

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE, CHENNAI**

**Original Application No. 23 of 2024 in the Hon'ble NGT (SZ)  
[Earlier O.A. No. 705 of 2023 in the Hon'ble NGT (PB)]**

**IN THE MATTER OF:**

Tribunal on its own motion SUO MOTU  
Based on the News Item published in  
The Indian Express dated 03.11.2023 titled  
“Tamil Nadu: Activists allege drinking water  
supplied from Madambakkam lake in Tambaram  
contaminated with sewage, civic body disagrees”

.... Applicant

Versus

TNPCB, through its Member Secretary,  
Chennai & 03 Ors.

..... Respondent(s)

**INDEX**

S. No.	Particulars	Page No.
01	Report of CPCB in compliance to Hon'ble NGT (PB) order dated 29.11.2023	1-14
02	Annexure-I: Copy of the Hon'ble NGT (PB) order dated 29.11.2023	15-17

**Date: 03.08.2024**

**Place: Chennai**



*H.D. Varalaxmi*  
**H.D.VARALAXMI**  
Regional Director  
CENTRAL POLLUTION CONTROL BOARD  
Regional Directorate (Chennai)  
MoEF & CC, Govt. of India  
2nd Floor, 40-E, BSNL Building, TVK Industrial Estate,  
CIPET Road, Guindy, Chennai - 600032

**REPORT OF CENTRAL POLLUTION CONTROL BOARD ON WATER QUALITY OF THE MADAMBAKKAM LAKE IN THE MATTER OF ORIGINAL APPLICATION NO. 705 OF 2023 (PB) RE-NUMBERED AS O.A. NO. 23 OF 2024 (SZ) - NEWS ITEM APPEARING IN THE INDIAN EXPRESS DATED 03.11.2023 TITLED “TAMIL NADU: ACTIVISTS ALLEGE DRINKING WATER SUPPLIED FROM MADAMBAKKAM LAKE IN TAMBARAM CONTAMINATED WITH SEWAGE, CIVIC BODY DISAGREES”**

**1.0 Preamble**

The Hon'ble National Green Tribunal (Principal Bench), New Delhi had registered a Suo Motu case Original Application No. 705 of 2023 based on a news item published in The Indian Express dated 03.11.2023 titled “Tamil Nadu: Activists allege drinking water supplied from Madambakkam lake in Tambaram contaminated with sewage, civic body disagrees” and passed an order dated 29.11.2023 (**Annexure-I**) and directed as below:

*“2. As per the said newspaper report, the water from the Madambakkam lake is provided for drinking to around 20,000 residents of Chitlapakkam and the allegation is that sewage is mixing with the drinking water and there is no water treatment plant. The newspaper report also discloses that the officials just chlorinate the overhead tanks before sending it to the residents through the water pipeline. On account of supply of polluted water from the lake, the residents are demanding to stop pumping water from the Madambakkam lake temporarily and make alternative arrangements.*

*7.Let the water samples of Madambakkam lake be collected and analysed for drinking water quality parameters and for faecal coliform MPN/100 ml by the laboratories of TNPCB and Regional Laboratory of CPCB, Bangaluru together and report be submitted before the concerned Bench of the Tribunal before the next date of hearing.”*

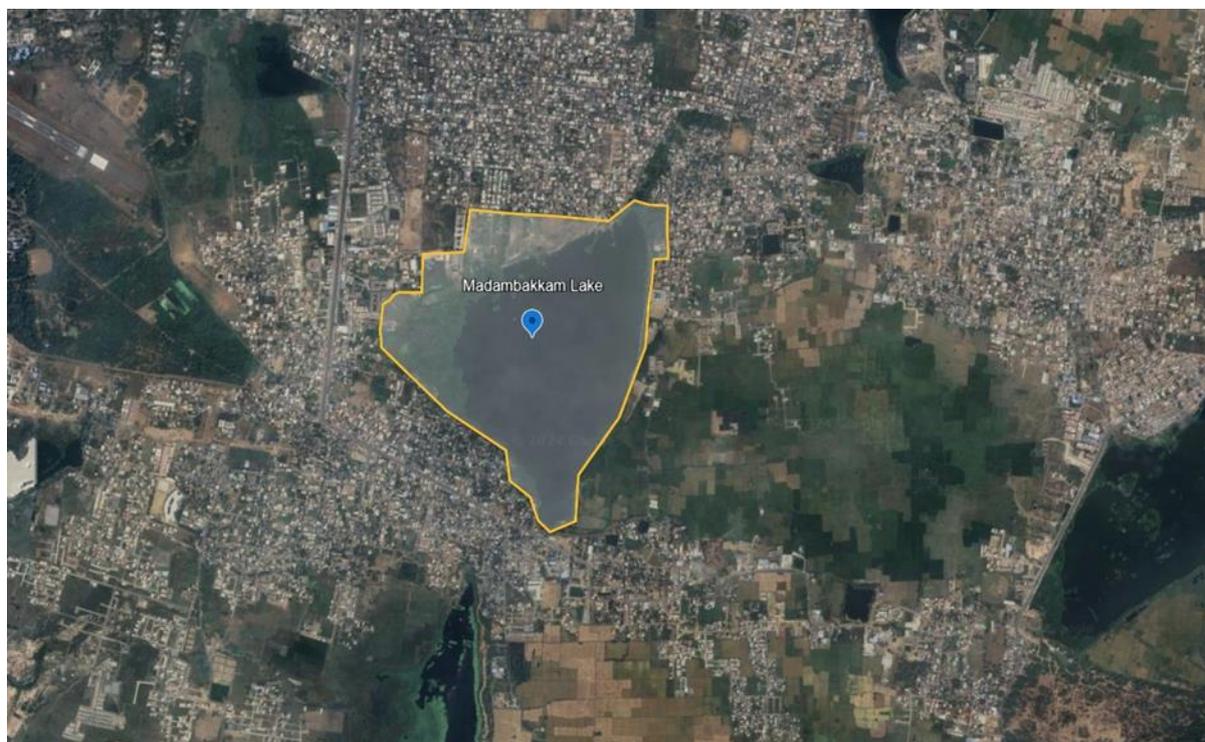
The case was transferred to Hon'ble NGT (SZ) Chennai and was renumbered as Original Application No. 23 of 2024 (SZ).

## 2.0 Action taken by CPCB

In compliance of above mentioned order, a preliminary visit was made to Madambakkam lake on May 13, 2024 by CPCB along with officials of Tamil Nadu Pollution Control Board (TNPCB) and Tambaram City Municipal Corporation, sampling points were assessed, approachability to the lake discussed, wet wells and drain joining points were inspected and accordingly suitable locations for samplings were identified. During the visit, following officials were present:

- Smt. Poornima B.M., Scientist D, CPCB, RD-Chennai
- Smt. T. Manimehalai, AEE Maraimalai Nagar, TNPCB, RO Marimallai Nagar
- Shri. M. Pazhani, JE (Zone-3 & part Zone-5), Tambaram City Municipal Corporation
- Sh. Sidda Sailu, SSA, CPCB, RD-Chennai
- Sh. Vishwanathan, Field Assistant, CPCB, RD-Chennai

The joint team again visited the site on May 15, 2024 and collected two sets of samples from Madambakkam Lake and wet wells situated in the lake. One set of samples were sent to CPCB RD- Bengaluru laboratory for analysis of samples on May 16, 2024 and another set of samples were taken to TNPCB Laboratory.



*Picture 1: Google Earth map showing Madambakkam Lake*

### 3.0 Brief description of Madambakkam Lake

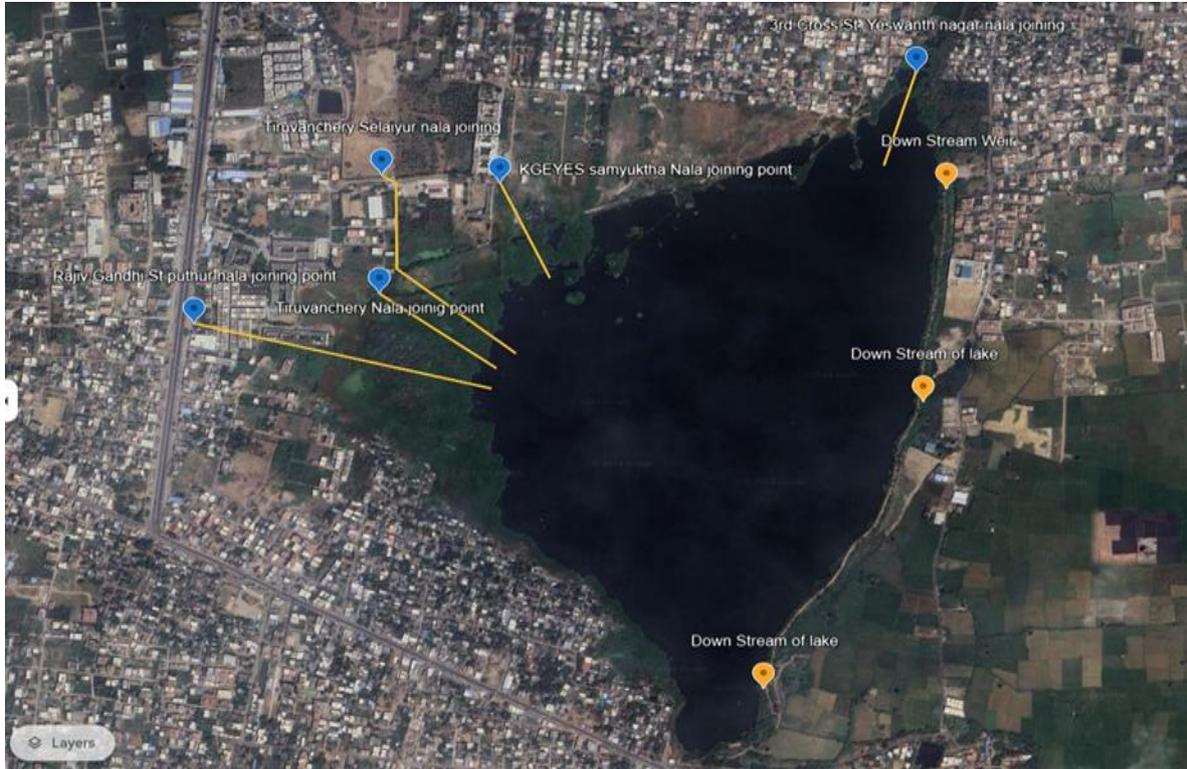
The Madambakkam lake is situated in Madambakkam Village, St. Thomas Mount Block in Tambaram Taluk of Chengalpattu District. This tank is having a bund of length 1956 m, with four number of sluices and three numbers of surplus weirs. This tank has an Ayacut of 259.11 Ha. The capacity of lake/tank is 50.15 Million Cubic feet (Mcft).

Madambakkam lake is located in Zone-5 of Tambaram City Municipal Corporation (TCMC). The TCMC covers an area of 86.74 Sq km and comprises of 70 wards for 5 mandals. The entire area is divided into 5 zones as shown in the table below. There are 252831 households with a population of 1011322 and 16333 business establishments in the area covered by the Tambaram City Municipal Corporation.

<b>TAMBARAM CITY MUNICIPAL CORPORATION</b>					
<b>S. No.</b>	<b>Zone</b>	<b>No. of streets</b>	<b>Households</b>	<b>Population</b>	<b>Commercial Establishment</b>
1	Zone-1	1268	54588	218351	2021
2	Zone-2	938	49683	198732	3659
3	Zone-3	1388	50408	201633	2786
4	Zone-4	1348	53421	213683	5367
5	Zone-5	1164	44731	178924	2500
<b>Total</b>		<b>6106</b>	<b>252831</b>	<b>1011322</b>	<b>16333</b>

Thiruvancheri Thangal, Chennai airport area and storm water drains originating from **Madambakkam** and **Paduvancherry** villages are the main sources of water inflow into the Madambakkam lake. The surplus water from Madambakkam lake flows into Chithalapakkam lake.

The storm water drains from Rajiv Gandhi Street Puthur, Tiruvanchery Selaiyur and KGEYES Samyukta area join the storm water drain to Thiruvancheri Village. These drains further join to storm water drains of Sreedevi Nagar, Sai Nagar, Thirumal Nagar and Yaswanth Nagar extension and these drains join ultimately to Madambakkam lake. The storm water drain from **Paduvancherry** Village also joins to Madambakkam lake.



*Picture 2: Google Earth map showing Nala/drains joining to Madambakkam Lake*

**Technical Profile of Madambakkam Lake is tabulated below:**

Tank Name	Madambakkam Tank (TBM)
Latitude	12 <sup>o</sup> 89'182"
Longitude	80 <sup>o</sup> 15'152"
Sub Basin	Kovalam
Basin	Chennai
Sub Division	Lower Palar Basin Sub Division, Chengalpattu
Division	Lower Palar Basin Division, Kanchipuram
Capacity of Tank	50.15 (mcft) / 1.42 (mcm)*
Full Tank Level (FTL)	10.670 (m)

Maximum Water Level (MWL)	11.280 (m)
Top Bund Level (TBL)	13.110 (m)
Storage depth	3.31 (m) 10' 85"
Ayacut	259.11 (Ha)
Water spread area	100.365 (Ha)
No of Weir	3 (no)
Weir length	9.30 (m), 6.40(m), 22.30 (m)
No of sluice	4 no
Lowest Sill Level	6.770 (m) & 5.470 (m)
Length of Bund	1956 (m)
Discharge	812 (cusec)
Survey No	708

\* mcf: million cubic feet, mcm: million cubic metre, cusec: cubic feet per second

#### 4.0 Sewage Management by Tambaram City Municipal Corporation

The Population of Tambaram CMC as per the 2011 census is 1011322 comprising of 252831 households and 16333 business establishments in 5 Zones. The Tambaram CMC supplies 75.06 MLD of fresh water and 80% of supplied water will be turned into sewage. i.e. 60.04 MLD. As informed by the Tambaram CMC officials, a Sewage Treatment Plant of 30 KLD is under operation and STP of 20 KLD is under construction. The Madambakkam Lake is situated in Madambakkam Town Panchayat under Zone 5 of Tambaram CMC and the water supplied for this zone is 14.40MLD and taking 80% of water generated to sewage, about 11.52MLD of sewage is generated per day.

Storm water drains originating from **Madambakkam** and **Paduvancherry** villages, which are a part of Zone-5 and consisting of population around 50000. These villages do not consist of under ground sewerage system and not connected to STP and as of now, the domestic sewage is discharged into Madambakkam Lake.

## **5.0 Observations about the Madambakkam Lake:**

The drains joining the Madambakkam lake & the feeder inlet and outlet sluice/weir of the Lake was inspected and the following field observations were made;

- i. The bunds for Madambakkam Lake are provided on two sides of length 1956m. The sewage generated from nearby habitations such as Rajiv Gandhi Street Puthur, Tiruvanchery Selaiyur and KGEYES Samyukta area, Sreedevi Nagar, Sai Nagar, Thirumal Nagar and Yaswanth Nagar extension drain into Madambakkam lake through five (5 Nos) channels. The physical appearance and odour of the drains joining Madambakkam lake indicated the presence of domestic sewage. Eutrophication and algae growth noticed along the bank of the Lake.
- ii. There is no industrial activity as well as no industrial waste water discharged into the Madambakkam Lake.
- iii. There was no solid waste deposits found on the banks of Lake.
- iv. There are five (5 Nos) nos. of wet wells provided in the lake for pumping water and supplying for drinking purposes to Chithalapakkam town located in Zone-3 of TCMC, which is around 5 km from Madambakkam lake. At present, no water is being drawn from Madambakkam lake from February, 2024. It was informed that water is being supplied from the Palar River by the Tamil Nadu Water Supply and Drainage Board (TWAD Board).
- v. There is no surplus flow of water noticed in the surplus weir of the lake. During inspection, Birds were found in the lake area and the fishing activity was also being carried out in the Madambakkam lake.
- vi. During inspection it was noticed that Construction & Demolition waste was dumped on the banks near the wet wells of the lake in the Northern side and leveled, covering the part of the lake and affecting the bund area.

## **6.0 Water Quality of Madambakkam Lake**

11 water samples were collected from Madambakkam Lake during inspection to verify the quality of Lake water after confluence of drains and the quality of water stored in the wet well for drinking purpose. The samples were persevered and handed over to CPCB RD –Bengaluru

Laboratory for analysis. The GPS coordinates of the water samples is given in table 1 below and the analysis results received is tabulated in Table 2 & 3 respectively:

**Table 1: GPS co-ordinates of the sampling locations**

Sample Code	Area of Sample Collected	Longitude	Latitude
Wet Well 01	Wet Well 01	80°09'12"E	12°53'52"N
Wet Well 02	Wet Well 02	80°09'08"E	12°53'51"N
Wet Well 03	Wet Well 03	80°09'01"E	12°53'49"N
Wet Well 04	Wet Well 04	80°08'57"E	12°53'48"N
Wet Well 05	Wet Well 05	80°08'56"E	12°53'45"N
A	periphery of center	80°09'08"E	12°53'49"N
B	vela cherry sewage confluence point	80°08'49"E	12°53'52"N
C	Thirmal Nagar sewage confluence point	80°08'48"E	12°53'51"N
D	puduvancherry down stream	80°09'01"E	12°53'11"N
E	thiruvancherry downstream middle	80°09'14"E	12°53'32"N
F	shantha nagar downstream weir	80°09'17"E	12°53'51"N



*Picture 3: Google map on sampling locations in Madambakkam Lake*

**Table 2: Analysis Result of Lake Samples Collected from Madambakkam Lake**

S. No.	Parameters	Unit	Sample Code					
			A	B	C	D	E	F
1	pH	---	8.19	7.8	7.45	8.12	8.21	8.15
2	Turbidity	NTU	20.52	11.75	4.13	17.83	16	15.93
3	TDS	mg/L	415	483	1077	406	413	432
4	Conductivity	$\mu$ S/cm	700	816	1863	703	708	702
5	Ammonical Nitrogen	mg/L	0.4	0	44.6	1.4	9.5	0.4
6	Calcium	mg/L	32.5	44.4	129.4	41.3	30.9	39.7
7	Chloride	mg/L	106.96	47.33	127.77	78.56	81.4	91.81
8	Magnesium	mg/L	19.2	27.9	36.6	22.6	23.6	16.8
9	Nitrate -N	mg/L	0.02	0.02	5.88	0.01	0	0
10	Sulphate	mg/L	24.2	35.8	5.3	23.7	18.0	23.4
11	Total Alkalinity	mg/L	127.98	179.9	461.03	126.66	125.83	128.99
12	Total Hardness As CaCo <sub>3</sub>	mg/L	160.4	225.7	473.2	196	174.2	168.3
13	Faecal Coliform	MNP/100ml	17	49	3500	49	33	49
14	DO	mg/L	7.1	9.8	BDL	9.2	9.5	8.2
15	BOD	mg/L	6.2	5.8	11.9	5.6	5.6	6
16	COD	mg/L	44.4	51.9	74.9	63	60.5	60.9
17	TSS	mg/L	27.1	158	13.7	28.6	27.5	38.1
18	Phosphate-P	mg/L	0.03	0.04	0.72	0.05	0.04	0.04

\*BDL-Below Detectable Level

A- Centre of Periphery of the Lake

B- Velachery Sewage Conflicion Point

C- Thirumal Nagar Sewage Conflicion Point

D- Puduvancherry Down Stream

E- Thiruvancherry Down Stream

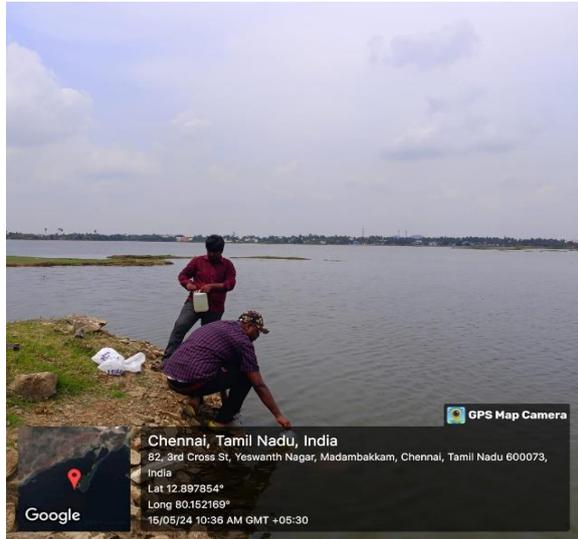
F- Shantinagar Down Stream Weir

The analysis result of Lake samples collected from Madambakkam lake shows that it is not meeting “Designated Best Use Water Quality Criteria” of Class A to C (given in the Table below).

### Designated Best Use Water Quality Criteria

Designated-Best-Use	Class of water	Criteria
Drinking Water Source without conventional treatment but after disinfection	<b>A</b>	Total Coliforms Organism MPN/100ml shall be 50 or less pH between 6.5 and 8.5 Dissolved Oxygen 6mg/l or more Biochemical Oxygen Demand 5 days 20C 2mg/l or less
Outdoor bathing (Organised)	<b>B</b>	Total Coliforms Organism MPN/100ml shall be 500 or less pH between 6.5 and 8.5 Dissolved Oxygen 5mg/l or more Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Drinking water source after conventional treatment and disinfection	<b>C</b>	Total Coliforms Organism MPN/100ml shall be 5000 or less pH between 6 to 9 Dissolved Oxygen 4mg/l or more Biochemical Oxygen Demand 5 days 20C 3mg/l or less
Propagation of Wild life and Fisheries	<b>D</b>	pH between 6.5 to 8.5 Dissolved Oxygen 4mg/l or more Free Ammonia (as N) 1.2 mg/l or less
Irrigation, Industrial Cooling, Controlled Waste disposal	<b>E</b>	pH between 6.0 to 8.5 Electrical Conductivity at 25C micro mhos/cm Max.2250 Sodium absorption Ratio Max. 26 Boron Max. 2mg/l

### Photographs of sample collection from Lake



**A**



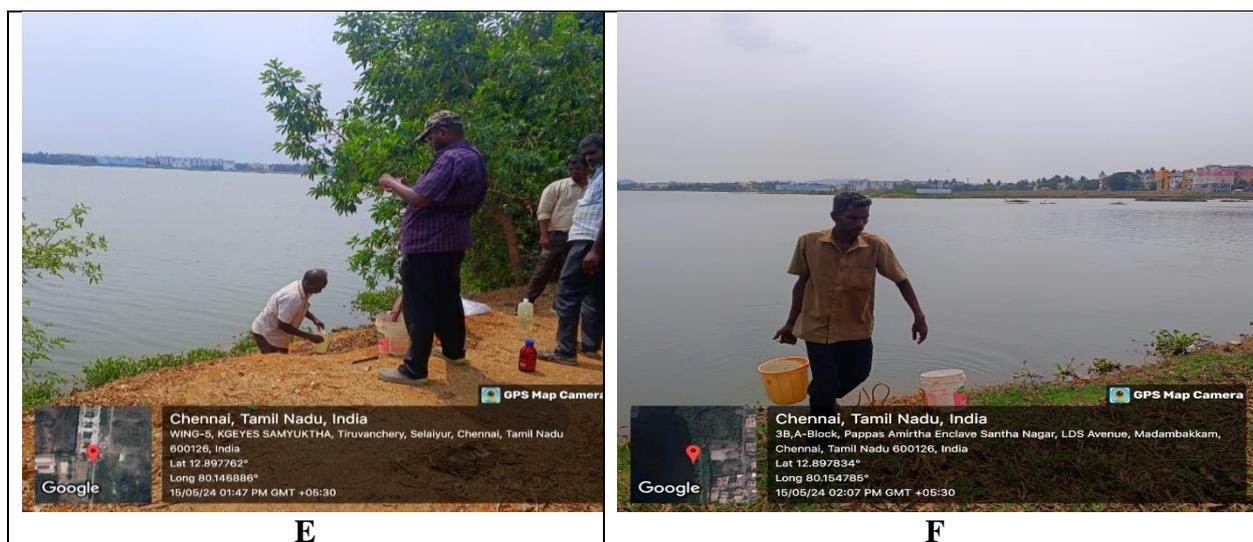
**B**



**C**



**D**



**Table 3: Analysis Results of Wet Well Samples at Madambakkam Lake**

S. No	Parameters	Unit	Sample Description					Drinking water standards (as per IS 10500: 2012)	
			Wet Well 1	Wet Well 2	Wet Well 3	Wet Well 4	Wet Well 5	Requirement (Acceptable limit)	Permissible limit in the absence of alternate source
1	pH	-	8.06	7.37	7.45	7.59	7.5	6.5 - 8.5	No relaxation
2	Turbidity	NTU	BDL	BDL	BDL	BDL	BDL	1	5
3	TDS	mg/l	<b>619</b>	<b>541</b>	<b>816</b>	<b>614</b>	<b>700</b>	500	2000
4	Ammonical Nitrogen	mg/l	0.4	0.2	0.3	0.4	<b>0.7</b>	0.5	No relaxation
5	Calcium	mg/l	55.6	56.3	<b>96</b>	<b>97.6</b>	<b>93.6</b>	75	200
6	Chloride	mg/l	70.04	69.09	116.42	104.1	100.33	250	1000
7	Magnesium	mg/l	26.5	27.4	<b>42.3</b>	17.3	<b>41.4</b>	30	100
8	Nitrate -N	mg/l	0.14	0.04	1.06	0.06	0.33	45 for Nitrate-as NO <sub>3</sub>	No relaxation
9	Sulphate	mg/l	BDL	BDL	38.2	13.2	36.1	-	400
10	Total Alkalinity	mg/l	<b>216.2</b>	<b>200.8</b>	<b>251.4</b>	<b>250.5</b>	<b>238.4</b>	200	600
11	Total Hardness	mg/l	<b>247.5</b>	<b>253.4</b>	<b>413.8</b>	<b>314.8</b>	<b>403.9</b>	200	600

	As CaCo3								
12	Faecal Coliform	MNP/100ml	540	46	17	< 1.8	49	<b>Requirement</b> <b>E. coli shall not be detectable in any 100 ml sample</b>	
13									
14	BOD	mg/l	BDL	BDL	BDL	BDL	BDL	-	-
15	TSS	mg/l	5.1	3	6.7	3.8	9	-	-
16	Phosphate-P	mg/l	0.05	0.05	0.06	0.06	0.06	-	-
*BDL-Below Detectable Level									

As per the analysis result of Wet Well samples at Madambakkam lake, it is observed that the concentration of TDS, Total Alkalinity, Total Hardness as CaCO<sub>3</sub> and Faecal Coliform exceeding the acceptable limit in all wet wells. The concentration of Calcium and Magnesium are exceeding the acceptable drinking water standards in two wet wells. The presence of Faecal Coliforms in the wet wells & lake confirms the influx of sewage into Madambakkam Lake.

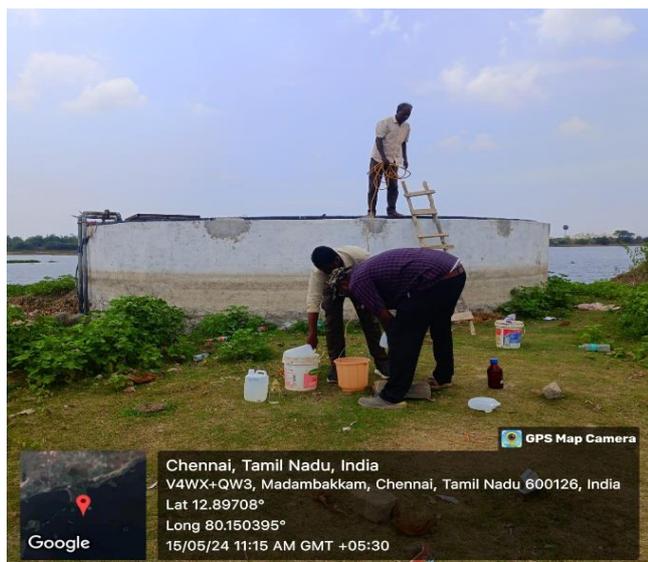
**Photographs of samples collection from wet wells**



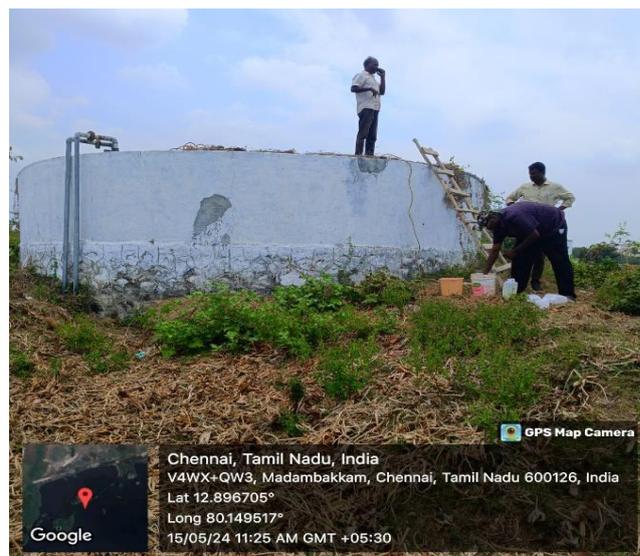
**Wet Well -1**



**Wet Well -2**



**Wet Well -3**



**Wet Well -4**



**Wet Well -5**

## **7.0 Suggestions to protect the water quality of Madambakkam lake**

To protect water quality of Madambakkam Lake, it is suggested to take following measures:

- A. It is required to delineate the Lake area and steps to be taken to construct proper bund with fence wherever necessary, to protect the water body from human intervention to serve the purpose of improving ground water in the surrounding area as well as to meet the drinking water demand of the nearby area/Panchayats.
- B. There is need to provide sewage collection and treatment system for Madambakkam Town Panchayat and not to allow any discharge of domestic sewage/sullage into Madambakkam Lake.

- C. Proper collection & disposal of Construction and Demolition (C & D) waste and their process be ensured as per the Construction and Demolition Waste Management Rules, 2016 and not to let any public or local body to dump the C & D waste on the bank of Madambakkam lake or any nearby water bodies.
- D. It shall also be ensured that, there shall be no encroachment of lake and to clear the accumulated C & D waste from the banks of Lake with time target.
- E. The Tambaram CMC may be directed to revamp the existing filter beds and to provide new filter beds in all drains joining the Madambakkam Lake to prevent entry of large floating materials such as plastic bags/covers/ wood logs/ trashes.
- F. Periodical maintenance of water tank and storm water drains/channels, as per the need, shall be carried out by removing silt and water weeds from the lake so as to increase water storage capacity of Lake.



**(Poornima B M)**  
**Scientist D**

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Item No. 02

Court No. 1

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

Original Application No. 705/2023

In re: News item appearing in The Indian Express dated 03.11.2023 titled **“Tamil Nadu: Activists allege drinking water supplied from Madambakkam lake in Tambaram contaminated with sewage, civic body disagrees”**

Date of hearing: 29.11.2023

**CORAM: HON’BLE MR. JUSTICE PRAKASH SHRIVASTAVA, CHAIRPERSON  
HON’BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER  
HON’BLE DR. A. SENTHIL VEL, EXPERT MEMBER**

Respondent: Ms. Purnima Krishna, Adv. for Tamil Nadu PCB  
Ms. Y. Kavitha, Adv. for TWAD Board (Through VC)

**ORDER**

1. This OA is registered in *suo motu* exercise of power on the basis of the news item titled **“Tamil Nadu: Activists allege drinking water supplied from Madambakkam lake in Tambaram contaminated with sewage, civic body disagrees”** published in ‘The Indian Express’ dated 03.11.2023.

2. As per the said newspaper report, the water from the Madambakkam lake is provided for drinking to around 20,000 residents of Chitlapakkam and the allegation is that sewage is mixing with the drinking water and there is no water treatment plant. The newspaper report also discloses that the officials just chlorinate the overhead tanks before sending it to the residents through the water pipeline. On account of supply of polluted water from the lake, the residents are demanding to stop pumping water from the Madambakkam lake temporarily and make alternative arrangements.

3. We are of the view that the news paper report raises substantial issue relating to compliance of the environmental norms.

4. Power of the Tribunal to take up the matter in *suo-motu* exercise of power has been recognized by the Hon'ble Supreme Court in the matter of "*Municipal Corporation of Greater Mumbai vs. Ankita Sinha & Ors.*" reported in 2021 SCC Online SC 897.

5. Hence, at this stage, we deem it proper to implead following as respondents in this OA:

- i. Tamil Nadu Pollution Control Board (TNPCB) through its Member Secretary.
- ii. Tamil Nadu Water and Drainage Board (TWAD) through its Managing Director.
- iii. Tambaram City Municipal Corporation through its Commissioner.

6. On advance notice, a report on behalf of Respondent No. 2, TWAD has been filed which is taken on record. Counsel for Respondent No. 1 is also present on advance notice and has sought four weeks' time to file response.

7. Let the water samples of Madambakkam lake be collected and analysed for drinking water quality parameters and for faecal coliform MPN/100 ml by the laboratories of TNPCB and Regional Laboratory of CPCB, Bangaluru together and report be submitted before the concerned Bench of the Tribunal before the next date of hearing.

8. Let notice be issued to Respondent No. 3 for filing the response before the Southern Zone Bench of the Tribunal one week before the next date of hearing.

9. Since the matter relates to Southern Zone Bench, of the Tribunal, therefore, the OA is transferred to the Southern Zone Bench, Chennai for further appropriate action in accordance with law. Registry is directed to transfer the original record of this OA to the Southern Zone Bench, Chennai.

10. List before the Southern Zone Bench, Chennai on 18.01.2024.

Prakash Shrivastava, CP

Arun Kumar Tyagi, JM

Dr. A. Senthil Vel, EM

November 29, 2023  
Original Application No. 705/2023  
DV