revenue department was carried out on 01.12.17. A private land was identified adjacent existing Gram sabha Land. Hon'ble NGT directed Revenue deptt to start process of acquisition of land. |
| | 11 | Kazipur | 1.1 | No | 50% gram Sabha land available. Balance pvt. land under acquisition | | - | - | Notification was issued by Land & building deptt. 28.8.15. Consent to offer employment to the affected families has been communicated to Sec.(Rev.)- Div. Comm. on 17.07.2018 after the approval from DJB Board on dated 09.07.2018 |
| | 12 | Khera Dabar Extn | 0.9 | Yes | Land taken over by DIB | | 21.04.17 / 26.08.18 | 25.08.20 | |

| | | | | | | | |
|----|------------------------|-----|-----|---------------------------------------------------------------------------------------------------------|---------------------|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 13 | Shikarpur | 0.6 | No | Alternate Gram Sabha land under allotment as earlier allotted land was shifted due to public resistance | - | - | |
| 14 | Kair | 1.1 | No | Land under acquisition | - | - | Notification was issued by Land & building deptt. 28.8.15. Consent to offer employment to the affected families has been communicated to Sec.(Rev.)- Div. Comm. on 17.07.2018 after the approval from DJB Board on dated 09.07.2018 |
| 15 | Jaffarpur | 2.2 | Yes | Land taken over by DJB | 21.04.17 / 26.08.18 | 25.05.20 | |
| 16 | Hasanpur | 2.2 | No | Alternate Gram Sabha land under allotment as earlier allotted land was shifted due to public resistance | - | - | |
| 17 | Sarangpur | 2.2 | Yes | Land taken over by DJB | - | - | Funding for this STP has not been approved by NMCG |
| 18 | Gaibpur | 1.1 | Yes | Land taken over by DJB | - | - | Funding for this STP has not been approved by NMCG |
| 19 | Tajpur Khurd | 8.0 | No | Land under acquisition | | | Notification was issued by Land & building deptt. 28.8.15. Owner of Land has gone to High Court. |
| 20 | Goyala vihar(Kakorala) | 2.5 | No | Land under acquisition | | | Notification was issued by Land & building deptt. |

OFFICE OF THE YAMUNA POLLUTION MONITORING COMMITTEE APPOINTED BY HON'BLE NGT
ROOM NO. 58, INDIA INTERNATIONAL CENTRE 40, MAX
MUELLER MARG, LODHI ESTATE
NEW DELHI – 110003

Minutes of Review Meeting taken by the NGT Monitoring Committee with the officials of the Delhi Jal Board on 04-10-2018

A meeting of the NGT Monitoring Committee was held with the officials of the Delhi Jal Board at the DJB headquarters Varunalaya on 04-10-2018 at 3.00 PM. The list of the attendees is annexed.

- 1) At the outset, the members of the Monitoring Committee (MC) explained to the DJB officers that the Committee has been appointed to monitor progress of implementation of the various directions given by the NGT from time to time and prepare an Action Plan, which inter alia will contain the various activities/projects which were to be implemented pursuant to NGT directions, the timelines given and whether those timelines have been met and if not, the reasons therefor and fix fresh timelines. The ultimate aim being to bring:
- a) Improvement in River Quality
 - b) Reduction of pollutant load flowing into the Yamuna
 - c) Number of Individuals/Populations/Colony benefitted

by each intervention/project proposed. The officers present were also told that the Action Plan submitted by DJB will be incorporated in the Action Plan which the Monitoring Committee is required to prepare and submit to NGT. The Action Plan will also be uploaded on the MC's website for the information and comments of public. The progress report on the monitorable action points will be submitted to Hon'ble NGT by 31st December 2018.

Discussion on Existing STPs

- 2) The MC sought clarification from DJB on the actual number of existing STPs as different reports have mentioned different figures. Instructions were therefore given to submit following information:
 - a) Number of STPs and Date of commissioning
 - b) Functional Status and Reasons (If defunct)
 - c) Location and Design Parameters
 - d) Future Plan (Rehabilitation or Permanent Closure etc.)
- 3) Committee raised issue of under-utilization of capacity of nearly 20 STPs where utilization is ranging from 10% to 90%. The MC instructed CEO to submit timelines and action plan to increase capacity utilization gradually for each STP. Timelines would cover the broad milestones while action plan would cover the detailing of projects and policies which would lead to achievement of milestones. Detailing like household connections, ISP projects, laying of sewer lines in unauthorized colonies should be included. It was re-iterated that information of each project should explain how it would improve Yamuna River Quality.
- 4) The MC raised the issue of certain STPs not meeting the design standards. It was pointed out that while DJB claims only 2 STPs are not meeting the standard, DPCC claims this number to be 9. Committee asked the DJB to submit the information on:
 - a) Reasons why STPs are not meeting the standards.
 - b) What are the DJB plans and timelines to rectify?
- 5) Committee desired that following data of each STP should be provided:
 - a) List of colonies contributing to the flow
 - b) Population of each colony
 - c) Catchment Area
 - d) Pollutant Load generated by the population
 - e) Pollutant load/Flow coming into STP
 - f) Quality testing of waste water flow covering parameters both of sewage and industrial effluent.
 - g) Un-captured Flow/Pollutant Load from the command area going directly not reaching STP (And hence entering storm water drains or ground water)

Discussion on New STPs

- 5) The MC referred to NGT order dated 13-01-2015 wherein it is mentioned that 32 new STPs were to be set up by DJB and wanted to know the progress on this in terms of the STPs commissioned, those under construction and those still at planning and tendering stage. Committee also enquired about progress of 2 STPs out of 14 STPs projects where land is under possession of DJB. CEO, DJB informed that due to extended monsoon flow measurement could not be done and WAPCOS would start from 10th October. Committee wanted to know why September deadline was given when DJB was not going to adhere to it. CEO informed committee that contractor L&T has been asked to initiate basic work like putting material at site etc. while flow measurement would be done as parallel activity. CE (Dr.) Project (II) Mr. V.K Gupta informed that it was the decision of expert committee to take up 14 STPs as priority project out of total 32 STPs as former were falling into Najafgarh command area and contributing to the pollution in Yamuna.
- 6) The DJB also assured to furnish information to MC on the number of total STPs commissioned since January 2015, and those under construction (regardless of the source of funding like YAP or NMCG etc) with the likely date of completion and whether the timelines have been met and if not the reasons therefor.
- 7) Committee enquired about the progress of Coronation STP. CE Dr. Project (II) Mr. V.K Gupta informed that liquid line will be completed in two phases. Phase – 1 will be completed by March 2019 while Phase – 2 will be completed by June 2019. He also informed Committee that DJB has planned to release treated water from Coronation STP and Rithala STP to upstream in the River Channel with the purpose of lifting for release into the river at Wazirabad. Committee enquired if Coronation STP has adequate treatment system to handle fecal coliform and other biological contaminants. Also, whether feasibility has been examined for this project. Committee instructed DJB to submit feasibility report of this proposal. CEO informed committee that the above project will be executed subjected to the approval from UYRB.
- 8) Committee sought clarification on number of drains referring to CPCB Report 2017 where 3911 MLD of wastewater is claimed to be released into Yamuna through all the drains. Expert committee report dated 13/10/2014 reported that 210 natural storm water are there

in Delhi out of which only 157 could be located on ground. According to recent data of DJB, number of drains including natural and artificial flowing into Najafgarh, Supplementary and Shahdara Drains is 376. Due to variations in data, committee instructed DJB to submit following data after due verification:

- a. Number of Drains directly falling into Yamuna Directly within physical boundary of Delhi
- b. Number of Drains trapped out of total drains directly falling into Yamuna
- c. Total number of Drains falling into Najafgarh, Supplementary, Shahdara, Barapullah
- d. Number of Drains trapped out of total mentioned in point c)
- e. What is plan of action and timelines for un-tapped drains of points b) and point c)
- f. Pollutant Load reduction and improvement in Yamuna after completion of all the six packages of ISP.

Committee also requested for a copy of Drainage Master Plan submitted by IIT Delhi.

- 9) Committee enquired about current status of different packages under ISP projects and its impact in terms of improvement in river quality and reduction in pollutant load. Committee enquired if STPs receiving sewage from 6 Packages of ISP are in position to take sewage after full commissioning of ISP project in December 2018. DJB officials informed that few STPs are under Rehabilitation and may not be able to treat sewage received from ISP by December 2018. Committee instructed DJB to submit Data on
 - a) Current status of each package in terms of work left and timelines of completion
 - b) Current status of recipient STPs of Each package, Proposal and timelines of the same
 - c) Impact on River Quality and Pollutant load reduction after commissioning of each package
- 10) Committee referred to the Expert Committee Report where 148 locations in storm water drains network in sewerred areas were found to be carrying sewage due to puncturing of sewer lines. Similarly, 344 locations where storm water join sewers thereby causing surcharging of sewers resulting in flooding and sewage mixed with storm water overflowing in the area. Such locations were identified and mapped by DJB and action plan was supposed to be prepared within 3 months. Member (Dr) apprised committee members

that out of 148, only 79 are left while action has been taken on remaining 69. Committee asked DJB to submit updated data on how many a) storm water drains are carrying sewage and b) At how many locations storm water drains are joining sewerage system c) List and location of places where problems have been rectified d) Timelines for rectification of remaining location

- 11) Committee referred to the order dated 18th December, 2017 where NGT had observed that though 11 drains had been trapped but sewage was still flowing in the drains. Though DJB had claimed that there was no sewage but it was disputed by NMCG. Later, based on an inspection carried out at the instance of Principal Committee it was found that six drains were still carrying sewage. CE (Dr.) Project (II) Mr. V.K Gupta assured committee that flow in all the drains will be plugged by March 2019. Committee instructed DJB to provide descriptive details of each drain and plan to rectify the problem with timelines.
- 12) Committee wanted to know the reasons for non-compliance of NGT Orders of making data Online Monitoring system of STPs public. CE (SDW) could not provide any valid reason and committed that it would be done by 31st October 2018. CEO, DJB promised to review the project and get it executed soon. Committee instructed DJB to submit a compliance report by 31st October 2018.
- 13) On the status of policy on septage management, the MC was informed that an action plan had been sent through e-mail to all senior officers of concerned departments including DJB. CEO claimed that he was unaware of any such e-mail. He also informed that File related to septage management has been received back from UD department after 7 months where DJB has been asked to seek comments from concerned departments directly. Committee showed displeasure as no progress has been made in last 7 month on important policy of septage management. The Committee also asked the DJB to submit compliance of the directions issued vide its letter dated 1st October 2018.
- 14) On the question of availability of infrastructure to treat fecal coliform and other biological contaminants in existing and new STPs, CEO promised to submit status of existing STPs in terms of availability of infrastructure and what is the plan and timelines of putting disinfection system in the STPs, where it is unavailable
- 15) Committee showed displeasure over lack of enforcement from DJB side to promote recycle and reuse of treated water which has gone down from 100 MGD to 89 MGD in past few

years. CEO informed the committee that Board has approved policy of waiving 90% sewerage charges on construction of decentralized STP in consumers like schools, colleges etc. and financial support for installation of STPs in parks and garden. Committee instructed DJB to submit plan and timelines to increase utilization of treated water. Current utilization of treated waste water being only about 20%, DJB should proactively engage other organizations like the DDA, Municipal Corporations and Building construction agencies like the PWD and Metrorail to use treated sewage water in lieu of bore well water, which should be strictly regulated by the DJB, being the nodal agency.

- 16) Committee informed DJB officials that plan would be uploaded on the website including maps, descriptive links and project Details. CEO, DJB committed to provide required information in 2 weeks i.e. by 17th October 2018.

Annexure VII

**OFFICE OF THE YAMUNA POLLUTION MONITORING COMMITTEE
APPOINTED BY HON'BLE NGT
ROOM NO. 58, INDIA INTERNATIONAL CENTRE
40, MAX MUELLER MARG, LODHI ESTATE
NEW DELHI - 110003**

No. YPMC/2018/

Date:01/10/2018.

OFFICE MEMORANDUM

Action Plan of Monitoring Committee set up by NGT with special reference to Sewered and Unsewered areas of Delhi and Septage Management Road Map.

Background

The NGT in various orders has directed that the drains and river Yamuna have to be protected from discharge of sewage, solid waste and industrial effluent.

In its order dated May 8th 2015 AND REITERATED IN 26TH July 2018 the NGT had ordered as follows:

Dated 08.05.2015, In O.A. No. 06 of 2012 and O.A. No. 300 of 2013

“(16).....
.....

We direct NCT of Delhi, Delhi Jal Board and all Municipal Corporations, Cantonment Board, electricity companies like BSES and all other civic authorities to require payment of environmental compensation from every house hold which is generating sewage in the entire NCT of Delhi on the Polluters Pay Principle. It will be irrespective of whether a house hold is sewerred or not. This would be equally applicable to the house hold located in the unauthorized colonies.

(17) The monthly compensation payable by all the house hold in the NCT Delhi would be directly proportionate to the property tax or water bill whichever is higher, payable by such house hold. Where the house hold or person is not paying water bill, property tax and are located in unauthorized colonies, in that event, such house hold shall pay the sum of Rs 100 or Rs 500 per month as the case may be. This amount would be determined by the concerned authority with reference to the construction existing on the plot. The payment of the 'environmental compensation' in terms of the above clauses shall be added to electricity bills, water

bill and the property tax demand in order of preference by the respective departments which will transfer the money to NCT, Delhi

(18) Delhi Jal Board has to provide itself or through appropriate agency desludging vehicles which will collect sludge from the septic tanks in the colonies and take it to the nearest STP.

(19) Such vehicles shall be provided with GPS to ensure proper collection and transportation to the designated location”.

Dated July 26, 2018, In O.A. No. 06 of 2012 and O.A. No. 300 of 2013

“(xiv) The Monitoring Committee may also consider and approve any plan for collection of funds on the Principle of Polluter Pays apart from requisitioning funds from the concerned authorities in terms of the orders already passed by this Tribunal”.

Summary of Meetings Held: On 14.09.2018 with Commissioner, East DMC, on 17.09.2018 with Commissioner, North DMC, on 20.09.2018 with Commissioner, South DMC, on 25.08.2018 with CEO, DJB and on 11.09.2018 with Principal Secretary, UD.

The Monitoring Committee (MC) was directed to prepare an Action Plan for monitoring the implementation of NGT's orders relating to abatement of pollution in the River Yamuna and drains flowing into the river and report progress thereon to the Tribunal.

The NGT orders are specific and must be given effect to. Departmental jurisdiction issues and non-availability of policy directions cannot stand in the way of giving citizens an environmentally safe city and doing everything possible individually or jointly to prevent pollution which affects every citizen.

The Directions which follow emanate from the NGT orders and progress made on implementation will be reported by Agency on the basis of Action Taken Reports received specific to the month and year

Since one of the biggest problems relates to the discharge of raw, untreated sewage into the drains it was necessary to hear the concerned officers. This was done by listening to the following:-

1. The three Commissioners of MCD because they are vested with statutory authority for sanitation under specific provisions of the DMC Act.

2. The CEO Delhi Jal Board and all senior officers concerned with the sewage disposal and treatment (including septage) and drain sanitation which is a direct responsibility of the Board under the DJB Act.
3. Interactions were held with some DMs on the telephone to understand why when they have been vested with authority under the EP Act and Cr PC they were not exercising this authority.
4. The Principal Secretary UD because all aspects of Urban Development, formulation of policies, implementation of related statutes, programmes/schemes and the notification of subordinate legislation and coordination with the urban local bodies is the responsibility of the Department of UD.

SEWERED AREAS

DJB after making a detailed investigation had identified two major causes of pollution:

- (i) Punctured sewers allowing sewage to enter storm drains (DJB had identified around 148 such locations and provided a map of the locations. (Appendix 5 of the 2015 order of NGT), and
- (ii) Storm water drains culminating into sewer lines (that are not designed as combine sewers to carry sewage as well as storm water, as in Old Delhi) thus surcharging the sewers to overflow and flooding the areas with sewage during the monsoon period (344 such locations had been identified by DJB and communicated to respective agencies for taking remedial action.)

The NGT was told that a plan was being formulated by the DJB for ensuring that no sewage flows into the storm water drains for which they required about three months to finalize. All of three municipalities, DSIDC, NDMC, PWD and Cantonment Board were reported to be in the process of preparing detailed plans for ensuring that storm water does not enter the sewerage network for which they had asked for 3 months' time to prepare an action plan. By now the plans should have been implemented. The commitments on behalf of different agencies are recorded in the Expert Committee Report dated 13-10-2014 appended to the judgment dated 13-01-2015

After 3 years it is apparent after meetings with DJB, the Municipal Commissioners and the Secretary UD that the NGT's orders recapitulated above have not been acted upon. The NGT in its orders of 26th July 2018 has reiterated that the "polluter pays" principle has to be invoked and both sewered and non-sewered areas must be made to pay for the pollution they are causing. Based on this, the directions which follow, should be given effect to.

UNSEWERED AREAS:

Status of Septage Management

There are 1797 unauthorised colonies in Delhi and the Centre for Science and Environment has published a report in 2016² that around 80% of these colonies, in absence of sewerage network, are dependent on onsite sanitation systems like septic tanks. Even where sewage pipelines have been laid taking individual household connections is not the norm and there is resistance to paying development charges (which would include charges for getting sewage connections to the dwelling unit.) They are not paying for the sewage they are producing or for arranging to have it discharged into the city's drains/pits and water bodies.

Since the unauthorised colonies have come up in an unplanned way over several decades and have grown haphazardly without sanctioned colony or building plans the MCDs say that they do not fall within their jurisdiction as no Municipal Building Bye-laws or requirements to fulfil safe sewage requirements are mandated to be provided. But sanitation of all drains is a Municipal responsibility and when sewage effluent is being emptied by private contractors into open drains it is very much a municipal function to protect the drains which are public property. DJB also has a direct responsibility for the drains under its Act and the provisions of Sections 29, 31 and 79 of the Delhi Water Board Act 1998 are specific. Punitive powers are also given in the Schedule. DJB, therefore, is already vested with powers under the Act to control pollution of drains and stoppage of sewage being dumped into the drains.

By now **regulated** emptying/desludging services should have been put in place by DJB. The sewage discharged into drains is reported by CSE to be equivalent to around 10 tons of BOD load per day. Sewage has a BOD of 150 to 300 mg/l, but the faecal sludge has a BOD of 2000 to 8000 mg/l and more. Sludge which is being emptied into drains, pits, forest areas and water bodies it is a public hazard. It defiles the main drains leading to the river Yamuna and leeches into the ground water and ruining the environment. It is leading to destruction of land, water and drains for which no compensation is being demanded by MCD and DJB who are both responsible under the DMC ACT and the Delhi Water Board Acts for enforcement.

Directions

1. Application of the Polluter Pays Principle

Keeping in mind the NGT directions the concerned authorities have to establish systems to collect sewage charges from both sewerred and non-sewerred colonies. Sewage

² **SFD Promotion Initiative- Last updated 20.02.2016** <https://www.cseindia.org/sfd-promotion-initiative-delhi-india-8566>

charges are only being taken from those consuming more than 20kl per month of water as a component of the water bill. **The rest of Delhi residents are not paying for the pollution caused by sewage generation .The NGT orders, particularly of 08-05-2015, have to be given effect to and for this the polluters must pay. The MC is including the operationalisation of this directive of NGT in its Action plan and will report progress to the Tribunal.** Whether the sewage of residents of Delhi who pay no water charges are being/should be subsidised by the Government is not an issue before the MC. The bottom line is that anyone who generates pollution (sewage) has to pay for its discharge into the city' systems and DJB has to ensure that it is done.

2. Repair of Drains and Storm water systems and Prevention of Destruction.

The DJB and other Urban Local Bodies listed by the NGT and referred in order of NGT referred earlier must confirm by 1st November 2018 that the deficiencies have been rectified. The MC would be sending inspection teams during November and December to different municipal wards. If the situation remains the same with reference to the identified locations which had been ordered 3 years ago to be rectified, it would be reported to NGT with names of locations and officers responsible from the drain owning as well as enforcement agencies .

Regardless of the MC's inspections the concerned agencies must give the status to the MC by 1st November with reference to the Expert Committee report dated 13-10-2014

3. Septage Management

The National Policy on Faecal Sludge and Septage Management (FSSM) was issued by Ministry of Urban Development in February 2017. Several states have published and are implementing the regulations for septage management. Delhi was found as late as September 2018 not to have notified regulations or put in place a system for septage management. Every day the river, the drains and water bodies are being polluted with sewage even as the STPs are running short of sewage. A regulated system for collection of the sewage from unauthorised colonies has to be put in place without waiting for sewer lines to be laid which will take time.

The Monitoring Committee had to ask the Secretary UD why the draft Septage Management Regulations had not been issued for 6 months after receipt from DJB in February 2018; also why DJB was not pursuing the matter when it was affecting the drains and water bodies and adding to pollution in the river Yamuna.

The notification of the Regulations and implementation of the Regulations is being included in the Monitoring Committee's Action Plan as it is critical that a sewage management network gets established.

However until then all collectors of sewage must be directed to discharge the septage only in notified places. If found discharging it in non assigned places the agency concerned must apply the polluter pays principle and fine the vehicle driver on the spot. Registration of the vehicle should be cancelled. All these aspects will be monitored by the MC and reported to NGT so whatever the Department does has to be effective.

4. Enforcement

The DJB must put the informal collectors/emptiers of sewage under notice to comply with DJB orders for discharge of the effluent at designated places even if these are temporary. Whether registered or not, no one should be permitted to ply vehicles carrying sewage without linkage to the sewage pumping station or sewage carrying line. The NGT in its order dated 08-05-2015(directions no. 18 and 19) had directed that this be regulated and that GPS equipment has to be installed on the collection vehicles and the fact that they only go to designated stations has to be monitored by DJB. The DJB CEO had said nothing can be done until the regulations which the Board had passed are approved by Government. This is not acceptable given the need for compliance with the NGT orders for which only the officers have responsibility. If the Regulations are still not being notified it is incumbent on DJB to exercise the powers vested in it under the DWB Act as referred to earlier and also co-ordinate with the Deputy Commissioners, the Municipal Commissioners and the Transport Authority to show zero tolerance for haphazard dumping of sewage and sullage.

No regulations are needed to carry out functions which are given in the MCD and EP Acts and when people are polluting the surrounding areas directly or indirectly everyday within the knowledge of DJB. Special enforcement cells should be created by placing the services of DJB workers under charge of the Deputy Commissioners who can report the vehicles with registration to the Transport Authority. Vehicles without registration can be impounded.

The Municipal Corporations, the DJB and the District Magistrates all have powers under the DMC Act 1957 amended in 2011, the Delhi Water Board Act 1998 and the Environment Protection Act 1986 to stop pollution of the drains but none of these powers are being exercised. These powers have to be operationalized in public interest and neither need funds nor policy level approval.

Delaying everything until the sewers to over 1500 unauthorised colonies are laid and consumers eventually take household connections or the Septage Regulations are notified is wilful negation of the requirements to provide basic sanitation(which include control of pollution in the drains) to the citizens of Delhi.

- The Commissioners of MCDs have a primary duty for sanitation in the whole of the Municipal area. Therefore each MCD Commissioner has been asked

individually by the MC to submit an Action Plan for prevention of such pollution and to oversee proper sanitary disposal of faecal sludge and other waste under the powers vested in the DMC Act. This should be taken up first to cover all drains nearest to the 3 major drains and the 22 drains which empty into the river irrespective of whether they come under I& FC Department or PWD as enforcement powers are not with those Departments.

- The DJB has concurrent but also direct responsibility under the DJB Act and Section 31 of the Delhi Water Board Act 1998 specifies that all drains which were municipal drains under the erstwhile DWS &SD Undertaking shall vest in the Board. Under Section 79 (subsection 1) DJB has powers to fine a person Rs 5000 for discharging filth and garbage into the drains.
- The District Magistrates possess powers under Section 133 of the CrPC to take action to remove a public nuisance. The Deputy Commissioner (Revenue) is designated as the District Environmental Protection Officer under Section 4(1) of Environment Protection Act, 1986. These powers have to be used by the officers within their jurisdiction in coordination with DJB which has overall responsibility for sewage management.

Interim Directions until Septage management System is notified.

- The DJB should ask the DMs to use the powers they exercise and facilitate them by setting up cells of field staff under their control to monitor how the drains are being kept pollution free. The statutory responsibilities have to be exercised in an organised manner and action plans have been sought by the MC both from the MCD Commissioners and DJB.
- A system to direct all vehicles carrying sewage to the designated place has to be organised in group meetings which can be convened by the Deputy Commissioners who are designated as Environment Officers under Section 4 (1) of the EP Act. The DJB should identify SPSs/STPs where septage from each of the unauthorised colonies will be emptied. This should be done by November 1st. Progress will be reported to NGT.

Co-ordinations Responsibility of Department of UD and Director Urban Local Bodies.

The Department and the DULB have to coordinate and ensure that the role and functions of each authority- MCDs, DJB and DMs is exercised and the action taken by each Agency is measurable. Only then can it be monitored. The MC will seek reports from the Department of UD on action taken by all the agencies

which must not wait for the Septage Regulations to be first notified although that must be done concurrently.

Arguments and excuses over jurisdiction must be sorted out by the Department of UD and the Chief Secretary. Such deflections cannot be allowed to stand in the way of performing essential functions delineated in the statutes referred above and as directed by NGT.

The Action taken between October/November/December by location and periodicity as provided by the co-ordinations Department based upon reports from DMCs, DJB and DMs will be reported to NGT.

Independent of this reporting the MC will carry out its own inspections and give a report to NGT about the progress.

This note is being put up on the Monitoring Committee's Website and will be in public domain.

Sd/-
Shailaja Chandra,
Member,
Monitoring Committee for Yamuna

Sd/-
B.S. Sajwan,
Member,
Monitoring Committee for Yamuna

To

1. Chief Secretary, Govt. Of NCT of Delhi
2. Principal Secretary (UD), Govt. Of NCT of Delhi
3. Chief Executive Officer, Delhi Jal Board
4. Commissioner, South Delhi Municipal Corporation
5. Commissioner, North Delhi Municipal Corporation
6. Commissioner, East Delhi Municipal Corporation
7. Divisional Commissioner, Govt. Of NCT of Delhi
8. The Chairman, New Delhi Municipal Committee
9. CEO, Delhi Cantonment Board

Address: Room No. 58, India International Centre
40, Max Mueller Marg, New Delhi – 110003
Telephone No: 24619431 Extn: 258
Email id: rymonitoringcommittee@gmail.com

Annexure VIII

OFFICE OF THE YAMUNA POLLUTION MONITORING COMMITTEE
APPOINTED BY HON'BLE NGT
ROOM NO. 58, INDIA INTERNATIONAL CENTRE
40, MAX MUELLER MARG, LODHI ESTATE
NEW DELHI - 110003

Sub: Minutes of Meeting held with officers of CPCB, DPCC and DJB on 27.09.2018

A meeting with the officials of CPCB, DPCC and DJB was held on 27.09.2018 to take stock of the progress on online monitoring system and its effectiveness in monitoring pollution in river Yamuna.

The Hon'ble NGT has in its judgment dated 13.01.2015 has the DJB, DSIIDC, DPCC & CPCB to establish online monitoring system to monitor functioning of STPs and CETPs. These directions have been reiterated on several occasions, thereafter, by the Tribunal.

From the discussions, it became evident that although the DJB claims to have provided linkage with the servers of CPCB, DPCC, they are actually not able to access the data so provided by DJB in the absence of user ID and Password. Shri D.K. Vaishya, Chief engineer, DJB pointed out that they have already given user ID & PW to both these organizations. Be that as it may, the position as on today is that the DPCC and CPCB are unable to access DJB data and, therefore, are not able to provide any feedback.

As regards, the CETPs, the DPCC representative pointed out that 9 out of 13 CETPs are connected online and DPCC is receiving the data so provided. However, the agencies operating 4 CETPs have not done it and the matter is being pursued with the concerned agencies and the DSIIDC. On a query, Dy. Director General, NIC regarding URL and the server being used by DJB for hosting the data, it transpired that the data is being hosted on servers located overseas. The Dy. Director General, NIC was of the opinion that in the interest of data security, DJB should consider to migrating to server located within the country.

After discussion, the following directions were issued:

1. DJB shall within fifteen days from today provide connectivity to their server to CPCB and DPCC for real time connectivity for data transfer in respect of the quality parameters of treated waste water from each of the STPs. CPCB and DPCC shall also liaise with DJB to make it functional.
2. By 31st October 2018 DJB shall put in place a system of generating SMS alerts for all the STPs in the event of parameters being exceeded by any of the STPs for corrective action by the concerned officer. Such SMS alerts will also go to the CEO, DJB.
3. CPCB and DPCC will designate Scientists/Engineers within their respective organizations to be responsible for monitoring such online reports from DJB and send SMS alerts to CEO DJB for corrective Action. If corrective Action is not taken even after a lapse of one week, DPCC and CPCB shall report the matter to the Monitoring Committee.
4. DJB shall within fifteen days take a decision on making the test results, manual or real time online data, public by providing access to its website for each of the STPs.
5. DJB shall ensure that the online connectivity for data transfer is provided for all the STPs under its control.
6. The DJB shall submit within 15 days action plan improve their functioning two STPs, namely, Keshopur Ph II and Phase III, which as per Chief Engineer DJB, are not meeting the design parameters, within one month.
7. The SOPs for calibration of sensors transmitting data online shall be observed in letter and spirit to ensure that the results of online monitoring correspond with manual testing, within acceptable margin of error. CE, DJB informed that such calibration is done once a month although it is required to be done once in a fortnight.
8. Presently the online data on STPs is being hosted on servers located overseas. The Director, NIC suggested that in the interest of data security, DJB should consider hosting it on Indian servers. DJD should examine this and prepare a plan for this.
9. DPCC informed that only 9 out of 13 CETPs have online monitoring system and the other 4 have not installed such a system. We, therefore, direct DPCC to take action against the CETPs concerned in accordance with the law and submit a compliance report within a fortnight.

10. DPCC shall while carrying out inspection jointly as directed by this MC on 29-08-2018 shall also measure effluent received at each CETP, its quality both at inlet and outlet, and compare the total flow so measured with the total discharge from all the industries as contained in the Consent to Operate to make a comparison between what is consented and what is actually received at the CETP.

11. The Joint inspection as ordered on 29-08-2018 shall also inspect some selected Clusters out of the 11 clusters which do not have CETPs, as they do not release any liquid effluent, as per the statement made by DPCC before NGT and this MC, to ascertain this fact and also inspect and report as to how and where the auto service stations located therein discharge their hazardous waste like the used oil, grease etc. This was also covered in the direction given by NGT in its order dated 05-08-2015 also.

Compliance report on the above shall be submitted by 31st October 2018 by all concerned.

**OFFICE OF THE YAMUNA POLLUTION MONITORING
COMMITTEE
APPOINTED BY HON'BLE NGT
ROOM NO. 58, INDIA INTERNATIONAL CENTRE
40, MAX MUELLER MARG, LODHI ESTATE
NEW DELHI - 110003**

No. YPMC/2018/

Date: 30.08.2018

Subject: IDOL IMMERSION IN YAMUNA

Record Note of the Meeting of the River Yamuna Committee held on 28.08.2018 with concerned Stake holders of Govt of NCT Delhi, MCD, DDA and Delhi Police to discuss the roles and responsibilities of the Agencies concurred with safe/immersion of Idols/Murtis to prevent Pollution of the River.

Names of officers attending the meeting are attached.

Main Issue

The Monitoring Committee (MC) which has been set up by the National Green Tribunal is inter alia concerned with the prevention of all manner of pollution in the river Yamuna.

A meeting was called on 20.8.2018 with a notice which had set out the matters to be discussed. The continued immersion of idols, synthetic substances, plastic waste and other non-degradable material into the river particularly during different festivals had been brought up before the NGT which has given directions in this matter. The need to implement the CPCB guidelines which are specific were also referred to.

In the meeting the following points emerged as matters for immediate concern.

Roles and Responsibilities

- The MC was informed that the Divisional Commissioner GNCT coordinates the subject between the key departments. The Div. Commr was represented by the Deputy Commissioner headquarters Ms Tanvi Garg who explained that she was new to this subject.
- The Delhi Pollution Control Committee which has a direct role in ensuring that the guidelines are adhered to and to monitor what happens and to report to the authorities concerned, was not represented. There was representation from MCD and the ADMs /SDMs and Irrigation & Flood Control Departments, Delhi Police and DDA.

From the statements of these officers it was apparent that coordination meetings are held annually but had not been held this year by the Divisional Commissioner. After listening to the experience, difficulties and preventive steps taken by the departments namely the three Municipal corporations, the Police, the Irrigation & Flood Department and the Magistrates present it was apparent that there was a need to have a mapping of wherever the larger Pooja Pandals are going to be set up and to make the Pooja organising committees responsible for abiding by the CPCB guidelines. Since Ganesh Chaturthi is on 13 th September it required immediate steps to be taken. This would be needed on a larger scale during the Dussehra / Durga Pooja celebrations.

The Monitoring Committee asked the representative of the Divisional Commissioner to see that coordinated action is taken and the following Advisory was issued in the interest of preventing river pollution :-

1. Establish a system for giving registration and approval to Pooja pandals. At the time of giving approval guidelines which were read out at the meeting by the CPCB scientist and are available on the website should be simplified and an undertaking obtained from the organisers about adherence to the conditions specified. In particular the material which should not be used and the height of the Murti should be insisted upon in terms of NGT orders and CPCB guidelines.
2. A route map to be followed for immersion should be ascertained and mapped in advance along with the plans for immersion at specific ghats. Unless there is a mapping exercise undertaken and shared with the departments in charge of sanitation in the MCD, Delhi Police and Irrigation and Floods which provide barricades, there would be no advance planning for prevention of idol immersion directly into the river.
3. The MCD, the Delhi Police and Irrigation and Flood Departments have a supportive role which has to be mapped out and shared in advance with each agency so that each organisation works in tandem with the other.
4. The Deputy Commissioner HQ Ms Garg referred to 7 ghats whereas in the meeting the following ghats were mentioned by other authorities :
 - Qudesia Ghat - Central District
 - Geeta Ghat - Central District
 - Hathi Ghat - Central District
 - Shyam Ghat - Central District
 - Kalindi Ghat - Central District
 - Mayur Vihar Ghat - Central District
 - Geeta Colony Ghat - Central District
 - Kali Ghat - Central District
 - Ram Ghat - Central District
 - Sur Ghat - Central District

The DC was asked to see that the facilities for immersion and salvage of the Pooja remnants are adequate and there is every effort to facilitate the immersion in an organised way.

5. The MC asked to see the steps taken for creating public awareness in previous years. The quality of public advertisement which was issued in the past was not of the type which would make people understand why it is important to desist from using paints, plaster of Paris and also to ensure that the synthetic material used is not thrown into the river. Bill boards at suitable locations be also erected highlighting NGT directions and the prohibitions, both in Hindi and English, that applies to plastic bags containing flowers, garlands and other offerings which are being immersed into the river even now every day.
6. No request for funding for undertaking such an awareness building exercise, involvement of NGOs and schoolchildren was made. However this would require a planned budget and expenditure being incurred on promoting all such activities. Such a plan may be shared with the committee.
7. The plan has to be put into motion from this year itself and improved upon during the forthcoming festivals. The Divisional Commissioner should prepare a budget and take pro rata contributions from the departments in terms of their responsibilities for abatement of river pollution if needed. A copy of the advertisements issued should also be given to the MC. The need for preserving the cleanliness of the river and need to prevent prohibited items should be uppermost. The Pandal incharges should be held responsible in case of infringement. The Monitoring committee will appoint teams to visit the ghats on a random basis and put up the findings on the website by location.
8. The DDA which has the ownership and responsibility for maintaining the floodplains should work in tandem with other agencies to ensure that floodplain is free of any left over pooja material or idols. Taking the position that they have no responsibility in this was not acceptable to the MC.
9. The I & FC Department should make available a trash skimmer in the river during the period of idol immersion, particularly in the Ghats which receive most number of idols for immersion.
10. The CPCB and DPCC should take samples of river water both upstream and downstream of the Immersion ghats independently and submit test reports of water quality along with reports of previous five years within one week of immersion.
11. The Divisional Commissioner should have held the coordination meetings for this by now. Since this has not yet been done, the MC expects that the meeting will be held at the earliest, but not later than next week, keeping in view the points covered above and the CPCB guidelines on the subject.

12. The DDA and the Irrigation & Flood Department shall do the videography of all the Immersion Ghats both of during the process of Immersion and after the event and submit to the MC immediately thereafter

Best regards,

Shailaja Chandra,
Member,
Monitoring Committee for Yamuna

B.S. Sajwan,
Member,
Monitoring Committee for Yamuna

Address: Room No. 58, India International Centre
40, Max Mueller Marg, New Delhi – 110003
Telephone No: 24619431 Extn: 258
Email id: rymonitoringcommittee@gmail.com

