

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

Original Application No. 06/2012

Manoj Mishra

Applicant(s)

Versus

Union of India & Ors.

Respondent(s)

Date of hearing: 03.01.2020

Date of uploading on the website: 22.01.2020

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE DR. NAGIN NANDA, EXPERT MEMBER
HON'BLE MR. SIDDHANTA DAS, EXPERT MEMBER**

ORDER

1. The issue for consideration is the execution of directions in the judgment of this Tribunal dated 13.01.2015 reported in *2015 ALL (I) NGT REPORTER (1) (DELHI) 139* and further orders for rejuvenation of River Yamuna in pursuance of order of the Hon'ble Supreme Court transferring proceedings pending before it in *W.P. No. 725/1994* on the subject to this Tribunal. Since no meaningful progress took place for a long time, this Tribunal constituted a two member Yamuna Monitoring Committee (YMC) vide order dated 26.07.2018 for monitoring a time bound action plan.
2. The matter has been further considered from time to time in the light of reports of the YMC and was last reviewed on 11.09.2019. The YMC has to furnish its next status report as on 31.12.2019 which is to be uploaded on the website. The concerned authorities have to file their

compliance affidavits by 15.01.2020 on which the YMC has to give its comments in its report to be filed by 31.01.2020. The matter is thereafter to be considered in the 3rd week of February, 2020. However, pending such further consideration, a chamber meeting was held on 03.01.2020 to review the progress and various suggestions were put forward by the implementing agencies and members of the YMC. Main issues which emerged during the interaction are:

- i. Interim steps for bioremediation and/or phytoremediation or any other remediation to prevent untreated sewage being discharged into the river from the drains, pending installation of requisite STPs, to reduce the load of pollution on the recipient river system.
- ii. Considering representative models for the purpose of implementation of above steps.
- iii. Exploring the viability/possibility of overall ownership for such remediation in respect of all the drains in one single authority in Delhi for better coordination and execution.
- iv. Institutional mechanism for Yamuna River Front Management for ecological restoration of the Yamuna River Front.

Apart from the above issues relating to remedial action in Delhi, since it was brought to the notice of this Tribunal that untreated sewage was being directly discharged into river Yamuna at Faridabad, the Tribunal thought it appropriate to consider this issue also.

3. After the meeting on 03.01.2020, a brief order was passed giving liberty to all the stakeholders who attended the meeting to give their suggestions, if any, in writing so that the same can be considered and further order passed by 24.01.2020.

4. Accordingly, two reports have been filed by the Yamuna Monitoring Committee (YMC) on 20.01.2020:

- i. Report on the need for "Yamuna River Front Management Authority for Delhi".
- ii. Report on "Approach to In-situ Bio-remediation/Phyto-remediation of sewage in drains of Delhi".

5. We proceed to deal with the above reports to pass further orders in the light of earlier proceedings mentioned hereinbefore.

6. While dealing with the main issue of rejuvenation of river Yamuna, vide order dated 11.09.2019, the matter was considered by this Tribunal with reference to the 'Core Action Plan' prepared by the YMC on 22.10.2018 in the light of directions of this Tribunal. Action points identified therein are:

- i) Environmental Flow*
- ii) DDA and Demarcation of the Flood Plains and Conservation Activities*
- iii) Quality of River water*
- iv) Sewage Treatment Plants*
- v) Interceptor Sewer Project (ISP)*
- vi. Repair and maintenance of Drains*
- vii) Polluter Pays principle*
- viii) Dredging and desilting*
- ix) Industrial Pollution and CETPs*
- x) Sewage and Faecal Sludge Management*
- xi) Online Monitoring of STPs, CETPs and Yamuna.*
- xii) Use of treated Waste Water*
- xiii) Idol Immersion*
- xiv) State of Haryana and pollution of the Yamuna*
- xv) State of Uttar Pradesh and Pollution of the River*
- xvi) Creating Public Awareness Through Information Dissemination Strategies and Management"*

7. For the purposes of this order, we need to consider:

- (ii) Demarcation of the Flood Plains and Conservation Activities,
- (iv) Sewage Treatment Plants,
- (vi) Repair and maintenance of drains,
- (x) Sewage and Faecal Sludge Management and
- (xiv) State of Haryana and pollution of the Yamuna.

First Report on "Yamuna River Front Management Authority for Delhi":

8. The first report is referable to item no. (ii) above. Observations of the YMC in its report dated 13.08.2019 were summarised in the earlier order dated 11.09.2019 as follows:

"I. Demarcation and Rejuvenation of the Flood Plain:

It has been commented by the Monitoring Committee with regard to the subject of Demarcation and Rejuvenation of the Flood Plain that following steps are required:

- 1. Physical demarcation of the entire floodplain to be done by DDA (Para 5A, Page 82)*
- 2. No construction activity in the demarcated floodplain.*
- 3. Repossessing the floodplain area under illegal and unauthorized possession. No activity of edible crop/ cultivation on the floodplain.*
- 4. No activity of edible crop/ cultivation on the floodplain (Para E, Page 87)*
- 5. No person/ authority shall dump any kind of construction debris on the floodplain area. There shall be prohibition of any kind of dumping of malba/ material in and around River Yamuna. (Para 6B, Page 88)*
- 6. Polluter Pays Principle: Compensation of 50,000 INR. This compensation will be utilized for Restoration and Rejuvenation work. (Page 86)*
- 7. Prohibition of throwing Pooja material or any kind of other material in River Yamuna except only the designated sites. Violators to pay 5,000 INR on 'Polluter Pays Principle' (Para D, Page 88)*
- 8. Existing wetlands and water bodies should be deepened and enlarged and provide more water bodies. (Para A, Page 90)*
- 9. Floodplains shall be restored, preserved and beautified in accordance with the reports of the experts committee. (Para xi, Page 91)*
- 10. Restricted activities of Floriculture/ Silviculture can be carried-out subjected to permission. (Para xii, Page 91)*

The Committee noted details from DDA's Report giving status and area where action is required: Total area of 5128 ha area of zone O (Reference page 15 of DDA's Action Taken Report)- Area 1.Old Railway Bridge to ITO Barrage (Western Bank)- Asita, Area 2.Geeta Colony Bridge to ITO Barrage (Western Bank) Eco-Tourism, Area 3.Old Railway Bridge to ITO Barrage (Eastern Bank) - Asita East, Area 4. NH24 to DND Flyway (Western Bank)- Project area: 263 Ha., Area 5. DND

to proposed Kalindi By-pass (Western Bank) - Khirabad Area 6. NH-24 to DND Flyway (Eastern Bank) Part Area- I, Area 7. NH-24 to DND Flyway Eastern Bank) Part Area- II- Hindon Cut Wetlands I&II, Area 8. Wazirabad Barrage to ISBT Bridge (Eastern Bank) around Garhi Mandu Village & Usmanpur Village, Area9.Wazirabad to Old Railway Bridge (Western Bank) Area 10. ITO to NH-24 (Eastern Bank)- Commonwealth Games Village Area.”

9. The current report of the YMC, in continuation of the earlier report, refers to field survey of the river zone by an Expert Committee appointed under earlier orders of NGT comprising Prof. AK Gosain (IIT Delhi), Prof. CR Babu (Emeritus Professor Delhi University), Prof. Brij Gopal (IIT Roorkee), assisted by officers from the DDA, Government of NCT of Delhi, DJB and UP Irrigation Department. The recommendations of the said Expert Committee are as follows:

“Specific Recommendations of the Babu/ Gosain/ Brij Gopal Expert Committee.

- 1. To set up a separate, independent body (like authority) to plan and execute the entire restoration programme for the River Zone in the NCR that involves three state governments.**
- 2. To provide statutory protection to flood plain under either the Indian Forest Act (Protected forest) or the Environment Protection Act (Eco-sensitive Zone). Ministry of Environment & Forests, Govt of India and Govt of NCT of Delhi was expected to take action.**
- 3. The Zone 0 (river zone) must become a place of attraction and active indulgence by the city dwellers without compromising the river's ecological and social functions.”**

10. The earlier supplementary report dated 13.08.2019 of the YMC on the subject is:

- “ • *To consider establishing a dedicated set up like a Society to manage the area including existing encroachments and pollution caused by the allottees.*
- *Examine whether industrial houses could be permitted to display their logos etc and take over maintenance of parcels of land by taking the advice of Archaeological*

Survey of India so that user fees can be levied and ingress of unaccounted people regulated. It was underscored that MC was not suggesting any sort of leasing but there was a need for a River Front Society or Special Purpose Vehicle to see that the existing area has one agency responsible for upkeep -- not restoration - which is a different approach. INTACH and DDA are not equipped to do enforcement work. They have no regulatory authority which can be used. DDA has repeatedly complained about getting no cooperation from the MCD and the Police but it does not seem to have been followed up at a sufficiently high level. DDA did not respond to any of the suggestions and also did not refer to the minutes of YMC recorded in the communication YPMC/2019/223 dated 13.6.19. This was reported to NGT when the MC sent its comments on the reports of all agencies in August 2019.

- To have proper coordination with MCD and Police to restrict ingress and hawking rights.

It was recommended that a River Front Authority or a Consortium of NGOs active in River pollution and rejuvenation activities along with the CSR arm of reputed Industrial Houses interested in preserving local history and culture and senior representatives of enforcement agencies was needed to give an overall direction to the management of the entire area which broadly falls under DDA's ownership. YMC had tried to persuade every officer in DDA attending its meetings that the area has the potential to become a vibrant and attractive river front but was fast deteriorating because there is an absence of an integrated vision to develop what is already there and to prevent a proliferation of haphazard activities which make the area unsightly and inaccessible.

YMC is conscious of the fact that floodplain of the river separate the river stream from the river front. River front begins where the floodplain ends. Though the DDA has been directed to demarcate 1 in 25 year floodplain, in most places like the Yamuna Bazaar, 32 Ghats and Kudesia bagh, the boundary between the floodplain and river front is not distinct. Also, where as in the floodplains the thrust has to be on conservation and protection of wetlands and biodiversity, on the river front, which receives high footfalls and supports many social and cultural activities, the management thrust has to be on regulating developmental activities that help bring people closer to the river but the activities need to be regulated within the overall carrying capacity of the area. The River front Authority should therefore have the mandate both for conservation centric activities on the floodplains portion

and people centric activities on the river front portion of the 'O' zone.

DDA has repeatedly restricted its comments only to giving the progress on agreed projects under way which have to be completed by January 2021 or prior to that. The YMC's recommendations on the progress of those 10 projects has been reviewed by the YMC on 14.1.20 but for the sake of brevity that status is not being repeated here as those are they are unrelated to the concept of a River Front Management Authority."

11. The current report further mentions that in 2007, a Yamuna River Development Authority (YRDA) was set up under the orders of the Government of India. It was called the High Powered Committee for the Yamuna River Development Authority (YRDA) and was created vide Cabinet Secretariat's OM No. 731/2/1/2007-Cab-III dated 24 August 2007 with the following terms of reference:

- a. Commission studies on different aspects of the development of the river, viz., hydrology, ecology, environmental pollution, sustainable use of the river front, etc to feed into the policy framework.*
- b. Develop a policy framework and prepare an integrated plan addressing issues of both quantity in terms of river flow and quality in the Yamuna river.*
- c. Develop an operational plan for the implementation of the river action program.*
- d. Effect inter sectoral coordination for planning and implementation until such time as a statutory arrangement is in place.*
- e. Suggest the design for the statutory framework."*

12. It is further stated that 'Technical Advisory Group' approved a draft for cleaning of the river and developing its surroundings recommending that the Yamuna river bed is a no-construction zone and emphasized on the need for riverfront development, cleaning up of the river and pinned its hopes on DJB's Interceptor Project. The technical committee had suggested that the riverbed should be developed as a biodiversity with three zones, one would be a buffer zone, the other an inner core zone and the third would be the

interactive zone where people will be allowed. Current status of functioning of the said YRDA is not known.

13. The YMC has suggested that in view of lapse of time and new challenges, a new mechanism may need to be developed under the aegis of DDA to be assisted in appropriate manner to deal with all the relevant issues relating to the river front.
14. With a view to consider the suggestion of the YMC for setting up of the Work Front Management Authority under the aegis of DDA, who may take assistance from such experts or authority as may be considered necessary, we require a response from DDA which may be furnished by e-mail at judicial-ngt@gov.in before the next date. The report of the YMC may be sent to DDA by e-mail.

Second Report on "Approach to In-situ Bio-remediation/Phyto-remediation of sewage in drains of Delhi".

15. The second report relates to "Approach to In-situ Bio-remediation/Phyto-remediation of sewage in drains of Delhi". On this aspect, the Tribunal noted in the earlier order dated 11.09.2019 that:

"1. As per DJB, Delhi generates 720 MGD of sewage (though it could be an underestimation as a large number of illegal bore wells have not been accounted for in this estimate) but the actual treatment is only 500 MGD(69%).

2. Capacity Utilisation of STPs: As many as 13 STPs have capacity utilisation of less than 70%, some even having capacity utilisation of 10 %(Ghittorni)."

3. Status of other storm water drains carrying sewage: It has been reported by the Monitoring Committee that a total of 79 water drains in Sewered areas were found to be carrying sewage. In respect to this DJB has stated 39 have been plugged and 40 would be plugged as per the action plan submitted by them.

4. Status of Punctured Sewers: It has been reported by the Monitoring Committee that at 344 locations sewer were punctured and drains connected to the

sewer network. It has been reported that out of 344 locations 252 punctured sewers have been repaired.

5. Ameliorative measures for cleaning drains & Constructed Wetlands and in-situ Bioremediation Technology: Controlled Dredging in River Yamuna is required.

It has been commented that the mushroom growth of unauthorized colonies has been the bane of urban planning and has resulted in giving rise to a grave situation. Environmental pollution and destruction of the river Yamuna is the direct consequence of haphazard growth in unauthorized colonies. This phenomenon is not confined to Delhi but is also happening in UP and Haryana.

The experience of the last 20 years shows how the unchecked expansion of unauthorised colonies has led to haphazard proliferation of vast habitations of populations bereft of roads, drainage or sewerage. Apart from sewage all such households also eke out living through home-based activities many of which have been found to be hazardous and which exacerbate pollution in the drains and river. No amount of STPs and professional management inputs, repair of drains and interception of sewage will result in making the Yamuna cleaner unless the most major among the causes of pollution are confronted. In a city of 20 million if over 7 million inhabitants of unauthorised colonies live without sewerage it will affect the environment of all citizens.

It states that while the implementation of the Septage Management Regulations has to continue it will not address the basic problem. Forward planning is necessary keeping the future population growth in mind. Laying sewer lines and drains needs to be forecast and attended to well in advance to avoid the present situation in which most unauthorised colonies have no outlet for sewage.”

16. The report now received inter-alia mentions:

“The gap between the sewage estimated to be generated, what is captured and what is treated is huge and any alternative which can reduce the pollution need to factor in where the impact of such alternatives would be substantial. Such alternatives need to take note of the complexity of the situation and recommendations made in a slew of expert reports on the drains in Delhi.

Delhi has over 1797 unauthorized colonies, over 135 urban villages and over 675 slum clusters where some 10 million people dwell without any town planning regulations in force. That includes absence of sewerage, drains and conveyance systems. To have an impact on the quality of river water alternatives should address the needs of such bulk sewage discharge.”

17. Earlier three reports mentioned in the current report of the YMC have been summed up as follows:

- “1. Status of drains out falling into the River Yamuna in Delhi prepared under the aegis of Drainage Master Plan for NCT of Delhi published in July 2018 prepared by IIT Delhi(Department of Civil Engineering) for the department of Irrigation & Flood Control, GNCTD. This is an exhaustive report which provides a detailed picture of the storm water drainage infrastructure.
2. CPCB Report on River Yamuna — Waste Water Management Plan In Delhi 2012, (This report was got updated by the Yamuna Monitoring Committee by requesting CPCB and is available on the MC's website). The report gives a very detailed idea of the drains in Delhi and their pollution load and advocates that the quality of treated sewage discharged in the drains can be improved by in situ aeration till such time all the drains are trapped and no untreated or treated sewage is discharged in the drains to avoid anaerobic conditions. CPCB's recommendation was that the river segment devoid of dissolved oxygen can be considered for floating aeration systems to maintain the level of dissolved oxygen and prevent anaerobic conditions. Earlier in 2003 CPCB issued Guidelines on the Construction, Operation and Application of Rootzone Treatment Systems for the Treatment of Municipal and Industrial Wastewater.
3. Report of the High Court Constituted Committee set up to look into the drainage problems in Delhi by High Court of Delhi vide Court of its own motion in CM No. 30022/2018 in WPC No 7594/2018 dt 30.07.2018. The High Court ordered that a committee under the chairmanship of the former Chief Secretary Delhi, Shri P K Tripathi with engineers from different organizations may prepare a plan for Delhi's drainage system— necessitated by sudden and extensive flooding on Delhi roads. The Committee submitted its report on 22.1.19 and gave an overview of why the problem of flooding in Delhi's drains occurs and what can be done to prevent its recurrence. Importantly it recommended that the IIT report (referred at 1 above) should become the fundamental document on which storm water flow and sewage containment operations should be based. The IIT Report and the High Court Constituted Committee's report both lament the absence of accountability for the drains in Delhi.

All three reports are relevant because any move to start phytoremediation/bio-remediation, root zone treatment or aeration has to be based on an understanding of the topography of Delhi's drainage system operated by several agencies and presently having no interagency coordination. The drains by ownership and length are listed below.

Department-wise Drainage Length in NCT of Delhi

Sl.	Agency Name	Length
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		(Km)
1	<i>Irrigation and Flood Control (I&FC) Deptt.</i>	426.55
2	<i>Public Works Department (PWD)</i>	2064.08
3	<i>South Delhi Municipal Corporation (SDMC)</i>	258.78
4	<i>North Delhi Municipal Corporation (NDMC)</i>	122.46
5	<i>East Delhi Municipal Corporation (EDMC)</i>	140.63
6	<i>New Delhi Municipal Council</i>	335.29
7	<i>Delhi Development Authority (DDA)</i>	251.30
8	<i>DSIIDC</i>	98.12
9	<i>Delhi Cantonment Board</i>	39.68
10	<i>National Thermal Power Corporation Limited</i>	3.11
11	<i>Old Agra Canal</i>	0.311

”

18. After giving the above background, the YMC proceeds to deal with the challenge posed by absence of a single agency to deal with sewage treatment and disposal as follows:

“Delhi Jal Board

The DJB's interpretation has been continuously highlighted by the YMC and was reported to the NGT in its second interim report, page 38 dated 27.5.2019. It was brought to the notice of the NGT that "In Delhi biggest obstacle preventing enforcement against water pollution has been a loose interpretation of the meaning of "jurisdiction of the drain owning agency". The Delhi Jal Board was founded in 1998 and was the successor to the erstwhile Delhi Water Supply & Sewage Disposal Undertaking (DWS&SDU) which functioned under the unified Municipal Corporation of Delhi (MCD). The Conservancy and Sanitation Department of MCD was wholly in charge of all drains regardless of their location while the MCD's DWS&SDU was in parallel responsible for water supply and sewage. After formation of the Delhi Jal Board the functions devolved on DJB. Through a subsequent administrative change effected sometime in 2012 it was decided by the Delhi Government that the drains contiguous to roads would be under the "jurisdiction" of different road owning agencies. This does not alter the statutory responsibility of DJB for overall management of sewage. If they have no role then they would not have brought out the Septage Management Regulations 2018 and begun implementing them by registering the tractor-trolleys that privately collect septage from pit latrines in unauthorized colonies. The organization also would not have formulated and tendered a scheme to collect sewage from pit latrines at Government cost from the unauthorized colony households having pit latrines.

Department of Irrigation & Flood Control

Ironically this department was responsible for awarding the study on the Drainage Plan which was entrusted to IIT Delhi. Although the report was reportedly directed to be acted upon

by the Chief Minister Delhi the l& FC Department has not taken it forward. In meetings the Secretary l&FC who is also the CEO DJB has stated that the Department neither has the mandate or the wherewithal to implement-drainage related matters outside the major drains out falling into the river. It begs the question why such a study which took 6 years to be published was awarded by Irrigation & Flood Control Department if it had no role .The presumption is that since the DJB and the Department of Flood Control are under a common officer it was convenient to commission the study from l&F Department.

Delhi Municipal Corporations

Under the Municipal Corporation Act 1957, the Chapter on Water Supply, Drainage and Sewage Disposal has been repealed after DJB was created through an Act. Therefore, they are repeatedly taking the stand that they have no role to play in sewage related matters. In meetings the DMC Commissioners have stated that sewage is not the responsibility of the Corporations. The YMC has highlighted this reluctance to accept responsibility for sewage in storm water drains in five meetings with the former and present Chief Secretaries of Delhi. The last such meeting with CS Delhi when all Heads of organizations had been called was held recently on 8.1.20. The decision on the need for a single point responsibility for sewage and solid waste in drains and taking deterrent action to prevent sullyng the storm water drains has not been taken. The only decision taken is that the subject would be revisited.

The DMC act of 1957 gives sufficient authority for taking punitive action but the stand taken is that sewage is not a DMC responsibility. The DMC Act states as follows:

42. Obligatory functions of the Corporation

Subject to the provisions of this Act and any other law for the time being in force, it shall be incumbent on the Corporation to make adequate provision by any means or measures which it may lawfully use or take, for each of the following matters, namely: —

- (a) the construction, maintenance and **cleansing of drains and drainage works** and of public latrines, urinals and similar conveniences; ***
- (c) the scavenging, removal and disposal of filth, rubbish and other obnoxious or polluted matters;***
- (e) the reclamation of unhealthy localities, the removal of noxious vegetation and generally the abatement of all nuisances;

355. Collection and removal of filth and polluted matter through municipal agency (1) It shall be lawful for the Commissioner to take or cause to be taken measures for the daily collection, **removal and disposal of all filth and polluted and obnoxious matters from latrines, urinals and cesspools not connected by a drain**

with a municipal drain from all premises situate in any portion of Delhi. (2) In such portion of Delhi and in any premises wherever situate in which there is a latrine, or urinal connected with a municipal drain, it shall not be lawful, except with the written permission of the Commissioner, for any person who is not employed by or on behalf of the Commissioner, to discharge any of the duties of scavengers.”

19. Dealing with the above question, the YMC has further observed:

“The Delhi Jal Board was founded in 1998 and was the successor to the erstwhile Delhi Water Supply & Sewage Disposal Undertaking (DWS&SDU) which functioned under the unified Municipal Corporation of Delhi (MCD). The Conservancy and Sanitation Department of MCD was wholly in charge of all drains regardless of their location while the MCD's DWS&SDU was in parallel responsible for water supply and sewage. After formation of the Delhi Jal Board and a subsequent administrative change effected some years later it was decided that the drains contiguous to roads would be under the "jurisdiction" of different agencies. Although enforcement pertaining to the drains continued to be the statutory responsibility of the Urban Local Bodies the focus became diffused and enforcement was ignored. With overlapping responsibility, cleaning the storm water drains became confined to annual desilting only”.

With overlapping responsibility, unwillingness to confront sewage in storm water drains or to recognize that it spreads unsanitary conditions and poses public health hazards, in effect the three DMCs ignore the problem and DJB says it has little role to play. The ownership, responsibility for sewage in the storm water drains has to be owned if projects for containment of sewage in the drains done through external agencies are to succeed.”

20. With a view to consider the suggestion of the YMC for entrusting the functions of management of all the drains in Delhi to a single agency, we require a response from Chief Secretary, Delhi; DDA; DSIIDC; PWD; Irrigation and Flood Control Department; Cantonment Board; NDMC; South, East and North Delhi Municipal Corporations which may be furnished by e-mail at judicial-ngt@gov.in before the next date. The report of the YMC may be sent to Chief Secretary, Delhi;

DDA; DSIIDC; PWD; Irrigation and Flood Control Department; Cantonment Board; NDMC; South, East and North Delhi Municipal Corporations by e-mail.

21. The other issue to be dealt with is the issue of bio/phytoremediation in the light of earlier directions. On this aspect, the Tribunal vide order dated 11.09.2019 observed:

“11. It may be noted that there are 351 polluted river stretches in the country identified as such by CPCB’ which include all major rivers and their tributaries¹. This Tribunal is also dealing with the pollution of River Ganga and several directions have been issued including that no untreated sewage or effluents are discharged in the river and floodplains are protected.² Yamuna flows through the National Capital and its rejuvenation can be a model to be followed for all other polluted river stretches. Restoration of the river is a matter of grave environmental urgency that also concerns the prestige of the country.”

13. The first step is to ensure that no pollutant is discharged into the river or drains connected thereto. Projects of setting up and upgradation of STPs including setting up of interceptors, laying of sewerage line network etc. have to be completed within strict timelines. Pending such action, immediate bioremediation and/or phytoremediation or any other alternative remediation measure may be undertaken as an interim measure. Pollution of river or water bodies is a criminal offence which needs to be checked by setting up ETPs/CETPs/STPs. The Hon’ble Supreme Court has directed³ that establishment and proper functioning of ETPs/CETPs/STPs in the country be ensured. This is to enforce the right of access to water. It has been noted by the Hon’ble Supreme Court that water pollution is the cause of various diseases and also affects food safety apart from affecting the environment as such. Following the said judgment, this Tribunal has directed⁴ that “All the local bodies have to ensure 100% treatment of the generated sewage and in default to pay compensation which is to be recovered by the States/UTs, with effect from 01.04.2020. In default of such collection, the States/UTs are liable to pay such compensation. The CPCB is to collect the same and utilize for restoration of the environment.” While dealing with the pollution of river Ganga, this Tribunal directed:

¹ The said matter is being separately dealt with by this Tribunal in O.A. No. 673/2018. All the States/UTs have been required to prepare and execute action plan for remedying the said pollution. Chief Secretaries of all the States/UTs have been required to remain present in person with progress reports in the matter, along with other vital issues. All the 35 Chief Secretaries have already appeared once and are scheduled to appear again.

² O.A. No. 200/2014 order dated 22.08.2019.

³ (2017) 5 SCC 326

⁴ Order dated 28.08.2019 in Paryavaran Suraksha Samiti &Anr. Vs. Union of India &Ors., O.A No. 593/2017

“Bioremediation and/or phytoremediation or any other remediation measures may start as an interim measure positively from 01.11.2019, failing which the State may be liable to pay compensation of Rs. 5 Lakhs per month per drain to be deposited with the CPCB. This however, is not to be taken as an excuse to delay the installation of STPs. For delay of the work, the Chief Secretary must identify the officers responsible and assign specific responsibilities. Wherever there are violations, adverse entries in the ACRs must be made in respect of such identified officers. For delay in setting up of STPs and sewerage network beyond prescribed timelines, State may be liable to pay Rs. 10 Lakhs per month per STP and its network. It will be open to the State to recover the said amount from the erring officers/contractors.

With regard to works under construction, after 01.07.2020, direction for payment of environmental compensation of Rs. 10 lakhs per month to CPCB for discharging untreated sewage in any drain connected to river Ganga or its tributaries and Rs. 10 lakhs per month to CPCB per incomplete STP and its sewerage network will apply. Further with regard to the sectors where STP and sewerage network works have not yet started, the State has to pay an Environmental Compensation of Rs. 10 lakhs per month after 31.12.2020. The NMCG will also be equally liable for its failure to the extent of 50% of the amount to be paid. Till such compliance, bioremediation or any other appropriate interim measure may start from 01.11.2019.”⁵

22. In the above background, the Committee has mentioned as follows:

“Rationale for Initiatives to Start Bio/ Phyto remediation. Sewage Treatment Scenario in Delhi:

Delhi Jal Board is supplying around 900 MGD of drinking water which converts into sewage at the rate of 80% i.e. 720 MGD. Out of total sewage generated, around 500 MGD is being treated at all the Sewage Treatment plants, in Delhi. The remaining 220 MGD untreated sewage is being discharged into the River or nearby waterbodies directly or through different drains. The maximum discharge is from un-sewered or partly sewerred areas/colonies.

There are around 1797 U/A colonies in Delhi which comprises around 40% of Delhi’s population. Sewer lines have been laid in 436 colonies out of these and work is in progress in 432 colonies. In the remaining 931 colonies, work of laying sewer conveyance systems has still to be completed. The concept of Interceptor sewer system was aimed at trapping around 70% of untreated wastewater flowing into the

⁵O.A No. 200/2014 order dated 22.08.2019

3 major drains i.e. Najafgarh, Supplementary and Shandara. After commissioning of the Interceptor Sewer project, about 204 drains in the catchment of Najafgarh, Shandara and Supplementary drains will still be left untapped and will continue to pollute the Yamuna.

Keeping the background of heavy sewage in the storm water drains and the possibility of delays in commissioning different STPs or upgrading them the NGT directed all authorities including the YMC to give suggestions on using alternate technologies for sewage trapping and treatment.

Parameters for Phyto-remediation /bio-remediation/root zone treatment:

..... The DJB simply wrote a letter to the drain owning agencies, namely, DDA, IFCD, PWD, DSIIDC and DMCs asking them to take responsibility for phyto-remediation /bio-remediation of their drains. Most of these agencies do not have any concept of phyto-remediation /bio-remediation and are completely unaware of the points of discharge of sewage in drains under their control. The order of the NGT can only be implemented by agencies that have conversance with the factum of sewage discharged in their drains and would have a stake in treatment by alternative methods to reduce or eliminate the filth.”

23. After the order dated 03.01.2020, the YMC took up the matter with all the agencies with domain knowledge on the subject, including CPCB, NEERI, Prof CR Babu of CEMDE, Prof Jauhar Mohammad of Jamia Milia Islamia University, INTACH, IFCD and DJB and sought response on:

- “ • Different technologies developed under the broad definition of Bio-remediation, Phyto-remediation, Root zone treatment and constructed wetland systems.
- Identification criteria and parameters for assessing suitability of a technology (in relation to the catchment area, the flow, the pollution load, the need and availability of land whether in-situ or ex-situ remediation is proposed, how the cost effectiveness in reducing pollution load can be measured.
- Research Institutes/ Organizations which have applied the technologies in the field, beyond the stage of pilot /laboratory trials
- Lists of Agencies which have executed such or similar projects elsewhere in the country.

- *Whether the identified projects are functional at present or not*
- *Whether an independent appraisal of the technology developed has been done.*

All the agencies were asked to furnish this information as available. CPCB was asked to frame guidelines and prepare inclusion/exclusion criteria for eliciting a response from interested agencies. CPCB was asked to critically examine the work done at Neela Hauz by CEMDE, Prayagraj undertaken by NEERI as well as work done by Jamia and other organizations and document the results achieved, pollution reduction attained, the flow regime in the drains and the capital and operational costs per MLD of waste water which were incurred. The objective was to use this data to identify promising technologies keeping in mind different catchment and drain profiles. A list of agencies with domain knowledge and experience were also asked to be prepared by CPCB in consultation with NMCG, IFCD and DJB.

The detailed report containing guidelines, criteria for inclusion/exclusion, cost effectiveness of different technologies and models that have succeeded on the ground in given situations are discussed in the report of CPCB below. The report of CPCB is being included as was sent to YMC with only marginal changes as it emanates from a statutory organization. CPCB did however associate all the people that attended the MC's meeting and heard them fully."

24. The report of CPCB annexed mentions the techniques with case studies and limitations. Based on the above, the YMC has observed that survey of drains was required to ascertain the places where phyto/bio remediation is viable for which a survey team may complete the exercise within one month. In the second phase, the work may have to be assigned. The observations of the YMC are:

“ACTION PLAN SUGGESTED BY YMC

Findings Based Upon a few Successful Examples.

1. *CEMDE has prepared a Project for in-situ drain remediation in Kali river and NOIDA drain using constructed Wetlands System for waste water treatment. Based on the experience gained in Neela Hauz and the project proposals of Kali river and Noida Drain, the Centre is of the opinion that the CWS can be*

applied to 1st order and 2nd order drains in Delhi. These drains are the tributary drains of the bigger drains, like the Najafgarh, Shandara and Barapulla drains. But for specific drains treatment, a detailed survey will be required as such treatment design has to be site specific and drain specific.

2. NEERI, based on their experience at Prayagraj, has also undertaken to treat some drains in Delhi/NCR which have profiles similar to the ones in Paryagraj treated by NEERI. However, before undertaking drain treatment, a detailed survey of the drain and its catchment profile will have to be undertaken.

Need for a Survey

In the background of the foregoing discussion, it is evident that for executing projects of phyto-remediation /bioremediation on the ground, will necessarily require survey of drains according to the inclusion-exclusion criteria. Whether all drains will qualify or only some drains will qualify cannot be anticipated at this stage. Leaving it to government agencies to conduct a survey for identifying the drains will not work for the reasons that has been explained in the preamble that the drain owning agencies have neither competence nor interest nor experience to be able to handle this even if directed to do so. It is very necessary that only those agencies who have some experience of doing this work, whether government or private, are given the opportunity to express their interest and willingness to participate in future opportunities that are opened for phyto-remediation /bio-remediation.

4. The standard models of In-situ remediation technology discussed above will have to be adapted subject to conditions mentioned in the matrix for in-situ treatment systems.

PART I (Departmental Rapid Reconnaissance)

- i. A survey team under the leadership / Chairmanship of CPCB would have to see that a reconnaissance survey of drains and the catchment of some of the major drains joining river Yamuna is undertaken. Delhi Irrigation and Flood Control Department / Delhi Jal Board / Delhi Development Authority engineers/horticulture experts would need to apply the CPCB principles to ascertain which drains are amenable to in-situ remediation technologies being applied as drawn up by CPCB. The other experts who could be associated may be from: NEERI, TERI and Centre for Environment Management of Degraded Ecosystem (CEMDE), Delhi University
- ii. This exercise should be completed within one month of the order constituting such a team. CPCB will have

to approach the Chief Secretary Delhi, the Heads of the organizations listed above on a direction from NGT to assign the responsibility to assist and contribute in the initial survey to knowledgeable officers on a continuous basis for one month. The schedules should be notified by CPCB so that the survey gets an early start.

- iii. Based on the survey undertaken and using the data available in the Drainage Management Plan prepared by IIT Delhi(2018) the applicability of such In-situ treatment in major and minor drains of Delhi should be made and put up on CPCB's website with proper reference to context.

PART II (External Reconnaissance)

- i. In the second phase, the executing agencies/private companies listed at CPCB Annexure-I may be called and asked to visit prospective drains and catchment areas where in situ drain treatment has been found feasible by the team of experts. The concerned Agencies like the IFCD, DDA, PWD and other drain owning agencies should facilitate such visits. The CS Delhi and VC DDA should set up such a facilitation Committee of the drain owning agencies to interact with external agencies who wish to visit the drains and seek information before they decide on their willingness to join this endeavour. The time limit of one month can be made for survey to be undertaken by agencies.
- ii. The Chief Secretary Delhi may be asked to assign nodal responsibility on a continuous basis to one officer who would have to brief YMC and give periodic reports on progress.
- iii. Whereas the IIT Delhi report will provide factual data, the basis of the inclusion-exclusion criteria developed by CPCB as described above, would form the basis and would need interpretation at every stage. CPCB would be associated as the need to explain the criteria will arise.

Part III (General.)

- i. The entire exercise of survey first by the expert committee and later by the executing agencies/private companies listed at CPCB Annexure will have to be done with the active technical collaboration of CPCB and coordinated at the administrative level by the GNCTD.
- ii. The GNCTD may issue public notice/ Request for Proposal (RFP) to seek offers for undertaking Phytoremediation/Bioremediation by interested agencies before the different drain owning agencies actually assign the work in the interest of transparency and including as wide a group of participants as possible.

iii. Since the projects in their very nature cannot be put into a structural outline and will necessarily be location and MLD based, it would be necessary to declare a criteria that does not go by cost of the project but is relate to the amount of sewage treated and the improvement registered.”

25. Since the above report does not mention the generic and representative models which could be customised, adapted and adopted to the natural scenario including the drains in question, let CPCB furnish such a report containing atleast ten generic and representative models which are techno-economically feasible and can be implemented after customization to the YMC by 07.02.2020 and the YMC may include the report with its comments in its report to be submitted to this Tribunal before the next date by e-mail at judicial-ngt@gov.in.

26. As regards direct untreated discharge of sewage into river Yamuna at Faridabad, we direct that remedial action be taken by the State of Haryana. The same may be overseen by the Committee headed by Justice Pritam Pal Singh dealing with the issue of abatement of pollution of river Ghaggar and solid waste management in the State of Haryana. A report be furnished by the Chief Secretary, Haryana before the next date.

27. To sum up, our directions in the present order are:

- a) DDA may furnish its response in terms of Para 14 above by e-mail at judicial-ngt@gov.in before the next date. The report of the YMC may be sent to DDA by e-mail.
- b) Chief Secretary, Delhi; DDA; DSIIDC; PWD, Irrigation and Flood Control Department, Cantonment Board; NDMC; South, East and North Delhi Municipal Corporations may furnish their response in terms of Para 20 above by e-mail at judicial-ngt@gov.in

ngt@gov.in before the next date. Departments/Agencies under Delhi Government may give their respective reports to the Chief Secretary so that Chief Secretary gives a report on behalf of all the Departments/Agencies of Delhi, while other authorities may give their reports separately. The report of the YMC may be sent to Chief Secretary, Delhi; DDA; DSIIDC; PWD; Irrigation and Flood Control Department; Cantonment Board; NDMC; South, East and North Delhi Municipal Corporations by e-mail.

c) CPCB furnish a report in terms of Para 25 above to the YMC by 07.02.2020 and the YMC may include the report with its comments in its report to be submitted to this Tribunal before the next date by e-mail at judicial-ngt@gov.in.

d) The Chief Secretary, Haryana may furnish report in terms of Para 26 above before the next date by e-mail at judicial-ngt@gov.in.

A copy of this order be sent to the Chief Secretaries, Haryana and Delhi; YMC; DDA; DJB; South, East, North Delhi Municipal Corporations; NDMC; Delhi Cantonment Board; DSIIDC; PWD; NTPC; Irrigation and Flood Control Deptt. and CPCB by e-mail.

A copy of this order be also sent to NMCG and Secretary, Ministry of Jal Shakti for their comments, if any, before the next date by e-mail.

List for further consideration on 18.02.2020.

Adarsh Kumar Goel, CP

Dr. Nagin Nanda, EM

Siddhanta Das, EM

January 22, 2020
Original Application No. 06/2012
DV

