

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

(By Video Conferencing)

Original Application No. 324/2021  
(I.A. No. 48/2022 & I.A. No. 71/2022)

(with report dated 24.03.2022)

In re: News item published on 21.11.2021 in the Indian Express titled  
**“Lakes of Bengaluru : Industrial effluents, raw sewage; stinky  
tale of Chandrapura lake”**

Date of hearing: 29.03.2022

**CORAM: HON’BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON  
HON’BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER  
HON’BLE MR. JUSTICE ARUN KUMAR TYAGI, JUDICIAL MEMBER  
HON’BLE PROF. A. SENTHIL VEL, EXPERT MEMBER  
HON’BLE DR. AFROZ AHMAD, EXPERT MEMBER**

Applicant: Mr. Smaran Shetty, Advocate for Applicant in I.A 48/2022  
Mr. Saransh Jain, Advocate for Applicant in I.A 71/2022

Respondent(s): Mr. Siddharth Agarwal, Adv. for CPCB

**ORDER**

1. We have taken cognizance of the matter on the basis of captioned media report showing damage to the Chandrapura lake and failure of statutory regulators to take remedial action. The report mentions that the buffer zone of lake has been encroached upon and waste is being dumped into the lake which is an ancient one. It is choked by encroachments and affected by effluents and waste. The lake is in the area of 7.2 acres in Heelalige Village and 17.27 acres in Chandpura town. Out of the total 24.27 acres, nearly two acres of the lake has been encroached by construction activities. The buffer zone has been encroached by a government hospital and local shops. The fence around the lake has been

broken. Garbage is littered on its boundaries. There is no Sewage Treatment Plant (STP) due to which untreated sewage is discharged into the lake. Sources of pollution include Jigani-Bommasandra industrial area and discharge of effluents into lake, in violation of the Zero Liquid Discharge (ZLD) Policy of the Government. Under the ZLD water management system, no untreated water is supposed to be released into lake. There are around 195 'red' category industries in the Jigani-Bommasandra area which include drug manufacturing companies, electroplating, power coating, pickling, heat treatment, galvanizing, casting, lead-acid battery manufacturing, used oil reprocessing, lead smelting and chemical industries. Water tanker lorries supply water directly from bore wells next to the lake to the consumers in Bengaluru for domestic needs. Water packaging industries in Bommasandra supply water to the entire city. IISc in its report on water quality in the lakes has warned about the deteriorating water quality in Anekal. The sewage-laden storm water drains flowing between the lakes in Anekal also pass through many farms and vegetable plots where farmers grow produce and supply it to the local market. There is no buffer zone between Jigani – Bommasandra industrial area and the adjoining residential areas. The area is so packed that the compound wall of an electroplating company could be shared by residential houses. These industries are supposed to hand over the effluents to Common Effluent Treatment Plant (CETP) after pre-treatment which is not done.

2. Vide order dated 26.11.2021, the Tribunal constituted a seven-member joint Committee of the CPCB, State PCB, Indian Institute of Science, Bengaluru, SEIAA, Karnataka, National Wetland Authority, State Wetland Authority and the District Magistrate, Bengaluru to undertake visit to the site, interact with the stakeholders to ascertain compliance of

norms in the light of earlier orders of this Tribunal dated 12.03.2021 in O.A 125/2017, *Court on its own Motion v. State of Karnataka* and dated 25.11.2021 in O.A No. 351/2019, *Raja Muzaffar Bhat vs. State of Jammu and Kashmir & Ors.* and to file an action taken report.

3. In pursuance of above, report of the joint Committee dated 24.03.2022 has been filed after visit to the site during 18<sup>th</sup> – 19<sup>th</sup> January, 2022. The Committee collected samples from the area, apart from visual inspection and drone footage. The results found, observations and recommendations are as follows:

***“Analysis of the results***

*The test reports of lake water quality (Annexure-4), bore well water quality (Annexure-5), drain water quality (Annexure-6), the heavy metal analysis (Annexure-7) and the GC-MS results (Annexure-8) are annexed. These results should be analyzed based on the visual inspection data and also the test reports. The results indicate that:*

- 1) All the upstream and Chandapura lake water samples are meeting the class -E water quality criteria i.e., Irrigation, industrial cooling and controlled waste disposal. However, the DO, COD and BOD levels of the Mastenahalli, Kachanayakanahalli and Chandapura lake were very low indicating anaerobic/anoxic condition.*
- 2) The bore well samples collected shows higher levels of NO<sub>3</sub>. In some cases, higher levels of the NH<sub>3</sub>, SO<sub>4</sub> and hardness were also found. **This indicates that the bore well samples should be treated before using it for drinking purposes.***
- 3) Few of the drain samples feeding the Chandapura lake shows high levels of COD (>10,000 mg/L), similarly (1044 mg/L) for drain feeding to Hargadde lake, indicating the presence of some industrial effluent.*
- 4) Heavy metal analysis shows that*
  - a. In lake water samples, the heavy metals were either BDL or < the allowable limit as per drinking water standard IS10500.*
  - b. In bore well water samples, the heavy metals were either BDL or < the allowable limit as per drinking water standard IS10500.*
  - c. In drain water samples, Zinc and Fe were found, again indicating the presence of industrial effluent.*

**5)The analysis from the GC-MS fingerprinting shows the presence of both personal care products (PCPs), insecticides, antifoaming agents and raw materials used in the making of herbicides, preservatives and disinfectants.**

#### **6.1 Buffer zone of the Chandapura lake:**

**As informed by Tahsildar, Anekal taluk, there is no buffer zone declared in and around Chandapura lake.**

#### **6.2 Compliance to Solid Waste Management Rules, 2016**

- *As per 2011 census, the Chandapura town is having a population of 24,250 with 6,600 households. The total municipal solid waste generation is 8.5 TPD. Out of 8.5 TPD, 6.5 TPD is wet waste and 1.5 TPD is dry waste.*
- *Waste collected from households is being segregated into wet, dry and sanitary waste at source.*
- *As per the information of Chandapura TMC, the wet waste is given to two piggeries one at Chandapura and another at Lakshmisagara village at Anekal taluk and records are also maintained for the same.*
- *The dry waste collected is being handed over to M/s Sahas Zero Waste Management Pvt. Ltd, the dry waste collection center facility located at Jigani, for which all records are maintained by TMC.*
- *For scientific disposal of sanitary waste, TMC has signed an MoU with M/s Maridi Bio Industries Ltd., the common bio-medical treatment facility.*
- *From the drone footage and as well as from physical observation on the day of inspection, it was witnessed that no wastes are being dumped in and around Chandapura lake bed.*

#### **6.3 Air (Prevention and Control of Pollution Act), 1981**

- *In the TMC limit of Chandapura, no industrial estates exist.*
- *The major sources of air pollution in the entire catchment area of Chandapura lake are ongoing construction activities of metro, road dust, vehicular emissions etc.*

#### **6.4 Water (Prevention and Control of Pollution Act), 1974 Sewage pollution:**

- ***The sewage generated in the TMC limit of Chandapura is being discharged into the lake directly or indirectly through drain except for private residential apartments, since there is no common Sewage***

**Treatment Plant (STP) to treat sewage generated in the TMC.**

- From the analysis results, it is clear that the Chandapura lake is polluted majorly due to discharge of sewage with **TC value of  $1600 \times 10^4$  MPN/1000ml &  $1600 \times 10^3$  MPN/1000ml**, **BOD concentration as 72 mg/L & 15 mg/L**, **DO value of BDL & 1.5 mg/L**, **COD concentration of 440 mg/L & 160 mg/L**, **Ammonia as N 34 mg/L & 22 mg/L** and **Phosphates 1.93 mg/L & 3.08 mg/L** at inlet and outlet of lake respectively.
- The growth of water hyacinth in the lake also confirms sewage pollution.

**Industrial Pollution:**

- There exist no industries in the limit of Chandapura TMC. However, **the industrial estates namely, Jigani-Bommasandra phase -IV industrial estate, Bommasandra industrial estate Phase- I and Veerasandra Industrial estate comprising of Red, Orange and green categories of industries are existing adjacent to the lakes of Hennagara, Yarandahalli, Kittaganahalli, Veerasandra which are interconnected to Chandapura lake.**
- As per the records of KSPCB, no industries in all three industrial estates are permitted to let their treated/untreated trade effluent/ domestic effluents into the drains/lakes.
- The drains connected to Chandapura lake industrial estates carries quantitative amount of industrial discharges to Chandapura lake.
- However, as per the GC-MS screening analysis, **there is an indication of presence of PCPs, insecticides, antifoaming agents and raw materials used in the making of herbicides, preservatives and disinfectants that confirm the presence of industrial effluents along with sewage.**
- In the bore well samples, the concentration of **NO<sub>3</sub> is 61 mg/L & 48 mg/L**, **TDS is 1214 mg/L & 850 mg/L**, **Sulphate is 157 mg/L & 62 mg/L** and **Total hardness is 592 mg/L and 384 mg/L at the inlet & outlet of lake respectively.** The result indicates that the bore well samples should be treated before using it for drinking purposes.

**6.5 Wetlands (Conservation and Management Rules), 2017**

- These Rules are applicable to the wetlands or wetlands complexes categorized as 'wetlands of international importance' under the Ramsar Convention and wetlands as notified by the Central Government, State Government and Union Territory Administration.

- *The Chandapura lake is not yet notified under the Wetlands (Conservation and Management) Rules, 2017.*
- *However, the Hon'ble Supreme Court vide Order dated 04.10.2017 in W.P. (C) No. 230 of 2001 has inter-alia, directed that, **"We make it clear and reiterate that in terms of our order dated 8th February, 2017, 2,01,503 wetlands that have been mapped by the Union of India should continue to remain protected on the same principles as were formulated in Rule 4 of the Wetlands (Conservation and Management) Rules, 2010"**. This was also communicated by MoEF&CC to all the States and UTs.*
- ***The Chandapura lake is covered in the above said wetlands mapped by the Union of India. As per Rule 4 of the Wetlands Rules, 2017, following activities are prohibited within the wetlands:***
  - i. Conversion for non-wetland uses including encroachment of any kind*
  - ii. Setting up of any industry and expansion of existing industries*
  - iii. Manufacture or handling or storage or disposal of construction and demolition waste covered under the Construction and Demolition Waste Management Rules, 2016;*
  - iv. Hazardous substances covered under the Manufacture, Storage and Import of Hazardous Chemical Rules, 1989 or the Rules for Manufacture, Use, Import, Export and Storage of Hazardous Micro-organisms Genetically engineered organisms or cells, 1989 or the Hazardous Wastes (Management, Handling and Transboundary Movement) Rules, 2008; electronic waste covered under the E-Waste (Management) Rules, 2016;*
  - v. Solid waste dumping;*
  - vi. discharge of untreated wastes and effluents from industries, cities, towns, villages and other human settlements*
  - vii. any construction of a permanent nature except for boat jetties within fifty meters from the mean high flood level observed in the past ten years calculated from the date of commencement of these rules; and*
  - viii. poaching.*

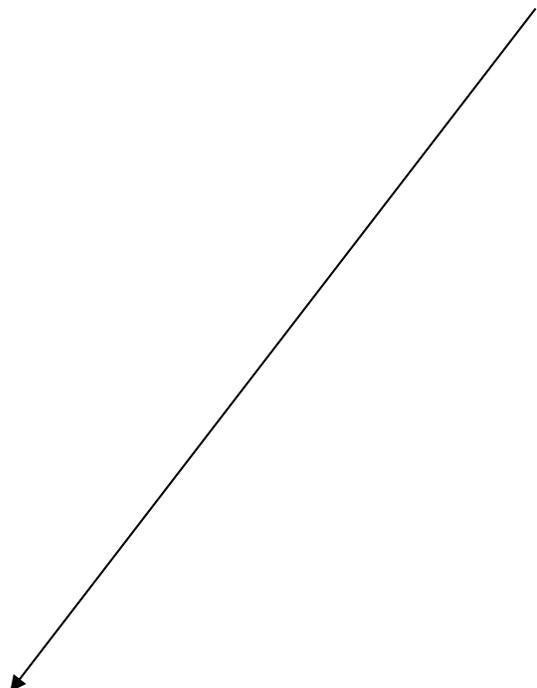
- **Thus, the discharge of untreated sewage and effluents in Chandapura lake and all other activities listed above are prohibited in Chandapura lake.**

#### **6.6. Hazardous & Other Waste (Management and Transboundary Movement) Rules, 2016**

- *In the TMC limit of Chandapura, there exists no industries and hence there is no question of compliance of HOWM, Rules, 2016. The house hold hazards are collected along with solid waste and dry waste and are handed over to M/s Sahas Zero Waste Management Pvt. Ltd, Jigani, the dry waste collection center for further processing.*

#### **Other Observations:**

- *Based on the request of public, sampling was carried out at four additional locations. Out of four samples, the drain **sample collected at Hargadde was having colour contamination as is evident in the photograph and the sample also has organic solvent odour, which was indicating the characteristics of effluent from pharma industry.***
- *From the GC-MS Screening, it was found that **2,4 dichlorophenol** is the compound identified with a **98% of occupancy in Chromatogram area** and the concentration is **30.99 mg/L** as per quantitative analysis. The copy of Chromatogram is enclosed as Annexure 9. As per physio chemical analysis concentration of COD was **1044mg/L** and Concentration of Iron found to be **7.3 mg/L**.*
- *From the preliminary investigation, **it is apprehended that there may be a chance of illegal discharges from industries or pilferages from the tankers carrying trade effluents from the pharma industry using 2, 4 dichlorophenol as a raw material.***
- *The pharma industries list located in the vicinity of the drain is given in Table 6.1 and shown in the Google image below:*



**Table 6.1: List of the pharma industries with their major products & raw materials in the vicinity of the drain**

| <b>S. No.</b> | <b>Name of the Pharma industry</b>   | <b>Raw materials used</b>   | <b>Products manufactured</b> | <b>Remarks</b>   |
|---------------|--------------------------------------|---|------------------------------|--|
| 1             | M/s Kumar Organics Products Ltd.     | ➤ 2,4 Dichlorophenol<br>➤ 2,5 Dichloro Nitro benzene<br>➤ Sodium Hydroxide<br>➤ Iron Perchloroethylene<br>➤ Sodium nitrate<br>➤ Sulphuric acid<br>➤ HCl<br>➤ Potassium hydroxide<br>➤ Acetic Acid<br>➤ Hexane | Triclosan                    | Copy of Environmental Statement in Form-V for FY 2020-21 submitted by the unit is enclosed as Annexure 10. |
|               |                                      | ➤ Aceto Phenone<br>➤ Sodium<br>➤ Ethyl Chloroacctate<br>➤ IPA   | Aldehyde C-16                |  |
|               |                                      | ➤ Citronellal<br>➤ Methanol<br>➤ Sodium Sulphite<br>➤ Sulphuric acid  | Rose Oxide                   |  |
|               |                                      | ➤ Allyl Alcohol<br>➤ Caproic acid<br>➤ Toluene<br>➤ Sodium Carbonate  | Allyl Caprote                |  |
| 2             | M/s Stelling Pharma science Pvt. Ltd | ➤ 1 Phenyl-3 Methyl-5 parazalone<br>➤ Ranie Nickel<br>➤ Dimethyl sulphate<br>➤ Sodium Hydroxide<br>➤ Isopropynol alcohol  | Propyphenazone               | Copy of Environmental Statement in Form-V for FY 2020-21 submitted by the unit is enclosed as Annexure 11. |

|   |                               |  |                        |   |
|---|-------------------------------|--|------------------------|---|
|   |                               | ➤ <i>Activated carbon</i>  |                        |   |
| 3 | <i>M/s. Hikal Ltd. Unit-I</i> | ➤ <i>Lactum</i><br>➤ <i>Toulene</i><br>➤ <i>Acetone</i><br>➤ <i>NaOH flakes</i><br>➤ <i>Methanol</i><br>➤ <i>IPA</i><br>➤ <i>Sod. Carbonate</i><br>➤ <i>HCl-30%</i><br>➤ <i>Carbon</i><br>➤ <i>Hyflosupercel</i> | <i>GABAPENTIN</i>      | <i>Copy of Environmental Statement in Form-V for FY 2020-21 submitted by the unit is enclosed as Annexure 12.</i> |
|   |                               | ➤ <i>Bupropion-1</i><br>➤ <i>TBA</i><br>➤ <i>Acetone</i><br>➤ <i>NaOH flakes</i><br>➤ <i>Methanol</i><br>➤ <i>IPA</i><br>➤ <i>HCl-30%</i><br>➤ <i>Hyflosupercel</i><br>➤ <i>Carbon</i><br>➤ <i>Toluene</i>       | <i>BUPROPION HCL</i>   |   |
|   |                               | ➤ <i>ONDT-6</i><br>➤ <i>2-Methyl Immediazole</i><br>➤ <i>IPA</i><br>➤ <i>HCl-30%</i><br>➤ <i>NaOH flakes</i><br>➤ <i>CHCl3</i><br>➤ <i>Carbon</i><br>➤ <i>Hyflosupercel</i>                                      | <i>ONDANSETRON HCL</i> |   |
|   |                               | ➤ <i>ONDT-HCL</i><br>➤ <i>TEA</i><br>➤ <i>IPA</i><br>➤ <i>Methanol</i>   | <i>ONDANSETRON API</i> |   |

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|  | <ul style="list-style-type: none"> <li>➤ <i>Dimethyl Formamide</i></li> <li>➤ <i>Theobromine</i></li> <li>➤ <i>Potassium carbonate</i></li> <li>➤ <i>Chlorobromo propane</i></li> <li>➤ <i>Methanol</i></li> <li>➤ <i>IPA</i></li> <li>➤ <i>Carbon</i></li> <li>➤ <i>Methyl acetoacetate</i></li> <li>➤ <i>HCl</i></li> </ul> | <i>OXPENTIFYLLINE</i> |  |
|  | <ul style="list-style-type: none"> <li>➤ <i>Gem-1(intermediate)</i></li> <li>➤ <i>Methanol</i></li> <li>➤ <i>NaOH</i></li> <li>➤ <i>30% HCl</i></li> <li>➤ <i>Carbon</i></li> <li>➤ <i>Hyflosupercel</i></li> <li>➤ <i>Toluene</i></li> <li>➤ <i>Isobutanol</i></li> </ul>  | <i>GEMFIBROZIL</i>    |  |
|  | <ul style="list-style-type: none"> <li>➤ <i>Deco stage-4</i></li> <li>➤ <i>Toluene</i></li> <li>➤ <i>Methanol</i></li> <li>➤ <i>Pd/catalyst</i></li> <li>➤ <i>Hydrogen gas</i></li> <li>➤ <i>EMME</i></li> <li>➤ <i>Diphyl</i></li> </ul>   | <i>DECOQUINATE</i>    |  |

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|--|---|---------------------|--|
|  | <ul style="list-style-type: none"> <li>➤ TRI-3(intermediate)</li> <li>➤ H2SO4</li> <li>➤ Formic Acid</li> <li>➤ NaOH flakes</li> <li>➤ NaCl</li> <li>➤ Oxalic acid</li> <li>➤ Acetone</li> <li>➤ Toluene</li> <li>➤ Carbon</li> <li>➤ Hyflosupercel</li> <li>➤ Aq. Ammonia</li> <li>➤ Ethyl acetate</li> <li>➤ HCl in IPA</li> </ul>  | TRIPROLIDINE<br>HCL |  |
|  | <ul style="list-style-type: none"> <li>➤ 4,4 di fluro benzophenone piperazine</li> <li>➤ Cinamic alcohol</li> <li>➤ Soduum Borohydride</li> <li>➤ Triethyl amine(TEA)</li> <li>➤ Methanol</li> <li>➤ Activated carbon</li> <li>➤ Methanol</li> <li>➤ Activated carbon</li> <li>➤ Huflo Supercel</li> <li>➤ HCl In IPA</li> <li>➤ Toluene</li> <li>➤ Piperazine Anhydrous</li> <li>➤ IPA</li> <li>➤ HCl</li> <li>➤ Catalyst-B</li> <li>➤ Catalyst-A</li> <li>➤ Caustic Soda</li> </ul> | FLUNARAZINE         |  |
|  | <ul style="list-style-type: none"> <li>➤ Ethyl 2-pyrrolidone N acetate (PAE)</li> <li>➤ Methanol</li> </ul>   | ETIRACETAM          |  |

|  |   |                       |  |
|--|---|-----------------------|--|
|  | <ul style="list-style-type: none"> <li>➤ Ammonia</li> <li>➤ RO water</li> </ul>   |                       |  |
|  | <ul style="list-style-type: none"> <li>➤ S Ester</li> <li>➤ KOH</li> <li>➤ Methanol</li> <li>➤ Raney Nickle Catalyst</li> <li>➤ Activated Carbon</li> <li>➤ Acetic Acid</li> <li>➤ Hyflosupercel</li> <li>➤ Hydrogen gas cylinders (42 cum)</li> <li>➤ IPA</li> <li>➤ Water for Cleaning equipment's</li> <li>➤ Scrubber water make up</li> </ul> | PREGABLIN             |  |
|  | <ul style="list-style-type: none"> <li>➤ Ethyl 2 (2)-Pyrrolidone butarate (2PBE)</li> <li>➤ Methanol</li> <li>➤ Sodium Methoxide</li> <li>➤ Ammonia</li> </ul>  | ETIRACETAM            |  |
|  | <ul style="list-style-type: none"> <li>➤ Etiracetam -L060</li> <li>➤ Methanol</li> <li>➤ Sodium Methoxide</li> </ul>  | ETIRACETAM<br>RACEMIC |  |

|  |  |  |                                      |  |
|--|--|--|--------------------------------------|--|
|  |  | <ul style="list-style-type: none"> <li>➤ QTP-2</li> <li>➤ <i>N,N Dimethyl aniline</i></li> <li>➤ <i>Phosphorus oxy chloride (POCl3 )</i></li> <li>➤ <i>Toluene</i></li> <li>➤ <i>NaHCO3</i></li> <li>➤ <i>NaCl</i></li> <li>➤ <i>Water</i></li> <li>➤ <i>Piperzine anhydrous</i></li> <li>➤ <i>IPA HCl</i></li> <li>➤ <i>Acetone</i></li> <li>➤ <i>Sodium Sulphate</i></li> <li>➤ <i>Hyflow</i></li> <li>➤ <i>QTP-IV HCl(11-piperzninyl-Dibenzo (b,f) (1,4)thiazepine hydrochloride)</i></li> <li>➤ <i>2-(chloroethoxy) ethanol</i></li> <li>➤ <i>Sodium carbonate</i></li> <li>➤ <i>Sodium Hydroixde</i></li> <li>➤ <i>Sodium iodide</i></li> <li>➤ <i>N-Methyl-2-pyrrolidone</i></li> <li>➤ <i>Toluene</i></li> <li>➤ <i>Fumaric acid</i></li> <li>➤ <i>Hyflow</i></li> <li>➤ <i>Activated charcoal</i></li> <li>➤ <i>Methanol</i></li> <li>➤ <i>Water for cleaning equipments</i></li> </ul> <p><i>Scrubber water make up</i></p> | <p><i>QUETAPINE<br/>FUMARATE</i></p> |  |
|  |  | <ul style="list-style-type: none"> <li>➤ <i>Benzydrol</i></li> <li>➤ <i>Piperzine Anhydrous</i></li> <li>➤ <i>Triethyl Amine</i></li> <li>➤ <i>Catalyst – E</i></li> <li>➤ <i>Catalyst – B</i></li> <li>➤ <i>Toluene</i></li> </ul>  | <p><i>CINNARIZINE</i></p>            |  |

|    |                         |   |                                    |  |
|----|-------------------------|---|------------------------------------|--|
|    |                         | <ul style="list-style-type: none"> <li>➤ Hyflow</li> <li>➤ Caustic Soda</li> <li>➤ Carbon</li> <li>➤ Methanol</li> <li>➤ MEK</li> <li>➤ HCl</li> <li>➤ Cinnamic Acid</li> </ul>   |                                    |  |
| 4. | M/s. Hikal Ltd. Unit-II | <ul style="list-style-type: none"> <li>➤ DMF</li> <li>➤ Theo bromine</li> <li>➤ K<sub>2</sub>CO<sub>3</sub></li> <li>➤ Chlorohexanone</li> <li>➤ Methanol</li> <li>➤ Carbon</li> <li>➤ Hyflo supercell</li> </ul>   | Oxypentifylline                    | Copy of Environmental Statement in Form-V for FY 2020-21 submitted by the unit is enclosed as Annexure 12. |
|    |                         | <ul style="list-style-type: none"> <li>➤ QTP-2</li> <li>➤ N, N Dimethyl aniline</li> <li>➤ POCL<sub>3</sub></li> <li>➤ Toluene</li> <li>➤ NaHCO<sub>3</sub></li> <li>➤ NaCl</li> <li>➤ Water</li> <li>➤ Piperzine anhydrous</li> <li>➤ IPA HCl</li> <li>➤ Acetone</li> <li>➤ Sodium Sulphate</li> <li>➤ Hyflow</li> <li>➤ Water</li> <li>➤ NaHCO<sub>3</sub></li> </ul> | QUETIAPINE                         |  |
|    |                         | <ul style="list-style-type: none"> <li>➤ Piperidine</li> <li>➤ Ethyl Trifluoro Acetate (ETFA)</li> <li>➤ CF Ketone Stage-I</li> <li>➤ THF</li> <li>➤ Ary Bromide</li> </ul>   | CF <sub>3</sub> KETONE<br>STAGE-II |  |

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|  | <ul style="list-style-type: none"> <li>➤ Magnesium trunings</li> <li>➤ Hydrochoric acid</li> <li>➤ Water</li> <li>➤ Toluene</li> </ul>   | CF3KETONE<br>STAGE-III |  |
|  | <ul style="list-style-type: none"> <li>➤ Crude CF Ketone Stage-2</li> </ul>  | PBA HCl STAGE-I        |  |
|  | <ul style="list-style-type: none"> <li>➤ P nitro Phenol sodium salt</li> <li>➤ DMF</li> <li>➤ Catalyst A</li> <li>➤ Benzyl Chloride</li> <li>➤ Water Caustic Soda</li> </ul>   | PBA HCl STAGE-II       |  |
|  | <ul style="list-style-type: none"> <li>➤ PBNB</li> <li>➤ Ferric chloride</li> <li>➤ Activated Carbon</li> <li>➤ Toluene</li> <li>➤ Hydrazine Hydrate</li> <li>➤ Hyflo supercel</li> <li>➤ HCl in IPA</li> <li>➤ Iso Propyl alcohol</li> <li>➤ Water</li> </ul> | PBA HCl STAGE-II       |  |

- From the above table, it is learnt that **2,4 dichlorophenol** is a raw material used in the manufacturing of product **Triclosan** by **M/s Kumar Organics Products Ltd.**
- As per the records, the said unit was permitted to send their trade effluent to nearby CETP by KSPCB vide ADDENDUM dt. 20<sup>th</sup> December, 2021 for three months. Copy of ADDENDUM enclosed as **Annexure 14**

- *As per the available information and analysis results, the committee reasonably apprehends that the effluent from **M/s Kumar Organics Products Ltd.** may be contaminating the drain near Hargadde. **Immediate detailed investigations are necessary to identify the defaulters and take appropriate action under the provisions of respective Environmental Acts.***
- *The drain sample collected at Veerasandra lake outlet has high concentration of **Zinc of 23.2 mg/L and Iron of 18.85 mg/L.** This shows discharges from plating industries. **Annexure 15** gives a list of plating industries in Veerasandra Industrial Estate. **Immediate detailed investigations are necessary to identify the defaulting industry and take appropriate action under the provisions of respective Environmental Acts.***
- *The drain sample collected at the entrance of Kittaganahalli lake & adjacent to Bommasandra Phase-I Industrial Estate have high concentration of **COD as 10,896 mg/L** and indicates the industrial discharge. The drain has been diverted into Chandapura lake, since the Kittaganahalli lake is rejuvenated. **Immediate detailed investigations are necessary to identify the defaulting industry and take appropriate action under the provisions of respective Environmental Acts.***
- *Apart from above, the analysis from the GC-MS screening from other samples shows the presence of PCPs, insecticides, antifoaming agents and raw materials used in the making of herbicides, preservatives and disinfectants that confirms the presence of industrial effluents along with sewage.*

## **7.0 Recommendations of the committee:**

*As per the preliminary investigations carried out by committee, **there is a clear indication of both sewage and industrial contamination in the lakes & drains. However, detailed investigations required to be carried out to identify the defaulters.** Thus, the following recommendations are suggested by the committee to the concerned departments/authorities/stakeholders for kind consideration of Hon'ble Tribunal:*

### **7.1 District Magistrate (Bengaluru Urban) and local bodies in the catchment area of Chandapura lake:**

- ✓ *To carryout mapping in Chandapura lake catchment area to identify all the drains carrying mixed effluents and entering the lake.*
- ✓ *To take immediate steps to control the discharge of untreated effluents into the drains. 1' To follow-up with the Govt. of Karnataka to expedite the approval of DPR and allocation of land for setting up of STPs in the catchment area.*

- ✓ *Alternative technologies such as inline anaerobic treatment, Phytoremediation, Construction of wetlands, microbial bioremediation, waste stabilization pond and/or mechanically aerated lagoon as per the document prepared by CPCB on “**Alternative Treatment Technologies for Wastewater Treatment in Drains**” or any other sustainable technologies shall be explored immediately on priority, based on the feasibility with respect to field conditions.*
- ✓ *To prepare time bound short- and long-term action plans for rejuvenation of the lakes in the catchment area and maintain the lakes as per the CPCB document on “Indicative guidelines for Restoration of Water Bodies” and by adopting sustainable technologies and initiate the action on priority for rejuvenation of the lakes adhering to a strict timeline.*
- ✓ *To ensure the treatment and conformity to the drinking water standards of bore well water before supplying it for drinking purposes, since some of the bore wells are having a high concentration of Nitrates, NH<sub>3</sub>, SO<sub>4</sub> and/or hardness.*
- ✓ *To explore decentralized composting methods for treatment of municipal solid waste. 1' To direct the survey department to identify the encroachment details & marking of mean high flood level and declaration of buffer zone at Chandapura lake in compliance to Wetlands Rules, 2017.*

## **7.2 Karnataka Industrial Area Development Board (KIADB):**

- ✓ *To carry out the mapping of drainage network for industrial estates in the catchment area in order to ascertain any industrial discharge into the natural water bodies and submit the report to Hon'ble Tribunal.*
- ✓ *As per the records provided by KSPCB, **206 industries out of 543 industries** (129/385 in Jigani-Bommasandra Phase-IV industrial Estate & 77/ 158 Bommasandra Industrial Estate Phase I and Veerasandra industrial estate) **are sending their trade effluents to CETPs** either in the same industrial estate or to CETPs located at around 25 KM to 84 KM through tankers and there may be chances of illegal discharge of effluents into drains/valleys/water bodies by the tankers. **It is recommended to explore the possibilities of construction of CETPs within industrial estates with tamperproof & closed conduit system for pumping of trade effluents with individual online flow meters. This will help in tracking the records on quantity of effluents being sent to CETPs and identify the illegal discharges, if any.***

## **7.3 Karnataka State Pollution Control Board (KSPCB):**

- ✓ *Not to accord permissions to industries (having ETPs) to send their trade effluents to CETP. KSPCB shall direct such industries to stop their productions till their ETPs made functional.*

- ✓ *To conduct Environmental audit of all industries in the catchment area through reputed institutes such as IISc, IITs, and/or NEERI in order to keep strict vigilance, since the Jigani Industrial Area is declared as Critically Polluted Area under CEPI.*
- ✓ *To carryout environmental forensic analysis /pollutant tracer studies at all the drains connected to industrial estates in the catchment area in order to identify the defaulting industries and initiate appropriate action as per the provisions of Environmental law adhering to a strict timeline.*
- ✓ *To develop the e-manifest system for discharging of trade effluents from industries to CETPs with GPS tracking system in all the vehicles carrying trade effluents as adopted in Telangana State Pollution Control Board in order to keep close track on any illegal discharges and pilferages.*
- ✓ *To issue directions to local bodies to expedite alternative/decentralized treatment technologies for sewage treatment till the establishment and functioning of STPs.*

**7.4 Karnataka State Wetlands Authority as per the provisions of the Wetlands(onsen ation and Management) Rules, 2017:**

- ✓ *To ensure protection of wetlands (>2.25 hectare) as per Rule 4 of the Wetlands Rules, 2017, in general and Chandapura lake. in specific, on top priority, in compliance to the direction of Hon"ble Supreme Court.*
- ✓ *To take requisite actions as envisaged under the Wetlands Rules, 2017, in general and for Chandapura lake, in specific.*
- ✓ *To consider notification of Chandapura lake under the Wetlands Rules, 2017.”*

4. We have heard learned Counsel for CPCB who has put in appearance and duly considered the matter and the above report. The report shows that water of the lake is being polluted by different sources, including the sewage and industrial pollution, particularly effluents from pharma industries. According to the Committee, the trade effluents could be from M/s. Kumar Organic Products Ltd. There is concentration of COD and also Zinc and other heavy metals. At many locations DO is low, BOD is high and FC is also high. There are also toxic trade effluents. It is not clear why trade effluents are not being diverted to CETP and why State PCB is not

regulating such pollution as per Water Act. Recommendations include mapping of the catchment area, control of water pollution by statutory authorities – concerned Collectors, Karnataka Industrial Area Development Board (KIADB), State PCB and State Wetland Authority. We are satisfied that the report needs to be accepted and remedial action taken in terms of observations and recommendations of the Committee with the involvement of authorities at the highest level in the State to give effect to the rule of law and to protect public health and environment. Current state of affairs shows failure on the part of the State to discharge its obligation under the public trust doctrine and the Constitutional mandate. Thus, remedial action is required promptly and sternly. Action may include making law violators and erring officers accountable for breach of law to the detriment of public health and environment which has to be taken seriously.

5. Accordingly, we direct the Chief Secretary, Karnataka to forthwith hold a meeting with the concerned authorities particularly the District Magistrates, Bengaluru Urban, KIADB, State Wetland Authority, Karnataka State PCB and the Environment Department. In the said meeting outline of action plan be discussed which may be finalised within one month with the assistance of such experts/institutions as may be identified with a view to ensure rehabilitation of the lake in time bound manner. Action to be taken may include removal of encroachments, closing the sources of pollution and fixing accountability for the past violations on 'Polluter Pays' principle and also by way of prosecution/other coercive action. This Tribunal has earlier dealt with the issue of Bellanduru lake for which action plan was prepared and executed by the State authorities on directions of this Tribunal. Final order of this Tribunal is dated 12.03.2021 in *O.A 125/2017, Court on its own Motion v. State of*

*Karnataka*. Same pattern can be followed for restoration of the present lake with suitable changes. Apart from the said matter, a general order has been passed by this Tribunal on 25.11.2021 in O.A No. 351/2019, *Raja Muzaffar Bhat vs. State of Jammu and Kashmir & Ors.* for protection and rehabilitation of all lakes and wetlands in the country which needs to be followed in the State of Karnataka as the report furnished shows that the same is not being followed. Execution of action plan may be overseen at the level of Chief Secretary, with the assistance of such other senior officers as may be considered necessary. The Chief Secretary, Karnataka may file an action taken report by e-mail at [judicial-ngt@gov.in](mailto:judicial-ngt@gov.in) preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF mentioning the compliance status as on 30.06.2022 by 15.07.2022. The report may also be uploaded on the website of the State PCB for response from any quarters, including any aggrieved party.

List for further consideration on 03.08.2022.

A copy of this order be forwarded to Chief Secretary, Karnataka, District Magistrate, Bengaluru Urban, KIADB, State Wetland Authority, KSPCB and Additional Chief Secretary, Environment Department by e-mail for compliance.

**IA Nos. 48/2020 and 71/2022**

These applications have been filed by Vrikshamitra Foundation and Captain Santosh Kumar respectively, seeking to be added as respondents. Basis of the application is that the said applicants have some concern and information about the issue. Since the said applicants are not affected parties, we do not find any justification to add them as respondents. However, if they wish to provide any information beyond the information

in the report already quoted above or render any assistance, it is open to them or any other person to do so through the State PCB and the District Magistrate, subject to such authorities finding it useful. I.A.s will stand disposed of accordingly.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Arun Kumar Tyagi, JM

Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

March 29, 2022  
Original Application No. 324/2021  
(I.A. No. 48/2022 & I.A. No. 71/2022)  
DV