Item No. 04 Court No. 1

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI

(By Video Conferencing)

Original Application No. 324/2021

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: 10.10.2022

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

Respondents: Mr. Rajat Jonathan Shaw, Advocate for the State of Karnataka
Mr. Amit Singh Chauhan, Advocate 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 media 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. The matter has been earlier considered on 26.11.2021 and 29.03.2022 in light of report of the joint Committee comprising CPCB, State PCB, Indian Institute of Science, Bengaluru, SEIAA, Karnataka, National Wetland Committee, State Wetland Authority and the District Magistrate, Bengaluru. It was found that water of lake was being polluted by sewage and industrial pollution, including pharma and other 'red'

category industries operating in violation of law. There were encroachments in the catchment areas of the lake.

3. Accordingly, the Tribunal directed Chief Secretary, Karnataka to hold a meeting with the concerned authorities to prepare outline of action plan within one month and take remedial action on the pattern of Bellanduru lake dealt with vide order dated 12.03.2021 in *O.A 125/2017, Court on its own Motion v. State of Karnataka.* It was further directed that execution of action plan may be overseen by the Chief Secretary with the assistance of other senior officers and action taken report may be filed. Operative part of the order is reproduced below:-

> *"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 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."

4. In pursuance of above, an action taken report has been filed on 02.08.2022 by District Development Cell, Bangalore Urban District. Report dated 08.10.2022 has been filed on behalf of Chief Secretary, Karnataka. It will suffice to refer to the report filed on behalf of Chief Secretary, Karnataka.

5. The report mentions that meeting was held on 06.07.2022 with the concerned officers in light of suggestions of the joint Committee and directions were issued by the Chief Secretary requiring concerned officers to take identified actions. Minutes of the meeting has been annexed to the report which are as follows:-

"1. District Magistrate (Bengaluru urban) and local bodies in the catchment of Chandrapura lake:

S. No.	***Suggestions***	***Action***
1.	*To carry out mapping in Chandrapura lake catchment area to identify all drains carrying mixed effluents and entering the lake.*	*Directed the concerned Officer to carry outmapping in Chandrapura lake catchment area to identify all drains carrying mixed effluents and entering the lake within one week of time.*

2.	*To take immediate steps to control the discharge of untreated effluents into the drains.*	*Directed the KUWSB to divert nala /stop entry of sewage to Chandrapura lake.*
3.	*Alternativetechnologies or any other sustainable technologies shall be explored immediately on priority, based on the feasibility with respect to field conditions.*	*The Scientist from IISc has suggested cost effective methods to reduce the pollution load. The Chief Secretary to Government directed the Scientist, IISc & Scientist, CPCB to submit detailed report in this regard.* *The Chief Secretary to Government also directed the DC & KSPCB to co-ordinate with the concerned and install demonstration unit near the Chandrapura lake.*
4.	*To prepare time bound short- and long-term action plans for rejuvenation of the lakes in the catchment area.*	*DC, Bangalore urban/ has brought to the notice of the Chair that proposal with the cost of Rs. 21 lakh has already been prepared and submitted for approval.*
5.	*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, NH3, SO4 and/or hardness.*	*Scientist from IISc informed to the Chair that the water samples were collected from borewell, as per results these borewells were contaminated with faecal coliforms (Escherichia coli) & high concentration of Nitrate, NH3, SO4 which is not suitable for drinking (potable) purpose,* *In this regard the Chief Secretary directed to take corrective measures.*
6.	*To explore decentralized composting methods for treatment of municipal solid waste.*	*The Chief Secretary directed Urban Development Department to submit details of Government land required for Solid Waste Management (SWM).*

2. Karnataka Industrial Area Development Board:

1.	*To carry out the mapping of drainage network for industrial and submit the report to Hon'ble Tribunal.*	*The Chief Secretary directed to submit the action plan within One week.* *KIADB officials agreed to submit drainage network for industrial units.*
2.	*To explore the possibilities of construction of CETPs within industrial estates with tamper proof and closed conduct 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.*	*The Chief Secretary directed KIADB to ensure that CETPs are set up in all industrial areas.*

3. Karnataka State Pollution Control Board

1.	*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.*	*The officials of the KSPCB informed the chair that direction has already been issued to stop the production activities.*
2.	*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.*	*It is informed that KSPCB has already identified RV College of Engineering, Bengaluru to conduct Environmental audit.* *The Chief Secretary directed to submit the Report within 15 days.*
3.	*To carryout environmentalforensic analysis /pollutant tracer studies at all the drains connected to industrial estates in the catchment area.*	*Environment Officer, Anekal informed the Chair that they have already collected samples from drains which are leading to Chandrapur lake.* *The Chief Secretary directed to submit forensic report within one week.*
4.	*To develop the e-manifest system for discharging of trade effluents from industries to CETPs with CPS tracking system in all the vehicles carrying trade effluents*	*KSPCB has already developed e- manifest system and is in use for the industries which are linked with all CETPs also in Veerasandra industrial area coming under the catchment area of Chandapura Lake. A strict vigilance on the movement of vehicles carrying the trade effluent is being maintained by engaging Marshals in the area.*
5.	*To issue directions to local bodies to expedite alternative / decentralized treatment technologies for sewage treatment till the establishment and functioning of STPs.*	*It is brought to the notice of the meeting that notices have already been issued from KSPCB.* *The Chief Secretary directed to conduct awareness program with regard to treatment of effluent and sewage management.*

4. Karnataka State Wetlands authority:

1.	*To ensure protection of wetlands (>2.25 hectare) as per Rule 4 of the Wetlands Rules, 2017, in general and Chandrapura lake in specific, on top priority, in compliance to the direction of Hon'ble Supreme Court.*	*The Secretary, Minor Irrigation Department remained absent for the meeting. The Chief Secretary directed the Minor Irrigation Department and MD, Karnataka Tank Conservation and Development Authority to submit the action plan within One week.*
2.	*To take requisite actions as envisaged under the Wetlands Rules, 2017, in general and for Chandrapura lake, in specific.*	
3.	*To consider notification of Chandrapura lake under the Wetlands Rules, 2017.*	

6. The action plan to be executed by the KIADB, annexed to the report, is mapping of the catchment area, control of discharge of effluents, steps for rejuvenation of the lake and treatment of borewell water before supply for drinking purposes.

7. Action plan to be implemented by State PCB is not according permissions to industries having ETPs to send effluents to CETP, to conduct Environmental Audit of industries in catchment area, to carry out forensic analysis of pollutants of all drains connected to the industrial estates in the catchment area, to develop system for discharge of effluents from the industries to CETPs with GPS tracking system and to require the local bodies to decentralized treatment of sewage.

8. Compliance report of the KIADB on the issue of mapping of the drainage network and construction of CETP is that work was assigned to M/s Eco Green Solutions Systems Pvt. Ltd. on 14.07.2022 for mapping of the area to ascertain discharge of industrial pollution and the report has been submitted by the said service provider which has been annexed. The report contains factual status and in Result and discussion steps to be taken are mentioned which include the need for Micro-Watershed Management of Chandapura lake, control of pollution by operation of 'red' category industries in violation of norms, action against change of land use against the principle of 'Sustainable Development' which led to environmental degradation, steps, prevention of discharge of untreated sewage by three local bodies abutting the industrial areas, namely Jigani, Hebbagodi and Bommasandra and selecting location for CETP.

9. The operative part of the report is reproduced below:-

"RESULT MID DISCUSSION

<u>DRAINAGE MAPPING FEATURES OF CHANDAPURA LAKE CATCHMENT AREA</u>

1. Catchment area of Chandapura lake

The catchment area of Chandapura Lake is already shown in ***Figure-1*** *above which comprises of total area 9839 Ha. Although there are other lakes which are also present in between the catchment area of Chandapura lake. Total catchment of Chandapura lake is covering two streams into the Chandapura lake. One stream is flowing from North-West direction and other is from South direction.*

2. Micro-watershed of Chandapura lake

The Micro-watershed management is essential for the solving water scarcity issues of the drought region. This could help in moisture conservation measures like the contour bunds to resist the runoff flowing down the slope by an embankment and the overall land development. The block plantations, horticultural development program will increase the green cover of the region and enhance the groundwater recharge rate. It is also necessary for restoration and the improvement of water resource and enables de-siltation of water tanks, there by improves the water availability for drinking and irrigation. The micro water shed of the region is submitted in the Figure- 5 Below.

Micro-watershed of Chandapura lake is shown in ***Figure-6*** *below. There are total 12 sub-basin in catchment of Chandapura lake. Sub-basin 1,2,6,7,8 and 11 are major contributors of water is Chandapura lake. The area of each sub-basins are also marked in* ***Figure 6.*** *The other sub-basin are contributing indirectly into catchment area of Chandapura lake.*

NOTE: *Catchment area means that the area from which rain flows into a particular river or lake. As we can see from drainage map (Fig 5(a) and 5(b)) that major flow of water is from south-west to North-East till Muthanallur lake. The Chandapura lake is lying between the Hennagara lake and Muthanallur lake which means that Hennagara lake is included in catchment area of Chandapura lake but as soon water flows out from Chandapura lake that will not count in catchment of Chandapura lake. Muthanallur lake and Jigala lake is receiving water from Chandapura lake it is therefore both these lakes will not come in catchment area of Chandapura lake.*

3. ***Water Quality Status of Chandapura Lake:***

The deterioration of water quality of Chandapura Lake is due to discharge of untreated /treated sewage from the surrounding area and industrial effluent discharge through its upstream feeder lake — Kachanayakanahalli lake apart from rapid encroachments.

One of the major reason for pollution of lake is due to operation of Red category industries (industries having pollution index score of 60 and above) operating in the Jigani-Bommasandra industrial area and

discharge of effluents into lakes in violation of the zero liquid discharge (ZLD) policy of the Government. Under waste water management through ZLD system, no untreated water/treated water shall supposed to be discharged into the lake.

However, untreated effluents from industries continuously enter storm water drains and flow into the lakes of Anekal. There are around 195 Red category industries operating in the Jigani-Bommasandra industrial area, which include drug manufacturing companies, electroplating, powder coating, pickling, heat treatment, galvanizing, casting, lead-acid battery manufacturing, used oil reprocessing, lead smelting and chemical industries.

There may be chances of illegal discharge of effluents into drains/valleys/water bodies through tankers. It is recommended to explore the possibilities of construction of CETPs within industrial estates with tamperproof as 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 CETP and identify the illegal discharge, if any.

4. ***Land Use Land Cover of Jigani - Bommasandra Industrial Area***

As we are aware Land resource is a finite resource and it is necessary to adopt strategy for efficient use of land resources for different economic development. The land use planning is necessary in order to regulate land use in an efficient and ethical way, thus preventing abuse/ over exploitation of land resource and also to prevent land use conflicts in the society. All the local Governments use
land use planning to manage the development of land within their jurisdictions thereby the government agency can plan for the needs of the community, while safeguarding natural resources. Hence, land use planning is the systematic assessment of land and water potential, alternatives for land use, and economic and social conditions in order to select and adopt the best land use options. The efficient land use plan provides a vision for the future possibilities of development in neighborhoods, districts, cities, or any defined planning area.

The Land cover refers to the vegetation, soil, physical characteristics, water spread area, which naturally shield the earth's surface including the infrastructure created by humans. The land use refers to the land which is created and used by human being. Increased demand of land, due to increased population, migration to the cities have led to mismanagement of land and resulted in crisis. Development of cities has put pressure on the limited land resource and hence natural resources are exploited

due to change in the land use pattern. The below ***Figure-7*** *gives the land use and land cover of the area within 10 KM radius.*

The Change in land use has adverse effects on the biodiversity, soil & water quality, biosphere and climate. Hence the Land use /cover information is essential for planning the optimal use of these resources, not only for the present, but also in future due to increasing human demand. The data will also help in studying the dynamics of change due to increased population. Precise and Timely information about the change of land use, helps in understanding the association between nature and human being for better decision making. The invention & advancements of Remote Sensing and GIS technologies, helped to study the change in land use / cover accurately in short period. Timely monitoring of land use change and percent change can be tabulated with GIS technologies.

In the context of sustainable development, land use planning is political and technical-administrative decision-making process based on social, economic political and technical factors, for orderly occupation and sustainable use of the land under development. In order to achieve efficient land utilization, it is necessary to have regulation and promotion of the location and sustainable development of human settlements, economic and social activities, and spatial physical development, based on the identification of potentialities and limitations that consider environmental, economic, socio-cultural, institutional and geopolitical criteria. By and large, these parameters are put in place in order to make sure that the environment is protected during land use or land cover development.

In the process of development, land is assigned a high importance for the development of human life as it is the fundamental support for its permanence and development, this being the most important objective of the policy of human settlements. The land resource is recognized as an essential element, which supports the social, political and economic formation of society. The use of land refers to the occupation of a certain area according to its agrological capacity and therefore its development potential, is classified according to its location as urban or rural. It represents fundamental element for development of the city and its inhabitants. For this reason, there is a need to ensure sustainability of land use and land cover planning in order to ensure the we continue to enjoy the benefits that come from urban planning and to ensure that future generations will continue enjoying these benefits.

In the 19th & 20th century, there was a global push to develop large cities quickly to accommodate the people who were migrating from rural areas to cities for jobs. In order to create environmentally viable urban landscapes, it is necessary to promote green energy use, encourage green-friendly transportation. Hence, land use

planning is a useful tool in changing these aspects of energy usage in a way that would be beneficial to both residents and the surrounding environment.

A sustainable urban development includes, Methods for reducing waste through adoption of reuse/recycling and composting programs that are easily accessible to residents. Reducing/preventing pollution through easy access to necessities and encouraging access to facilities, goods, and services and encouraging public transportation usage wide spread network within a city. The land use Dynamics of Bangalore from 1973-2010 explains that, the built-up area percentage (urban) is increasing (from 1973 to 2010) in all directions with the decline in Green Cover/vegetation area. The overall increase in the built up area in all the directions is due to compact growth of residential areas, commercial complex areas by converting open spaces and vegetated areas in to built-up. The urban land is increasing in all directions due to more residential areas by declining the vegetation cover in the region.

The above map clearly indicates the change of land use from vacant/water body to development of residential/ commercial and industrial area over the years. There are rising levels of environmental degradation due to change in the land use and land cover for development of cities and its neighborhoods. Land use is assigned on the basis on physical and functional characteristics in the urban structure, and with the aim of occupying the space in an orderly manner and according to their physical capacity (occupation of areas suitable for urban development and environmental sustainability), it translates into a harmonious growth of the city. This establishes general guidelines that should be taken into account for the development of urban cities with the goal to protect the environment.
Adding to the increased built up area of residential and commercial complexes, there is also an increase in the industrial area in the then out skirts of Bangalore due to more commercial/financial services/activities declining in the area of vegetation cover and water bodies in the region. Asia's biggest Industrial area- Peenya Industrial estate and its expansion has resulted in the decline of vegetation cover and water bodies. In this region urban growth expansion due to manufacturing industrial activities is observed due to establishment of Medium Scale and small scale industries.

In 2010 Built-up has increased due to new residential areas of moderate density (Hoskote residential area) and industries (part of Bommasandra Industrial area) due to small residential layouts, industries (part of Bommasandra Industrial area) of technical, transport and communication infrastructure due to the land use changes from open spaces and land under vegetation to builtup, large/medium and Small scale Industries established near Anekal is driving these changes.

Further, during 2010 Built-up percentage is high with decline of water bodies and vegetation due to large scale small residential layouts and Jigani Industrial estate. Similar trend is observed due to small residential layouts, part of Jigani Industrial estate (SSE) and also residential complexes due to the proximity of Bommasandra- Jigani Industrial area.

5. Industrial areas within the catchment Area of Chandapura Lake:

The abstract of industries located within the Jigani and Bommasandra industrial cluster are provided in ***Table:2.*** *below: The total area industrial zone is around 1002 ha has also shown in* ***Figure 9.*** *The actual figure on map may differ.*

Table 2: Status of industries located in Jigani-Bommasandra industrial

Category	***Red***	***Orange***	***Green***	***White****
Large	*60*	*54*	*102*	*07*
Medium	*16*	*16*	*66*	*04*
Small	*119*	*78*	*568*	*45*
Total	***195***	***148***	***736***	***56***

*Note. *Exempted from obtaining consent of the KSPC Board*

There are 13 numbers of 17 category highly polluting industries operating in CPA of which 11 are Bulk drug /API manufacturing industries, and the remaining are Red category industries mainly include Electroplating, Powder coating, Pickling, Heat treatment, Galvanizing, Casting, R&D, Lead acid Battery Manufacturing, Used oil reprocessing, Lead smelling and Chemical industries.

The Karnataka State Pollution Control Board (KSPCB) directs the electroplating and other surface treatment industries to comply with 5 Point criteria to prevent contamination of the Soil and ground water in the area viz., Impervious flooring in the process area, providing above ground level process and effluent collection tanks, conducting Leak test for process tanks, Installation of Scrubber/APC equipment, providing primary treatment plant before offloading to CETP and Maintenance of records of water consumption, waste water generation and timely disposal.

Also, about 185 granite cutting and polishing industries are operating in the jurisdiction of Jigani and Bommasandra industrial areas and they are re-categorized by CPCB under green category. All the granite cutting and polishing industries are treating the slurry generated through series

of settling tanks and reusing the supernatant. The solid waste (sludge) generated from these industries are disposed in the abandoned quarry identified by Jigani Granite Industries Owners Welfare Association.

6. Existing Effluent Disposal Methods within the Industrial Area:

All the 13 numbers of 17 category highly polluting industries operating in the Jigani and Bommasandra industrial areas have adopted Zero Liquid Discharge(ZLD) system and other small Red category industries are handing over the effluents to CETPs after pre-treatment. Other industries are treating the industrial effluent through in-house Effluent Treatment Plants (ETP) and the treated trade effluent is being utilized for the secondary purposes viz., on land gardening/irrigation and for utilities within the premises.

Majority of the General engineering and allied industries have made provision to dispose the domestic sewage into septic tank and soak pits. The industries who havenot provided sewage treatment plants (STPs) are handing over their domestic sewage to Common Sewage Treatment Plant of capacity 100 ICLD established by M/s. Golden Enviro Creators located at # 278, Bommasandra - Jigani Link Road, JiganiHobli, Anekal Taluk, Bangalore.

Further it is to mention that, there are three local bodies abutting the industrial area namely TMC, Jigani; CMC, Hebbagodi and TMC, Bommasandra. The domestic sewage generated from these local bodies also enters the industrial area through storm water drains passing through the industrial area and joins nearby lakes.

At present small scale units have provided septic tank and soak pits and the sludge generated needs to be managed and properly disposed.

7. Drainage and Topography of the Industrial Area

Anekal Taluk covers part of Cauvery River and Krishna River basin and has no major rivers run through the region, Anekal has a handful of freshwater lakes and water tanks, Chandapura lake is also located in this region. A minor tributary of the Arkavathi river, which arises within the Bangalore city, flows in the district before joining the Arkavathi rivers, together carry much of Bangalore's sewage. Overall drainage pattern of study area is towards the eastern side which shown in ***Figure-12*** *below. In southern part, drainage is towards northeast side and in northern part, drainage is towards south later in middle it moves towards east.*

The topography of study area is undulating. The highest point is towards west side of study area, which is 940 m and lowest is 870 m which is at eastern part of study area.

Exploring the possible location for CETP:
Following are the general the criteria for selection of location for CETP:

- *The location of the treatment units should be suitable for carrying out proper wastewater collection system according to the topography of the region. Generally the topography shall be such that the sewage/effluent flow into the site by gravity/natural slope of the drainage and thus the pumping of waste water can be avoided.*

- *The location of CETP should be relatively high for the rest of the land to protect from rain and floods.*

- *Hydraulic position of the facility - as far as possible, a straight flow path between the units is recommended to minimize loss of load and to ensure equal consistency of flow separation.*

- *The location of the treatment plants shall not interfere with the planning of future expansion areas needed by the city and shall permit the extension of the future wastewater collection network.*

The water inflow patter for Chandapura lake is from two sources as shown in the ***(Figure-14).*** *One drainage line is coming from Hebbagodi lake from northwest side of Chandapura lake and other is coming from Hennagara lake from south-west part of Chandapura lake.*

As per above criteria and need to cater all industrial requirement, CETP has been proposed near the pour point so that less pumping will be required for CETP.

The Combined map of Industrial area, drainage line and Chandapura lake submitted in the ***Figure-16,*** *below:*

Taking in to consideration of the drainage pattern study and after identification of the 2 major water pour points, the KIADB will explore the possibility of installing Common Effluent Treatment Plant (CETP) at marked area in the map below (Figure-15) with installed capacity of 1.5 MLD and also explore the possibility of installing 3 Sewage Treatment Plants (STP"s) of treatment capacity 1 MLD each as per the date available with KIADB.

However detailed inventorization of the scheme of treatment unit process and actual capacity of CETP and STP required to be

established is necessary before finalizing the DPR for establishment of CETP and STP.

Table 3: Latitude and longitude of area identified for CETP

S. No.	***Extent name***	***Latitude***	***Longitude***
1.	***A***	***12.808072°***	***77.705159°***
2.	***B***	***12.807263°***	***77.705648°***
3.	***C***	***12.806509°***	***77.704323°***
4.	***D***	***12.807568°***	***77.704040°***

*The area identified suitable for CETP as per drainage of the area is marked in above map. The area measures 1.69 Ha. This is a vacant land as per the recent google imaginary.***"**

10. A report of the Karnataka Tank Conservation and Development Authority (KTCDA) has also been filed on the issue of protection of wetlands which merely mentions a proposal to check pollution at estimated cost of Rs. 3 crores.

11. We have duly considered the matter and heard learned Counsel for the State of Karnataka.

12. The report of the Chief Secretary and annexed documents, including the report of the service provider submitted to the KIADB show the details of the lake and extent of damage thereto. Relevant extracts therefrom are:-

"The Chandapura lake in Anekal, is located around 25 KM from Bengaluru. ***It was built during the Chola dynasty to meet the drinking water requirement and other domestic water requirements of the local villagers like bathing, cloth/ animal washing, etc. The Chandapura lake is situated in east side of Bommasandra industrial area. The Chandapura lake is spread over 7.2 acres in Heelalige village and 17.27 acres in Chandapura town. Out of the total 24.27 acres, nearly two acres of the lake in Chandapura town has been encroached by construction activities****. The GPS coordinates of Chandapura lake is 12.805571° N and 77.705281°E.*

Earlier, this lake has played an important role in the supply of drinking water and in meeting domestic and agricultural needs of

the Region, apart from maintaining micro temperature control around the area. ***Besides recharging groundwater, lake has also been home to many animals, birds, aquatic species and prevented flooding.***

xxx ……xxx……xxx

One of the major pollutants of the lakes in the region has been the mushrooming of Red Category industries (industries having pollution index score of 60 and above) in the Jigani-Bommasandra industrial area and discharge of effluents into lakes 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 lakes.

However, untreated effluents from industries continuously enter stormwater drains and flow into the lakes of Anekal. There are around 195 red category industries in the Jigani-Bommasandra area which include drug manufacturing companies, electroplating, powder coating, pickling, heat treatment, galvanizing, casting, lead-acid battery manufacturing, used oil reprocessing, lead smelting and chemical industries.

xxx ……xxx……xxx

Out of the total 24.27 acres, nearly ***two acres of the lake in Chandapura town has been encroached by construction activities. The buffer zone of the lake has been encroached by a government hospital and local shops. The fence around the lake has been broken and garbage is littered on its boundaries****.*

There are numerous water tanker lorries supplying water directly from bore wells next to the lake to consumers in Bengaluru for domestic needs. ***There are water packaging industries in Bommasandra that 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 area****.*

As per the records of KSPCB, ***206 industries out of 543 industries (129/385 in Jigani-Bommasandra Phase- IV industrial Estate 85 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 85 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.***

It can be observed that increase in the built up area to a tune of 24.82% itself has made significant impact on the quality and extent

of water bodies in the region. ***If the present vegetation/agricultural land which is available to an extant of 39.95% and open land/agricultural land which is available to an extant of 33.69 % is converted in to an built up area, then the environmental impact which is going to cause to the surrounding area cannot be measured.***

Some of other major lakes which are situated near Chandapura lake are given in Table 1:

Table-1: Some of major lakes near Chandapura Lake

S. No	Name of Lake	Latitude (N)	Longitude (E)	Distance from Chandapura Lake
1.	HebbagodiKere	12.830757°	77.674474°	4.34 km, NW
2.	KithiganahalliAttikere	12.808490°	77.689945°	1.34 km, W
3.	Kachanayakanahalli	12.802293°	77.676702°	2.64 km, SW
4.	Hennagara	12.777382°	77.661321°	3.84 km, SSW
5.	Muthanallur	12.818549°	77.725574°	1 km, NNE
6.	Jigala	12.799858°	77.773401°	6.45 km, E

From the above layout map, it can be observed that ***around 5 water bodies are present on the downstream of industrial area and mostly have cascading effects. Any change in the land use/ land cover on the upstream industrial area has serious impact on the downstream water bodies. Hence it is necessary to examine all the issues before changing the land use of the area."***

13. From the study report prepared at the instance of the State of Karnataka, it is patent that huge damage has been caused to the lake in question. Such damage is clearly attributable to inaction or complicity of the authorities of the State of Karnataka. There are illegal encroachments and construction activities, unchecked violations of environmental norms by the industries, failure to protect and regulate buffer zones and catchment areas of the lake and to control pollution. Water quality of the lake has deteriorated. Though the Chief Secretary has issued directions, there is no meaningful compliance in the form of restoration of the damage already caused. No accountability has been fixed for the violations which have already taken place nor compensation is shown to have been

recovered from the polluting industries. Sources of pollution are not shown to have been closed. The result is continuing damage to the environment and public health. This is clear breach of 'Public Trust Doctrine' for which the State has to be held accountable. The State has failed to protect environment and provide clean environment to citizens in breach of its to enforce right to life and 'Sustainable Development' principle. Lake ecology and eco-system have hugely suffered. The State is thus, to be held liable to pay environmental compensation and to restore the eco system. Needless to say, the State is free to recover the amount of compensation which it is being required to pay from erring violators – industries, encroachers and erring officers, following due process of law.

14. In terms of direction of the Hon'ble Supreme Court in *M.K. Balakrishnan & Ors. vs. Union of India & Ors. (2017) 7 SCC 805, Para 23*, the Wetland Rules apply not merely to notified wetlands but also to all wetlands. Some wetlands have been mapped mentioned in the Atlas and the exercise is ongoing. In light of the said judgment, this Tribunal vide order dated 25.11.2021 in *O.A No. 351/2019, Raja Muzaffar Bhat vs. State of Jammu and Kashmir & Ors.* issued directions for conservation and protection of all wetlands and monitoring of compliance norms at the level of Districts by the District Magistrate, heading the District Wetland Committee, at the State Level by the State Wetland Authority and at the National Level by the National Wetland Committee by demarcation of the area, preventing/ removing encroachments, and maintaining of water quality by preventing discharge of sewage or other waste.

15. Having regard to significance of loss of environmental services of the lake which are foregone forever and continuing loss, compensation is required to be determined on principles laid down inter alia in MC Mehta,

(1987) 1 SCC 395, Sterlite (2013) 4 SCC 575 and Goel Ganga (2018) 18 SCC 257 for restoration based on estimated cost and financial turnover. In absence of precise data, quantum of compensation has to be fixed on estimate basis. We determine the amount of compensation at Rs. 500 crores for reasons to be stated in later part of this order. The amount may be deposited within one month and kept in ring-fenced account with the State PCB which will be the responsibility of the Chief Secretary, Karnataka. The amount may be utilized for restoration measures preferably within six months, as per directions and supervision of a Monitoring Committee. The same will be headed by Chairman, State Wetland Authority. Other members will be the Principal Secretary/ACS, Urban Development, nominees of Regional Office, MoEF&CC, Bangalore, Regional Director, CPCB, Bangalore, Member Secretary, State PCB, District Magistrate, KIADB, Karnataka Tank Conservation and Development Authority. The Chairman of the Committee may evolve mechanism for coordination and working. The Committee may meet within one month. It will be free to interact with the concerned departments or any other institutions/individuals/ stakeholders.

16. We may indicate the broad basis for fixing the quantum of compensation. Relevant data about the turnover in the industrial area is not forthcoming from counsel for the State except that the total industrial zone is in around 1002 hectare, with 195 red category industries and 148 orange category industries. Data of quantum of sewage discharged except has also not been furnished by the State except that it covers three local bodies. With available data, best judgement assessment is being made about the estimated cost of restoration measures even on a conservative approach. However, if the amount is not found to be adequate, the State will be liable to provide extra funds. If the amount is found to be surplus,

the same may be utilized by the State for restoration measures as per District Environment Plans of the concerned Districts. It is matter of common knowledge that there is general degradation of environment and much more proactive approach is expected from the State. Further, it is made clear that the quantum of compensation can be reconsidered if data is produced by the State within one month, justifying such reconsideration.

17. Restoration measures may include biological measures (such as plantation/afforestation of suitable trees, shrubs and grass in consultation with State Forest Department) and engineering measures (such as gabion structures, check dams, gully plugging at the mirco-watershed level to stabilize the catchment ecology, in-situ and ex-situ measures for upgrading the water quality of the lake at least to 'C' categories (as per categorization of water quality criteria by CPCB), rehabilitation of lake eco-system, maintaining bio-diversity of the lake by measures such as introduction of fishes of suitable species, maintenance of suitable oxygen level in the lake by steps such as artificial aeration, using eco-technology, demarcation of boundary as per Wetland Rules, 2017 and Wetland Conservation and Management Guidelines, 2020 issued by MoEF&CC and steps for removing encroachments and preventing any future encroachment.

18. An interim action taken report may be filed by 31.1.2023 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF.

19. The Chief Secretary, Karnataka may remain present in person by video conference on the next date.

List for further consideration on 22.2.2023.

A copy of this order be forwarded to Chairman, State Wetland Authority, Principal Secretary/ACS, Urban Development Department, Karnataka, Regional Office, MoEF&CC, Bangalore, Regional Director, CPCB, Bangalore, Member Secretary, State PCB, District Magistrate, KIADB and KTCDA by mail for compliance.

Adarsh Kumar Goel, CP

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Prof. A. Senthil Vel, EM

Dr. Afroz Ahmad, EM

October 10, 2022
Original Application No. 324/2021
SN + DV