

BEFORE THE NATIONAL GREEN TRIBUNAL, PRINCIPAL BENCH AT  
NEW DELHI

OA NO. 125/2017

IN THE MATTTTER OF:

COURT ON ITS OWN MOTION

...APPLICANT

VERSUS

STATE OF KARNATAKA & ORS.

...RESPONDENTS

**CONCISE SUBMISSIONS BY AMICUS CURAIE - RAJ PANJWANI,  
SENIOR ADVOCATE.**

1. (Sl. 1) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020
  - a. The previous Committee Report dated 31.05.2018 at Page 1498 gives the details of six STPs which were under construction. The said six STPs and their current status are as follows:

STPs Upstream of Bellandur

Name/Area	Capacity (MLD)	Status as per BWSSB compliance report dated 15.07.2020
K&C Valley (New)	150	STP in full inclusive of water line and sludge line will be completed by 31.03.2021
Sarakki	5	Completed & commissioned on 08.11.2019
Hulimavu	10	Completed & commissioned
Chikkabegur	5	Work will be completed by September,

		2020. However, “timeline for completion of the work will go beyond.”
Agara	35	Completed & commissioned.
Cubbon Park	2.5	No Information
<b>Total</b>	<b>207.5</b>	

STPs downstream of Bellandur and upstream of Varthur lakes

Name/Area	Capacity (MLD)	Status as per BWSSB compliance report dated 15.07.2020
Bellandur Amanikire	90	Augmentation of this STP by laying pipelines has not been completed. Balance work is expected to be completed by December, 2020.  and  Setting up of Waste Water wet well of 32.5 MLD capacity near this STP to augment sewage from adjoining areas of this STP shall be completed by 31.03.2021.

- b. Hon’ble Tribunal vide order dated 06.12.2018 accepted the Committee Report dated 31.05.2018. In para 26(ii) of order dated 06.12.2018 (at page 13) this Hon’ble Tribunal directed that the STPs be completed by 30.06.2019. The Hon’ble Tribunal further directed the State of Karnataka in para 26(xiii) (at page 14) to furnish a performance guarantee of Rs. 100 Crores, which guarantee was to be invoked in the event of failure to execute the action plan.

- c. Hon'ble Tribunal in its order dated 21.10.2019 in para 13 (at page 13) made serious observations against non-compliance of the directions and the timelines fixed. Consequently, the Hon'ble Tribunal directed the Senior Most Officials to be present before the Hon'ble Tribunal.
- d. Hon'ble Tribunal vide its order dated 18.12.2019 in para para 14 (at page 15) observed that the timelines fixed by this Tribunal have been unilaterally extended without any valid justification and no action has been taken against erring officials. The Hon'ble Tribunal further observed that the timelines *"must not go beyond 30.09.2020 but preferably be completed by 30.06.2020 although earlier timeline fixed by the Tribunal was 30.06.2019"*. Consequently, the Hon'ble Tribunal in para 28(i) directed as under:

*"i. Timelines for execution of projects for setting up of STPs and laying of sewerage network may not be extended beyond 30.09.2020. If the works remains incomplete even till 30.09.2020, compensation will be liable to be paid @ Rs. 10 lakh per STP per month which may be liable to recovered from the erring officers, apart from adverse entries in their service records and other adverse action."*

- e. Lastly, BWSSB in its Compliance Report dated 15.07.2020 has omitted to state the status of the *"Reuse of treated water from the STPs under construction"*, the details of which are mentioned on page 5 of the Monitoring Committee Report dated 06.03.2020.
- f. In view of the directions issued by the Hon'ble Tribunal, it is manifest that BWSSB has miserably failed to undertake the work earnestly and to adhere with the timelines fixed by the Hon'ble Tribunal. Consequently, the Hon'ble Tribunal may impose fines as described in para 28(i) of order dated 18.12.2019 (at page 20) and invoke the performance guarantee as observed in para no. 26(xiii) of order dated 06.12.2018 (at page 14), in the event, the sewage action plan is not completed by 30.09.2020, the time already granted by the Hon'ble Tribunal. Further direct if the identified works are not completed by 30.09.2020, the names & designations of officers responsible for such work be provided to the Hon'ble

Tribunal along with the details of action taken against such officers.

2. (Sl. 2) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. From the Monitoring Committee Report as well as the Compliance Report (dated 15.07.2020) filed by BWSSB, it is not clear about the steps initiated and work undertaken for removal of Biological Nutrient from the sewage and particularly in respect of 248 MLD STP at K&C Valley. BWSSB in its compliance report has stated that *"under the circumstances the timeline for completion of work will go beyond"*.
- b. In view of the above, the Hon'ble Tribunal be pleased to direct BWSSB to provide details of the the steps initiated and work undertaken for removal of Biological Nutrient from the sewage.

3. (Sl. 3) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. Hon'ble Tribunal had directed action to be taken against persons for discharge of treated water in the Underground Drainage Network (UGD), which was resulting in a loss of over Rs. 7 Crore per year, which was without any justification.
- b. As per the report of the Monitoring Committee (06.03.2020), admittedly 4.58 MLD of excess treated sewage is yet being discharged in the UGD Network, the corresponding loss for 4.58 MLD works out to Rupees 2.79 Crores per year.
- c. The Monitoring Committee report is silent about the action initiated for the past discharge of 11.462 MLD and the current continuing discharge of 4.58 MLD. It is therefore, submitted that at least the continuing Rupees 2.79 Crores per year which are being lost without justification, be recovered from BWSSB and the 109 Units which are generating excess treated sewage.
- d. The Report is also silent about the final utilization of the treated sewage water which is being discharged by 378

Units which are not connected to the BWSSB UGD Network. It can be presumed that all the excess treated sewage is being discharged into open drains, which presumably could reach one STP or the other.

4. (Sl. 4) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

a. As per the report of the Monitoring Committee, KSPCB had stated that there are 61 Units without STPs and Rs. 271.5 Crores are estimated to be recovered. However, no details have been furnished about the action initiated for the recovery of the said amount. Nor the stage of the proceedings for closure under Section 33A of the Water Act. It may be pointed out that KSPCB has not filed any affidavit of compliance before this Hon'ble Tribunal. Consequently, the Hon'ble Tribunal may direct KSPCB to file a comprehensive affidavit in respect of all the matters.

5. (Sl. 5) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

a. Regarding encroachments in Bellandur Lake, particulars of any action taken to get the interim order vacated which was passed by the High Court of Karnataka on 20.11.2019, has not been provided.

b. Regarding encroachments in Varthur Lake, the Monitoring Committee has referred to a report submitted by ADLR, Bengaluru, East Taluk. It is submitted that in the absence of any evidence contrary to what has been stated in the report of the Monitoring Committee, the Hon'ble Tribunal may accept the report of the ADLR.

6. (Sl. 6) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

a. The list of erring officers has been submitted. According to the Compliance Report of **BWSSB** notices have been issued and replies have been received, which have been found unsatisfactory and that a letter (dated 26.05.2020) has been sent to the government seeking approval for initiating disciplinary action. Regarding **BBMP**, the Compliance Report filed on 04.08.2020 is silent about the action initiated against the erring officials and regarding **BDA**, it

has not filed any compliance report before this Hon'ble Tribunal.

- b. It is submitted that ACS (UDD) of the state government has identified and submitted the list of the erring officers in BBMP, BWSSB and BDA, which list is mentioned in para 6 of the Monitoring Committee Report dated 06.03.2020 (at page 9). The Hon'ble Tribunal may direct the concerned authorities to expedite the process of contemplated disciplinary action including recovery of the loss caused to the Exchequer and the damages for destruction and restitution of environment.

7. (Sl. 7) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. Despite the direction of the Hon'ble Tribunal, KSPCB has not issued any order or direction to bring into force the recommendation of the BIS on the standards for phosphorus for use in soaps and detergents. The Hon'ble Tribunal may direct the KSPCB/State Government to issue an appropriate order/direction in this regard preferably within four weeks.

8. (Sl. 8) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

No comments.

9. (Sl. 9) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. Compensation of Rupees 19.85 Crores had to be recovered from 376 defaulting units. A sum of Rupees 75 lakhs has been recovered from 14 units.
- b. The Hon'ble Tribunal may direct the KSPCB to file a detailed action taken report along with copies of orders passed in this regard along with a summary of compensation recovered.

10. (Sl. 10) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. CPCB has conducted the test and prima facie there appears to be no rational basis to get conducted a fresh test in respect of the sludge & silt of the said lakes. Amicus has received a copy of the test report conducted by CPCB, which are annexed with the report as **Annexure A**.
- b. It is submitted that the disposal of sludge & silt has to be as directed by the Hon'ble Tribunal in accordance with the guidelines of Solid Waste Management Rules, 2016 and the Hazardous & Other Wastes (Management & Transboundary Movement) Rules, 2016. The State Government along with the concerned authorities should submit a proposal in this regard before the Monitoring Committee within a specified time frame for its approval.

11. (Sl. 11) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

No comments.

12. (Sl. 12) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. Apparently the said direction [para 28(xii) of order dated 18.12.2019] of this Hon'ble Tribunal has been misconstrued by BDA in as much as BDA is construing the direction to mean that the Bio-diversity parks are to be set-up within the lake boundaries. The said fact is clearly borne out in the proposal of the BDA which is mentioned in para 15 of the Monitoring Committee Report dated 06.03.2020 which states that "the area above 16.6 acres which falls outside the pipeline but within the outer lake boundary will not be available for water impounding. In para 12, the Monitoring Committee itself has observed that *"In such areas (bio-diversity parks), silt of appropriate quantity from the lakes may be used for raising the appropriate heights. The bio-diversity parks may be raised with the help of Expert Committee in the field"*.
- b. This proposal runs counter to the efforts & spirit of this Hon'ble Tribunal to protect & preserve the lake bodies.
- c. A bio-diversity park, if any is to be set-up, it can be along the periphery of the lake boundary including the 30 meter buffer zone.

13. (Sl. 13) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

No comments.

14. (Sl. 14) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

No comments.

15. (Sl. 15) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. It is admitted that laying of the pipeline by the Minor Irrigation Department was without authority of law and it is liable for fine. Secondly, no enquiry has been conducted till date to examine the guilt of the officers involved in the dumping of thousands of cubic meters of C&D Debris on the Varthur lake bed for an ostensible object of laying of pipeline.
- b. It is submitted that the Hon'ble Tribunal directs the Chief Secretary to initiate suitable enquiry for action according to law.

16. (Sl. 16) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. The Monitoring Committee (in last line of para 2 of Report dated 06.03.2020) has observed that “*the laying of “U” shaped drains construction is not convincing*”. BBMP in its report dated 04.08.2020 has stated that 389 Kms out of 842 Kms has been channelized by constructing retaining wall and another 325 Kms need construction.
- b. All such activities are being carried out are in contravention of the directions of this Hon'ble Tribunal in order dated 06.12.2018 at para 19(4) and reiterated in order dated 18.12.2019 at para 9(4).
- c. It is apprehended that the construction of retaining walls may be used to reduce the width of the rajakaluves which would have a direct bearing in the categorization of buffer zones (Please refer to Para 20(b) at page 9 of this note).

17. (Sl. 17) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. The Monitoring Committee Report and the Compliance Report filed by the BBMP dated 04.08.2020 failed to disclose the date of the notice under Section 308 of the Karnataka Municipal Corporation Act, 1976, which has been served upon the persons whose structures are found within 30 meter buffer zone of Bellandur & Varthur lake. No information has been provided about the steps initiated after service of notice. The Hon'ble Tribunal may direct BBMP to file a comprehensive action taken report in this regard along with copies of notices & replies received from the occupants of such structures.
- b. The Hon'ble Tribunal may grant time to the Monitoring Committee to verify the claim of BBMP in respect of removal of encroachments on SWDs.

18. (Sl. 18) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

No comments

19. (Sl. 19) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

No comments

20. (Sl. 20) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. The Hon'ble Tribunal had ordered that structures which have been constructed in the buffer zones of lakes & rajakaluves but are uninhabited shall not be occupied without the permission of the Hon'ble Tribunal. The Monitoring Committee Report as well as the affidavit of BBMP does not provide any information on this aspect.
- b. BBMP has observed that it is following the Buffer Zoning Regulations 2015 which is 30 meters for the lakes; and 50, 25 and 15 meters from the center of the primary, secondary and tertiary drains respectively. It is submitted that no details of any survey has been placed on record.

Lastly, the categorization and classification of the rajakaluves into primary, secondary and tertiary drain has yet not been undertaken. Consequently, the Hon'ble Tribunal may direct BBMP and the concerned authorities to survey and notify rajakaluves. Pending the survey and notification, in the meantime applying the precautionary principle, the Hon'ble Tribunal may order that the buffer zone of all kinds of rajakaluves shall be 50 meters from its center.

Note: A sample land use map of the Revised Master Plan, 2015, which clearly indicates that no such classification has been undertaken is annexed as **Annexure B**.

21.(Sl. 21) of Hon'ble Justice Santosh Hegde Committee Report dated 06.03.2020

- a. No information has been provided by the Monitoring Committee or by any concerned authority.

(RAJ PANJWANI)

DATE: 07.08.2020

1. Test Result: Sediment of Bellandur Lake

Sampling Location:	Bellandur Lake, Bengaluru
Nature of Sample:	Sediment Sample
Sampling Type:	Grab
Date of Sampling:	18.01.2020
Date of receipt:	11.02.2020
Date of Commencement & Completion of analysis:	11.02.2020 - 12.02.2020
Date of Report Issue:	12.02.2020

Sl No.	Metal (mg/kg)	Bellandur Lake near BWSSB pipe line service road Bengaluru			Near Y Junction next to the drain carrying sewage, Bellandur Lake Bengaluru			Kateramma Temple, Bellandur Lake, Bengaluru			Middle of the Bellandur Lake, Bengaluru			Bellandur Lake Near Kudr, Bengaluru			Standards	Reference Method
		1- Top	1A- Middle	1B- Bottom	2- Top	2A- Middle	2B- Bottom	3- Top	3A- Middle	3B- Bottom	4- Top	4A- Middle	4B- Bottom	5- Top	5A- Middle	5B- Bottom		
1	Copper	28	BDL	BDL	80	68	26	250	466	BDL	488	284	BDL	290	112	BDL	300	APHA 1120-B 2nd Edition 2017
2	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5	
3	Total Chromium	30	BDL	BDL	46	22	BDL	104	272	46	196	80	BDL	132	118	74	50	
4	Iron	11688	20488	22808	19312	11808	8244	23208	27688	27198	36488	24208	3166	25488	23688	62788	50	
5	Manganese	84	124	112	110	96	58	144	280	230	212	234	BDL	174	314	226	50	
6	Nickel	BDL	BDL	BDL	BDL	BDL	BDL	BDL	86	BDL	58	BDL	BDL	76	72	28	100	
7	Lead	BDL	BDL	BDL	38	BDL	BDL	88	34	BDL	92	30	BDL	48	78	831	1000	
8	Zinc	130	32	BDL	242	126	72	640	1418	BDL	1570	666	BDL	908	790	68	1000	
9	Colour																	Brown to Black
10	Odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	absence of foul odour
11	Total organic carbon (% by wt minima)	3.36	3.12	1.27	7.68	4.92	3.18	19.12	9.87	5.38	46.3	13.51	3.82	22.13	19.13	0.92	18	
12	Total nitrogen (as N) % by wt minima	0.07	0.11	0.13	0.44	0.14	0.15	0.21	0.25	0.22	0.19	0.38	0.42	2	1.41	0.49	1	
12	Total phosphorus (as P <sub>2</sub> O <sub>5</sub> ) % by wt minima	0.13	0.01	0.02	0.3	0.19	0.18	0.7	0.56	0.11	0.44	0.51	0.64	0.28	0.57	0.14	0.5	
14	Total potash (as K <sub>2</sub> O) % by wt minima	0.09	0.16	0.12	0.15	0.1	0.12	0.21	0.2	0.07	0.26	0.25	0.1	0.21	0.29	0.09	0.5	
15	C:N Ratio	57:01:00	36:01:00	18:01	16:01	36:01:00	21:01	91:01:00	39:01:00	24:01:00	349:01:00	36:01:00	09:01	11:01	14:01	02:01	<20	

## 2. Test Result: Sediment of Varthur Lake

Sampling Location:	Varthur Lake, Bengaluru
Nature of Sample:	Sediment Sample
Sampling Type:	Grab
Date of Sampling	18.01.2020
Date of receipt	11.02.2020
Date of Commencement & Completion of analysis	11.02.2020 - 12.02.2020
Date of Report issue:	12.02.2020

Sl No.	Metal (mg/kg)	Sample 1		Sample 2		Sample 3		Sample 4			Blank	Standard	Reference Method
		1- Top Soil, Varthur Lake	1a- Below Ground level (2feet), Varthur Lake	2- Top Varthur Lake	2a- Below Ground level (2feet), Varthur Lake	3- Top Varthur Lake	3a- Below Ground level (2feet), Varthur Lake	4- Top Varthur Lake	4a- Below Ground level (2feet), Varthur Lake	4b- Below Ground Level (5feet), Varthur Lake			
1	Copper	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	100	APHA 3120-B 23rd Edition 2017
2	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	5	
3	Total Chromium	26	BDL	54	38	44	38	BDL	63	BDL	BDL	50	
4	Iron	17726	19214	44860	30180	29420	29720	8814	34800	6400	517	500	
5	Manganese	48	226	99	192	154	200	40	366	52	BDL	50	
6	Nickel	BDL	BDL	20	BDL	BDL	BDL	BDL	BDL	BDL	BDL	100	
7	Lead	BDL	80	BDL	56	BDL	BDL	BDL	264	BDL	BDL	1000	
8	Zinc	52	90	BDL	24	68	28	42	48	BDL	BDL	1000	
9	Colour												Brown to Black
10	Odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour	No foul odour		Absence of foul odour
11	Total organic carbon (% by wt maximum)	13.87	46.3	19.12	13.51	9.08	27.45	34.7	29.12	19.27		18	
12	Total nitrogen as N (% by wt maximum)	1.28	0.76	1.61	0.69	0.57	0.79	0.89	0.29	0.66		4.8	
13	Total phosphorus as P2O5 (% by wt Max)	0.1	0.15	0.17	0.1	0.21	0.25	0.19	0.01	0.04		8.8	
14	Total potassium as K2O (% by wt maximum)	0.37	0.37	0.3	0.31	0.2	0.19	0.15	0.39	0.09		<20	
15	C:N Ratio	11:01	6:01:00	12:01	20:01	16:01	35:01:00	39:01:00	100:01:00	29:01:00			

Note: Serial no 1-8 have been analysed by cpcb lab and the balance by horticulture dept



Recognised under E(P) Act, 1986  
(Legal 42(1)/87, dated 6<sup>th</sup> March, 2017)

REGIONAL LABORATORY  
CENTRAL POLLUTION CONTROL BOARD  
(Ministry of Environment, Forest & Climate Change)  
REGIONAL DIRECTORATE (SOUTH), BENGALURU



TC 7739

CPCB/RLB/AR/4.4/w/ File/33/19.20/1714

13/2/20

TEST REPORT

Name of customer: Dr.M.Madhusudanan, Sci I CPCB, Bengaluru.	Sampling location: Bellandur Lake, Bengaluru
Nature of sample: Sediment sample	Sampling type: Grab
Date of sampling: 18.01.2020	Date of receipt: 11.02.2020.
Date of commencement and completion of analysis: 11.02.2020 - 12.02.2020	Date of report issue: 12.02.2020
Code no. of sample: WW/02/2020/454-459	Req. slip no. / Date: 90/W,11.02.2020
No. of pages: 01/06	Report issue no.: HM/02/90/2020
Remarks:	

S.No.	Sampling Point →  ↓ Metal, mg/kg	Bellandur lake Near BWSSB pipeline service road, Bengaluru.			Near Y-Junction next to the drain carrying sewage, Bellandur lake, Bengaluru.			Detection limit	Reference Method
		1- Top	1A- Middle	1B- Bottom	2- Top	2A- Middle	2B- Bottom		
1	Copper	28	BDL	BDL	80	68	26	0.1	APHA 3120-B 23 <sup>rd</sup> Edition 2017
2	Cadmium	BDL	BDL	BDL	BDL	BDL	BDL	0.1	
3	Total chromium	20	BDL	BDL	46	22	BDL	0.1	
4	Iron	11688	20480	22800	19312	11806	8244	0.1	
5	Manganese	94	124	112	110	96	58	0.1	
6	Nickel	BDL	BDL	BDL	BDL	BDL	BDL	0.1	
7	Lead	BDL	BDL	BDL	38	BDL	BDL	0.1	
8	Zinc	130	32	BDL	242	126	72	0.1	

S. Karthikeyan  
Authorised Signatory  
(S.Karthikeyan)  
Scientist 'C'

- The report shall not be reproduced, except in full, without the written approval of the Laboratory.
- Compliance/non-compliance opinion not sought by customer
- Samples will be stored for a period of 15 days from the date of issue of test report.
- Parameters marked \* are not under NABL scope
- The above results pertain only to sample tested

Regional Directorate (South), Niranga Bhawan, A Block, 1<sup>st</sup> & 2<sup>nd</sup> floors, Thimmiah Road, 7<sup>th</sup> Dmain, Shivamogga,  
Bengaluru - 560079

(Telephone: 080-23233739, 23227539; FAX: 080-23234059) E-Mail: rpcbso@yantra.com, zebangalore.cpcb@nic.in



Recognised under E(P) Act, 1986  
(Legal 42(1)/87, dated 6<sup>th</sup> March, 2017)

REGIONAL LABORATORY  
CENTRAL POLLUTION CONTROL BOARD  
(Ministry of Environment, Forest & Climate Change)  
REGIONAL DIRECTORATE (SOUTH), BENGALURU

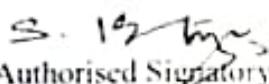


IC 7739

## TEST REPORT

Name of customer: Dr. M. Madhusudanan, Sci I CPCB, Bengaluru.	Sampling location: Varthur lake, Bengaluru
Nature of sample: Lake sediment sample	Sampling type: Grab
Date of sampling: 18.01.2020	Date of receipt: 11.02.2020.
Date of commencement and completion of analysis: 11.02.2020 - 12.02.2020	Date of report issue: 12.02.2020
Code no. of sample: WW/02/2020-469-472	Req. slip no. / Date: 90/W,11.02.2020
No. of pages: 04/06	Report issue no.: HM/02/90/2020
Remarks:	

Sl No.	Sampling Point → Metal, mg/kg	Sample No 1		Sample No 2		Detection limit	Reference Method
		1 Top Soil Varthur Lake	1a Below ground level (2 feet) Varthur Lake	2 Top Soil Varthur Lake	2a Below ground level (2 feet) Varthur Lake		
1	Copper	BDL	BDL	BDL	BDL	0.1	APIHA 3120-B 23 <sup>rd</sup> Edition 2017
2	Cadmium	BDL	BDL	BDL	BDL	0.1	
3	Total chromium	26	BDL	54	38	0.1	
4	Iron	17726	19214	44460	30180	0.1	
5	Manganese	48	226	98	192	0.1	
6	Nickel	BDL	BDL	20	BDL	0.1	
7	Lead	BDL	80	BDL	56	0.1	
8	Zinc	52	90	BDL	24	0.1	

  
Authorised Signatory  
(S.Karthikeyan)  
Scientist 'C'

- The report shall not be reproduced, except in full, without the written approval of the laboratory.
- Compliance/non-compliance opinion not sought by customer
- Samples will be stored for a period of 15 days from the date of issue of test report
- Parameters marked \* are not under NABL scope
- The above results pertain only to sample tested



REGIONAL LABORATORY  
CENTRAL POLLUTION CONTROL BOARD  
(Ministry of Environment, Forest & Climate Change)  
REGIONAL DIRECTORATE (SOUTH), BENGALURU



Recognised under (P) Act, 1986  
(Legal 42(3)/87, dated 6<sup>th</sup> March, 2017)

TC 7738

## TEST REPORT

Name of customer: Dr.M.Madhusudanan, Sci F CPCB, Bengaluru.	Sampling location: Bellandur Lake, Bengaluru
Nature of sample: Lake sediment sample	Sampling type: Grab
Date of sampling: 18.01.2020	Date of receipt: 11.02.2020.
Date of commencement and completion of analysis: 11.02.2020 - 12.02.2020	Date of report issue: 12.02.2020
Code no. of sample: WW/02/2020/466 - 468	Req. slip no. / Date: 90/W,11.02.2020
No. of pages: 03/06	Report issue no.: HM/02/90/2020
Remarks:	

S.No.	Sampling point → Metal, mg/kg	Bellandur Lake Near Kodi, Bellandur lake, Bengaluru.			Detection limit	Reference Method
		5- Top	5A- Middle	5B - Bottom		
1	Copper	290	312	BDL	0.1	APIA 3120-B 23 <sup>rd</sup> Edition 2017
2	Cadmium	BDL	BDL	BDL	0.1	
3	Total chromium	132	118	74	0.1	
4	Iron	25460	23680	62780	0.1	
5	Manganese	174	314	226	0.1	
6	Nickel	56	72	28	0.1	
7	Lead	48	78	BDL	0.1	
8	Zinc	908	790	68	0.1	

S. S. Karthikayan  
Authorised Signatory  
(S.Karthikayan)  
Signature:

- The report shall not be reproduced, except in full, without the written approval of the laboratory.
- Compliance/non-compliance opinion not sought by customer
- Samples will be stored for a period of 15 days from the date of issue of test report
- Parameters marked \* are not under NABL scope
- The above results pertain only to sample tested

Regional Directorate (South), Nisarga Bhawan, A Block, 1<sup>st</sup> & 2<sup>nd</sup> floors, Thimmiah Road, 7<sup>th</sup> D main, Shivanagar,  
Bengaluru - 560079

(Telephone: 080-23233739, 23222539, FAX: 080-23234059) (E-Mail: cpcbso@yahoo.com, tobangalore.cpcb@nic.in)



Recognised under E(P) Act, 1986  
(Legal 42(3)/87, dated 6<sup>th</sup> March, 2017)

TC 7739

## TEST REPORT

Name of customer: Dr. M. Madhusudanan, Sci E CPCB, Bengaluru.	Sampling location: Varthur lake .Bengaluru
Nature of sample: Lake sediment sample	Sampling type: Grab
Date of sampling: 18.01.2020	Date of receipt: 11.02.2020.
Date of commencement and completion of analysis: 11.02.2020 - 12.02.2020	Date of report issue: 12.02.2020
Code no. of sample: WW/02/2020/473 - 476	Req. slip no. / Date: 90/W.11.02.2020
No. of pages: 05/06	Report issue no.: IIM/02/90/2020
Remarks:	

Sl No.	Sampling point → ↓ Metal, mg/kg	Sample No 3		Sample No 4		Detection limit	Reference Method
		3 Top Soil Varthur Lake	3a Below ground level (2 feet) Varthur Lake	4 Top Soil Varthur Lake	4a Below ground level (2 feet) Varthur Lake		
1	Copper	BDL	BDL	BDL	BDL	0.1	APHA 3120-B 23 <sup>rd</sup> Edition 2017
2	Cadmium	BDL	BDL	BDL	BDL	0.1	
3	Total chromium	44	38	BDL	62	0.1	
4	Iron	29420	29720	8814	34460	0.1	
5	Manganese	154	200	40	866	0.1	
6	Nickel	BDL	BDL	BDL	BDL	0.1	
7	Lead	BDL	BDL	BDL	264	0.1	
8	Zinc	68	28	42	48	0.1	

*S. Karthikeyan*  
Authorised Signatory  
(S.Karthikeyan)  
Scientist 'C'

- The report shall not be reproduced, except in full, without the written approval of the laboratory.
- Compliance/non-compliance opinion not sought by customer
- Samples will be stored for a period of 15 days from the date of issue of test report.
- Parameters marked \* are not under NABL scope.

cpcb

Recognised under E(P) Act, 1986  
(Legal 42(3)/87, dated 6<sup>th</sup> March, 2017)

REGIONAL LABORATORY  
CENTRAL POLLUTION CONTROL BOARD  
(Ministry of Environment, Forest & Climate Change)  
REGIONAL DIRECTORATE (SOUTH), BENGALURU



TC 7799

## TEST REPORT

Name of customer: Dr. M. Madhusudanan, Sci E CPCB, Bengaluru.	Sampling location: Varthur lake .Bengaluru
Nature of sample: Lake sediment sample	Sampling type: Grab
Date of sampling: 18.01.2020	Date of receipt: 11.02.2020.
Date of commencement and completion of analysis: 11.02.2020 - 12.02.2020	Date of report issue: 12.02.2020
Code no. of sample: WW/02/2020/477 - 478	Req. slip no. / Date: 90/W.11.02.2020
No. of pages: 06/06	Report issue no.: HM/02/90/2020
Remarks:	

S.No.	Metal, mg/kg ↓	Sampling point →	Sample No 4	Blank	Detection limit	Reference Method
			4b Below ground level (5 feet) Varthur Lake			
1	Copper		BDL	BDL	0.1	APHA 3120-B 23 <sup>rd</sup> Edition 2017
2	Cadmium		BDL	BDL	0.1	
3	Total chromium		BDL	BDL	0.1	
4	Iron		6440	512	0.1	
5	Manganese		52	BDL	0.1	
6	Nickel		BDL	BDL	0.1	
7	Lead		BDL	BDL	0.1	
8	Zinc		BDL	BDL	0.1	

*S. Karthikeyan*  
Authorised Signatory  
(S.Karthikeyan)  
Scientist 'C'

- The report shall not be reproduced, except in full, without the written approval of the laboratory.
- Compliance/non-compliance opinion not sought by customer
- Samples will be stored for a period of 15 days from the date of issue of test report.
- Parameters marked \* are not under NABL scope.
- The above results pertain only to sample tested



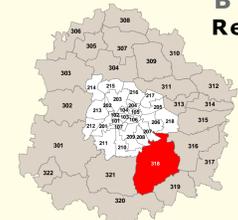
## TEST REPORT

Name of customer: Dr.M.Madhusudan, Sci E CPCB, Bengaluru.	Sampling location: Bellandur Lake, Bengaluru
Nature of sample: Lake sediment sample	Sampling type: Grab
Date of sampling: 18.01.2020	Date of receipt: 11.02.2020.
Date of commencement and completion of analysis: 11.02.2020 - 12.02.2020	Date of report issue: 12.02.2020
Code no. of sample: WW/02/2020/460-465	Req. slip no. / Date: 90/W,11.02.2020
No. of pages: 02/06	Report issue no.: HM/02/90/2020
Remarks:	

S.No.	Sampling Point → Metal, mg/kg	Kateramma temple, Bellandur lake, Bengaluru			Middle of the Bellandur Lake, Bengaluru.			Detection limit	Reference Method
		3- Top	3A- Middle	3B- Bottom	4- Top	4A- Middle	4B- Bottom		
1	Copper	250	466	BDL	688	286	BDL	0.1	APIHA 3120-B 23 <sup>rd</sup> Edition 2017
2	Cadmium	BDL	BDL	BDL	80	BDL	BDL	0.1	
3	Total chromium	104	272	46	196	80	BDL	0.1	
4	Iron	23208	27588	27100	35480	24200	3166	0.1	
5	Manganese	144	286	230	212	234	BDL	0.1	
6	Nickel	BDL	86	BDL	58	BDL	BDL	0.1	
7	Lead	88	34	BDL	92	30	BDL	0.1	
8	Zinc	640	1410	BDL	1576	666	BDL	0.1	

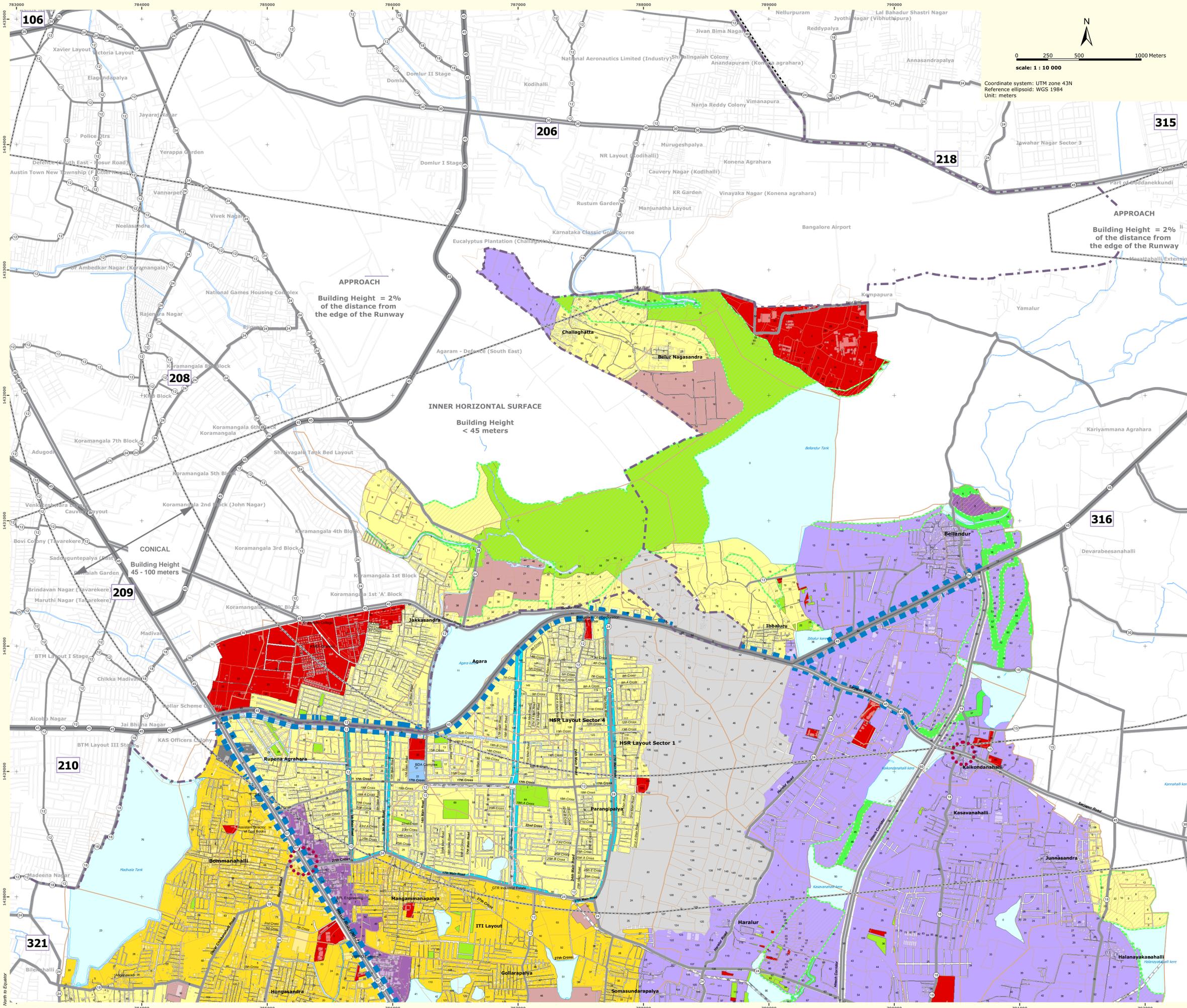
S. 15  
Authorised Signatory  
(S.Karthikoyan)  
Sd/-

- The report shall not be reproduced, except in full, without the written approval of the laboratory
- Compliance/non-compliance opinion not sought by customer
- Samples will be stored for a period of 15 days from the date of issue of test report
- Parameters marked \* are not under NABL scope
- The above results pertain only to sample tested



scale: 1 : 10 000

Coordinate system: UTM zone 43N  
Reference ellipsoid: WGS 1984  
Unit: meters



**ZONING CLASSIFICATION**

- MAIN ZONES**
- Residential**
    - Residential (Mixed)
    - Residential (Main)
  - Commercial**
    - Commercial (Central)
    - Commercial (Business)
    - Mutation Corridor
    - Commercial Axes
  - Industrial**
    - Industrial
    - High Tech
  - Public and Semi-public**
    - Public / Semi-public
  - Green (Parks and Open spaces)**
    - State forest
    - Valley
    - Lake / tank
    - Parks and Green Spaces, Sport / Playgrounds, Cemeteries / Burial grounds
  - Traffic and Transportation**
    - Road / Rail / Airport
    - Transport
  - Public Utilities**
    - Power / Water / Garbage Facility / Treatment Plant
  - Agricultural land**
    -
  - Unclassified use**
    -
- Planning Perimeters**
- Town Planning Scheme (TPS)
  - Coordinated Planning Scheme (CPS)
  - Area Improvement Perimeter
  - Transport and Utilities Perimeter
  - Heritage Conservation zone
- CONSTRAINT AREA**
- Non buildable: High Tension Line (HTL)
  - Pipeline: Oil / Water
  - Airport/Heights restrictions
- OTHER INFORMATION**
- Proposed roads hierarchy**
- Ring road
  - Primary Urban road
  - Major Urban road
  - Minor Urban road
  - Proposed width of roads (in meters)
  - Railway line
  - Metro Alignment
- Boundaries**
- BDA LPA
  - BMP Bangalore Mahanagara Palike
  - LPA of BHCAPA
  - Village
  - Survey number
- Hydrography**
- Drain
  - Sensitive Area

**Proposed Land Use Analysis**

Description	Area in Ha.	%
Residential (Main)	1671.74	27.32
Residential (Mixed)	726.45	11.87
Commercial (Central)	-	-
Commercial (Business)	2.22	0.04
Mutation Corridor	91.02	1.49
Commercial Axes	29.59	0.48
Industrial	224.25	3.66
High Tech	1407.93	23.01
Public and Semi-public	191.66	3.13
Green (Parks & Open Spaces)	709.78	11.60
Traffic and Transportation	658.23	10.76
Public Utilities	127.23	2.08
Unclassified	278.93	4.56
<b>Total</b>	<b>6119.03</b>	<b>100.00</b>



BANGALORE DEVELOPMENT AUTHORITY

Town Planner Member  
BDA

Commissioner  
BDA

Chairman  
BDA

(space for Govt approval)