BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL (SOUTHERN ZONE)

CHENNAI

ORIGINAL APPLICATION NO. 111 OF 2020

IN THE MATTER OF

Tribunal on its own motion, a SUO MOTO ... APPLICANT(S)

VERSUS

The Principal Secretary to Government, ...RESPONDENTS

Public Works Department, Chennai & Ors.

INDEX

S. Suresh 20/11/2020

S. SURESH
REGIONAL DIRECTOR
CENTRAL POLLUTION CONTROL BOARD
REGIONAL DIRECTORATE (SOUTH)
MIN. OF ENV, FORESTS & CC, GOVT. OF INDIA
BENGALURU - 560 079. MOB : 9480672128

Contd/...

Place: Bengaluru

Date: 20.11.2020

DEPONENT

S. Suresh 20/11/2020

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REGIONAL DIRECTORATE (SOUTH)
MIN. OF ENV, FORESTS & CC, GOVT. OF INDIA
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REPORT OF JOINT COMMITTEE ON–
"FROTHING OF CHEMICAL FOAM IN RIVER THENPENNAI"

in Compliance to
Directions of the Hon'ble Tribunal (SZ), Chennai
(in the matter of O. A. No. 111/2020)

November, 2020

CENTRAL POLLUTION CONTROL BOARD
Ministry of Environment, Forest and Climate Change
Govt. of India

Regional Directorate (South) : "Nisarga Bhawan", A-Block, 1st & 2nd Floors, Thimmaiah Road, 7th D Main, Shivanagar, Bengaluru – 560 079

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CHAPTER – 1

BACKGROUND

Hon'ble National Green Tribunal, Southern Zone, Chennai in the matter of O.A No. 111 of 2020; Tribunal on its own motion based on the News Item in Tamil Newspaper Dinamalar Chennai Edition dated 13.07.2020, "Frothing of Chemical Foam in the River Thenpennai" Vs The Principal Secretary to Government, Public Works Department, Chennai & Ors., passed orders dated 20.07.2020. Copy of Hon'ble NGT Orders dated 20/07/2020 is appended as ***Annexure I***.

Excerpts of the News Item in Tamil Newspaper Dinamalar Chennai Edition dated 13.07.2020, "Frothing of Chemical Foam in the River Thenpennai" is given below:

(i) On 13th July, 2020 about 640 Cusecs water was discharged from Kelavarapalli Reservoir, Hosur and huge amount of chemical foam was found in Thenpennai River.

(ii) The flow of water into the reservoir increased gradually from 320 cusecs (09th July, 2020) to 480 cusecs (11th July, 2020) due to heavy rainfall in the catchment area.

(iii) In general, whenever the flow of water increases in Kelavarapalli reservoir the domestic sewage and industrial effluent from Karnataka mixes into the river in huge quantity.

(iv) On the day of 13th July, 2020, a huge quantity of sewage/effluent were discharged into Thenpennai and therefore, chemical froth/foam were found floating on the surface of water flowing in Kelavarapalli and near thattakalapalli bridge.

Hon'ble Tribunal (SZ), Chennai vide its orders dated 20.07.2020 appointed a Joint Committee to inspect the area in question and submit status as well as action taken report, if there is any violation found. The Hon'ble Tribunal has also issued following directions to the committee;

(i) To ascertain the water quality and also ascertain the sources of pollution and take action against the person who are responsible in accordance with law including imposing of environmental compensation.

(ii) To submit a long term and short term action plan with shorter time lines to protect the water body against pollution. If there is any contamination caused, the committee is also directed to suggest ways and means to remedy the same.

Hon'ble Tribunal vide aforesaid orders directed the committee to submit the report within a period of two months i.e., on or before 05.10.2020.

The Joint Committee submitted interim report on 01.10.2020 and informed the Hon'ble NGT that the report of the joint committee requires six

weeks time and the report would be submitted after incorporating the analysis results of samples collected in River Thenpennai alongwith action plan. In this regard, Hon'ble NGT accepted the interim report and vide order dated 05.10.2020 directed that, *"... some more time can be given to the committee to submit the report as directed by this Tribunal...*

The Committee is directed to submit the report on or before 26.11.2020..."

Copy of the Hon'ble NGT Order dated 05.10.2020 is appended as ***Annexure II***.

CHAPTER – 2

CONSTITUTION OF JOINT COMMITTEE AND MEETINGS

In compliance to the aforesaid orders dated 20/07/2020 of Hon'ble Tribunal (SZ), Chennai, a Joint Committee comprising of following members has been constituted by Central Pollution Control Board (Nodal Agency) vide its Office Memorandum No. Tech 39/Legal(NGT)/RDS/2020-21/466-474 dated 24.08.2020 and 16.09.2020. Copy of the said Office Memorandum is appended as ***Annexure III & IV***.

1.	Sh. Gunasekaran Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division, Tamilnadu	Member
2.	Sh. N Suresh Superintending Engineer, WRO Public Works Department Tiruvannamalai, Tamilnadu	Member
3.	Sh B H Manjunath* Superintending Engineer Public Works Department Bangalore Circle, Karnataka	Member
4.	Sh. N Nagaraj Superintending Engineer Minor Irrigation & Ground Water Development Circle, Jayanagar Bangalore, Karnataka	Member
5.	Dr M Senthil Kumar District Environmental Engineer Tamilnadu Pollution Control Board Hosur District, Tamilnadu	Member
6.	Sh. M K Prabhudev Chief Environmental Officer – 2 Karnataka Pollution Control Board Bangalore, Karnataka	Member
7.	Sh Shivanna M G Assistant Commissioner (South) Bangalore Urban Karnataka	Member
8.	Smt. Selvi P K Scientist D, Regional Directorate Central Pollution Control Board Bangalore	Nodal Officer & Member

**Subsequent to transfer of Sh. K Durugappa, Superintending Engineer vide Government of Karnataka Order dated 28-08-2020, Sh B H Manjunath, Superintending Engineer, PWD, Bangalore has been nominated as a member of the above Joint Committee.*

Three meetings were organized by Central Pollution Control Board, Bangalore (Nodal Agency) with the members of Joint Committee on 20.08.2020, 04.09.2020 and 18.09.2020 and minutes were circulated for necessary actions. First and Second Meeting of the Joint Committee were conducted on 20.08.2020 & 04.09.2020 to discuss about the preliminary information to be collected before conducting Monitoring and Sampling of River Thenpennai. Therefore, the joint committee decided to collate following information from the concerned departments to carry out further investigations in the matter;

S.No	**Information Required from concerned Departments / Organisations in Tamilnadu and Karnataka**
A.	**Minor irrigation and Water Resources Organisations**
1.	Drainage River Map of Thenpennai.
2.	Details of Water Quality Monitoring locations (viz., drainage (flow), length, velocity etc.) in the entire stretch of river from origin till Kelavarapalli Reservoir.
3.	Designated use of water flowing in the river stretch
4.	Quantity of water discharged from the river stretch for irrigation and other purposes.
5.	Annual Rainfall and Rainfall details for August, September, October 2020
6.	Custodian of the river to preserve the quality of water to be pristine.
B.	**State Pollution Control Boards**
7.	Details of Water Quality Monitoring Locations and water quality data of the River in terms of DO, BOD, COD, TC, phosphates & others for the last three years.
8.	Major Sources of pollution (industrial and domestic) – (a) Status of list of industries with its type/category/classification, Effluent generation, characteristics, treatment, discharge details etc. (b) Details of domestic effluent generation, treatment, discharge options etc. (c) Status of Operation of Sewage Treatment Plants with its performance evaluation. (d) Information regarding open dumping of solid or biomedical or hazardous waste, open burning of waste and illegal encroachment or other activities along the river bed etc.
C.	**Public Works Department**
9.	Status of sewage discharge and sewerage networking plan in the unsewered area.
10.	About Kelavarapalli dam and designated use of dam water.

Subsequently, it was discussed and decided to collect the following information from Bangalore Water Supply and Sewerage Board (BWSSB), Bangalore Development Authority (BDA) and Bangalore Bruhat Mahanagara Palike (BBMP) in the second meeting of the Joint Committee conducted on 04.09.2020;

(a) Status of Sewage Treatment Plants (STPs) (existing & operational, under construction and proposed) in Koramangala & Challaghatta Valley and Hebbal Valley
(b) Drainage map / layout showing locations of STPs with capacity and sewerage networking in those valleys
(c) Details of flow of domestic sewage measured at inlet and outlet (after treatment) of each of the STPs
(d) Performance of STPs based on its operational capacity, Waste water generated vs actual quantity treated, gap analysis and treated waste water quality (w.r.t discharge standards of STP) in Real Time Monitoring stations installed etc.
(e) Quantum of untreated sewage flowing in Koramangala & Challaghatta and Hebbal valley with its proposed Underground Drainage network plan and others
(g) Details of plan for diversion of treated wastewater to Kolar, Chikaballapur and other districts of Karnataka
(h) Details of Rejuvenation of lakes and water bodies in Bengaluru etc.

Third meeting of the Joint Committee was conducted on 18.09.2020 to discuss and review the status of Action taken on the defaulters followed by Action Plan for compliance etc.

Subsequent to the orders of the Hon'ble NGT dated 05.10.2020, two meetings were organized with the state functionaries of Karnataka (BWSSB and KSPCB) on 08.10.2020 and 22.10.2020 to discuss & collate the information about the details of industries located in Karnataka near the River basin of Thenpennai and status of STPs located in Koramangla & Challaghatta and Hebbal Valley.

CHAPTER 3

ABOUT RIVER THENPENNAI

Thenpennai River also known as South Pennar or Dakshina Pinakini is an interstate River. The River originates on the south eastern slopes of Chennakesava Hills, northwest of Nandidurg of Chikaballapur district in Karnataka State at an altitude of 1000m above mean sea level, which flows in the southern direction through Chikkaballapura, Bengaluru Rural and Bengaluru Urban districts in Karnataka state and descends to Tamilnadu near Hosur.

Thenpennai river basin is one of the largest rivers of the state of Tamil Nadu. The river has supported many a civilizations of peninsular India in supplying precious water for drinking, irrigation and industry to the people of the states of Karnataka, Tamil Nadu and Pondicherry. The total length of Ponnaiyar River is 432 km, of which 112 km lies in Karnataka state, 180 km in Dharmapuri and Krishnagiri, 34 km in Thiruvannamalai and 106 km in Cuddalore, Kallakurichi and Villupuram districts of Tamil Nadu before joining Bay of Bengal. En route, it tributaries are Chinnar, Markandeyanahi, Vaniar and Pamban rivers in Tamilnadu. With a total catchment of approximately 16,019 km^2, it is dry for the most part of the year but swells during the north east monsoon season.

In Karnataka, the river traverses through series of zilla panchayat tanks and also Minor Irrigation tanks namely Nandi tank, Kuppalli tank, Chadalapura tank, Kothanuru tank, Kolavanahalli tank, Cikkadigenahalli tank, Bommanahalli tank, Kanithahalli tank, Muthur tank, malluru tank, Amani Bhadrana kere tank in Chikkaballapur district, Hosakote Doddakere tank in Bengaluru Rural district, and Yelemallappa Chetty tank in Bengaluru Urban District. Drainage basin of River Thenpennai or South Pennar flowing in Karnataka & Tamilnadu is given as **Figure 1**.

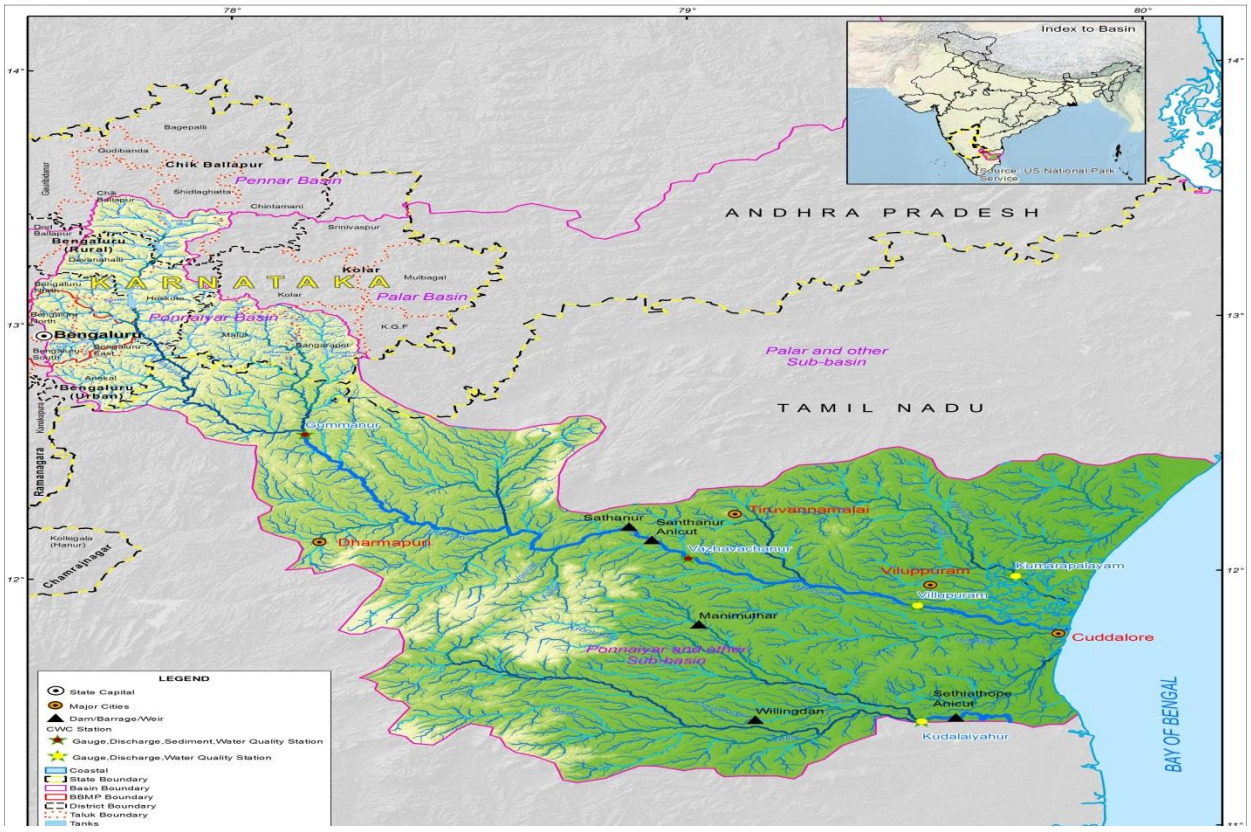


Figure 1. Drainage River Basin of Thenpennai or South Pennar

The stretch of the river is mostly dry to scanty from Origin (Nandi) towards Chikkaballapur, Kolar district, Bangalore Urban District and Hoskote taluk of Bangalore Rural districts of Karnataka. Before descending the interstate border into Tamilnadu, overflow of water from Bellandur and Varthur lakes carrying domestic sewage of Koramangala & Challaghatta and Hebbal valleys of Bangalore adds to the flow in river Thenpennai thereby causes frothing in the river stretch.

CHAPTER – 4

PRELIMINARY JOINT COMMITTEE SURVEY AND INVESTIGATION

4.0 Preliminary Reconnaissance Survey and Observations

The Joint Committee conducted a preliminary survey during 28.08.2020 and 01.09.2020, in order to investigate the current scenario of River flowing in both the states (Karnataka and Tamilnadu). The findings of the preliminary reconnaissance survey of Chikkaballapur, Kolar districts, Bangalore Urban District and Hoskote taluk in Bangalore rural districts in Karnataka are given below:

(A) Chikkaballapur District: South Pinakini river flows in Chikkaballapur, Siddlaghatta and Chintamani (border) taluks in Chikkaballapur District.

- The basin of the river is very small and for majority of the period in a year, the river basin remains dry.
- Since this river connects many tanks, water flow can be seen only when the tanks overflows.
- Under Chikkaballapur district jurisdiction, on the banks of this river, no major industries can be seen.

Photographs of the river between Bommanahalli tank and Kanithahalli tank in Chikkaballapur taluk is given below as **Figure 2**.

Figure 2. Bommanahalli tank and Kanithahalli tank in Chikballapur District

(B) Kolar District: South Pinakini river flows in Kolar, Malur and Bangarpet taluks in Kolar District.

- The basin of the river is very small and for majority of the period in a year, the river basin remains dry.
- Since this river connects many tanks, water flow can be seen only when the tanks overflows.
- Under Kolar district jurisdiction, Markandeya major tank in Bangarpet taluk (the catchment area is in Malur taluk) discharged water only 15 years back and the tank is having a flood discharge of 8,200 Cusecs. Catchment area is 113.14 Sq miles with tank's total capacity of 807

Units which irrigates the total irrigation area of about 847 acres. At the time of discharge, water flow through this valley joins at Yarragolu dam. Water will be used for drinking purpose by people in 3 taluks namely Kolar, Bangarpet, Malur. Finally, the discharge of Yarragolu dam water joins the valley of south pennar of Krishnagiri district in Tamilnadu state.

Photograph of the river flowing in Markandaya tank of Bangarpet taluk is given as **Figure 3.**

Figure 3. Markandeya tank in Kolar District

(C) Hoskote Taluk: South Pinakini river flows in Hoskote taluk in Bangalore Rural district.

- The basin of the river is very small and for majority of the period in a year, the river basin remains dry.
- Water flow can be seen only when the tanks overflow in Hoskote taluk.
- Under Hoskote jurisdiction, on the banks of this river, no major industries can be seen.

Photograph of Hoskote tank in Hoskote taluk is given as **Figure 4**.

Figure 4. Hoskote tank in Hoskote taluk

River also flows down in Anekal (border) in Bangalore Urban District.

In addition to above, preliminary reconnaissance survey of River basin of South Pennar flowing in Bangalore district was also conducted and the observations are given below;

(D) Bangalore District: Survey was carried out in the areas of River South Pennar drainage basin covering Hebbal Valley and Koramangla / Chalghatta Valley, wherein series of lakes/tanks namely, Agara, Bellandur, Varthur (K & C Valley), Yellamalappachetty lake, Kadugodi bridge, Channasandra bridge (Hebbal), Hoskote tank, Mugalur bridge followed by few industries in Samethanahalli and Thiruvaranga were also visited and found dismantled/closed.

i. Water was found to be flowing clear from Agara lake to the storm water drain, however domestic sewage and solid waste was found mixing down the drain near Agara lake.
ii. It was observed that due to the desilting work, temporary diversion channels were created on the outer ring of the tanks in Bellandur and Varthur for enabling flow of water through the tanks. Color of water was found to be flowing greyish in varthur as compared to Bellandur lake and it was informed that untreated domestic sewage from about 110 villages/hamlets in Bangalore joins varthur (sewerage networking is under progress and same will be completed by 2023).
iii. Two weirs of Hoskote tanks were observed to be having less water and no flow was found during the visit.
iv. Further, water flowing in Mugalur (KSPCB monitoring location) was also observed to be frothy and greyish, where few pig farming activity were found discharging washings.
v. Some micro/small scale dyeing units were also found operational illegally and discharging untreated effluent down the drain nearly 50 m away from the river stretch in Samethanahalli weir and immediate actions were taken by Karnataka SPCB to close those units.
vi. Also, a few other non-operational/closed and dismantled dyeing units in Samethanahalli and Thiruvaranga were also visited during the survey. In Samethanahalli, water was observed to be flowing greyish and frothy, which may be attributed to joining of sewage from K&C valley. Details of Action taken on the defaulting industries, as provided by KSPCB is discussed in Section 6.0 of chapter VI.
vii. Washings and droppings of piggery farms located in samethanahalli and thiruvaranga may add to organic load of the River flowing in Samethanahalli.
viii. Color of the water flowing in the tanks and course of River Thenpennai was found to be greyish in Varthur diversion channel, Agara drain, Y junction, Samethanahalli weir and Mugalur bridge.

ix. Information regarding number of STPs (operational status) and proposed STPs (capacity) of K& C Valley and Hebbal valley was explained by Bangalore Water Supply and Sewerage Board (BWSSB) during the survey with the help of layout map. Details of Sewage management in the two valleys of Bangalore is provided in section 4.4 of Chapter 4. Information about desilting work carried out in Bellandur and Varthur tanks was also shared by Bangalore Development Authority (BDA).

Photographs of the survey conducted are given as **Figure 5 (a, b, c & d).**

a. Channasandra bridge

b. Samethanahalli weir

c. Unauthorised small/micro scale dyeing units made to close, by KSPCB, samethanahalli; Google Image of the Sampling location, Samethanahalli

d. Google Earth Image of sampling location in Mugalur bridge

Figure 5. a) Solid Waste dumping in Channasandra bridge; b) frothy foam floating in Samethanahalli weir; c) few unauthorized micro/small scale dyeing units made to close, by KSPCB in Samethanahalli; Google Earth Image of Sampling location in Samethanahalli; d) Google Earth Image of Sampling location in Mugalur Bridge

Then, the joint committee conducted survey in the areas of River South Pennar drainage basin flowing down south covering Sokarasanapalli (KSPCB monitoring location), Singasadanapalli (Central Water Commission monitoring location), Kodiyalam, Bagalur villages near hosur and Kelavarapalli Reservoir in Tamilnadu.

(E) Villages near Hosur, Tamilnadu:

i. Details of the villages with Population density located on Thenpennai riverine namely, singasadanapalli, kodiyalam, kooliganapalli, sokkarasanapalli, bagalur, lingapuram, ottapallithinna, kanimangalam, padathepalli, nanjapuram, sathyamangalam, muneeswararnagar, kembasandhiram, chennasandiram, kallipuram were provided as below;

S. No	Name of Village	Distance from the River bed (m)	Number of houses	Population	Population density (Sq. Km)
1.	Singasadanapalli	1000	120	660	242.50
2.	kodiyalam (kooliganapalli)	500	260	1106	217.03
3.	sokkarasanapalli	500	250	855	348.97

4.	bagalur	50	1500	11000	2534
5.	lingapuram	100	300	2000	1666.67
6.	ottapallithinna	400	35	130	97.01
7.	kanimangalam	1000	110	310	94.80
8.	padathepalli	1000	120	390	127.03
9.	nanjapuram	-	-	-	-
10.	sathyamangalam, muneeswararnagar	500	255	1390	260.787
11.	kembasandhiram	500	25	550	705.12
12.	chennasandiram	600	300	1417	885.62
13.	kallipuram	-	-	-	-
	Total		**3275**	**19808**	**7179.5**

ii. It has been informed by representative of Tamilnadu Pollution Control Board that there are no industrial discharge along the stretch of Thenpennai River in Tamilnadu and no underground sewerage lines or STPs operating near the Riverside. Further, Tamilnadu SPCB informed that following industries are located near the river stretch;

S. No	**Name of the industry**	**Classification/ Category**	**Discharge Options**	**Details of Consent**	**Remarks**
1.	M/s Premier VVG & SPG Mills Pvt Ltd., Belathur, Bagalur	Textile / Large /Red	Zero Liquid Discharge and there is no discharge of industrial effluent / sewage into River Thenpennai	Consent to Operate issued on 08.11.2001 valid up to 31.03.2003 Renewal of Consent issued on 20.03.2017 valid upto 31.03.2022	The unit is located at a distance of 900 meter from River Thenpennai. Re-commissioning the dyeing and printing operation during first week of October 2020.
2.	M/s Exide Industries Ltd., Chichuruganapalli, Sevaganapalli	integrated battery manufacturing unit/ Large /Red	Zero Liquid Discharge and there is no discharge of industrial	CTO issued on 13.11.2013 valid	4 km away from river and

			effluent / sewage into River Thenpennai	up to 31.03.2014 Renewal of Consent issued on 20.12.2017 valid upto 31.03.2022	divided by undulated terrain
3.	M/s Shahi Exports Pvt. Ltd., Sevaganapalli	Textile garment unit / Large / Green	STP and treated effluent utilized for green belt and there is no discharge of Sewage into River Thenpennai	CTO issued on 22.08.2011 valid up to 31.03.2012 RCO issued on 03.07.2020 valid upto 31.03.2022	No discharge outside premises

iii. Color of Water flowing in the River stretch was observed to be greyish in sokkarasanapalli, frothy/slight greyish in kodiyalam, brownish to grey in Bagalur bridge and greenish in Kelavarapalli Reservoir.

iv. Solid waste dumping and mixing of domestic sewage into the river stretch flowing through bagalur bridge was also observed and Tamil Nadu Pollution Control Board was asked to take note of the scenario for appropriate actions. Action taken report is given in section 6.0 of chapter VI.

v. Representative of Tamilnadu Pollution Control Board has informed that sewage generation has been estimated as 0.8 MLD (approx.) from Bagalur village and 0.01 MLD to 0.15 MLD (approx.) from rest of the villages in Tamilnadu. It was also informed that the sewage generated in the above hamlets percolates within the hamlet limits and therefore may not get discharged into River Thenpennai.

vi. Average rainfall of Kelavarapalli is about 533 mm.

Photographs of the survey conducted are given as **Figure 6 (a, b & c)**.

a. Kodiyalam

b. Solid waste dumping, Bagalur

c. Google Earth Image of Sampling Location in Bagalur Bridge

Figure 6. a) Frothy foam in Kodiyalam; b) solid waste dumping near bagalur bridge; c) Google Earth image of the sampling location in Bagalur

4.1 About Kelavarapalli Reservoir

Kelavarapalli Reservoir Project was built in 1978-1995 at Krishnagiri district, Tamilnadu and the Reservoir or Dam is situated at a distance of 8 km from Karnataka and 10 km away from Hosur, tamilnadu across the River Thenpennai, which actually originates from the eastern slopes of Chennakesava Hills in karnataka. The dam further leads water to the districts of Dharmapuri, Tiruvannamalai, Kallakuruchi, Villupuram and Cuddalore

before joining Bay of Bengal. Google earth image of Kelavarapalli reservoir with sampling locations are shown as **Figure 7**.

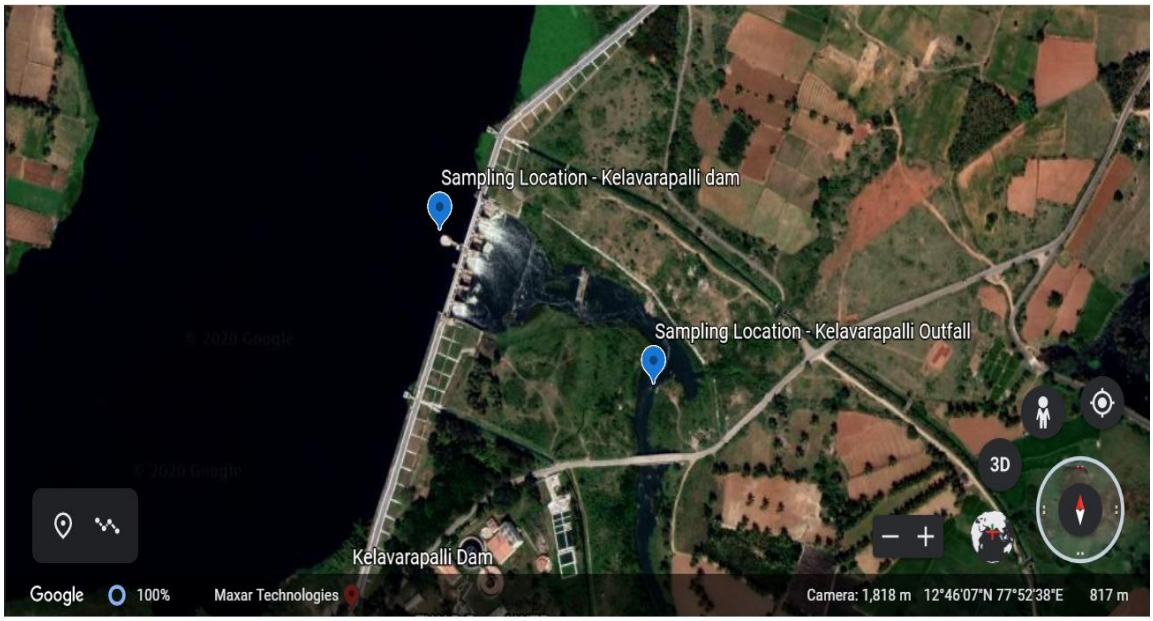


Figure 7. Google Earth image showing sampling locations at Kelavarapalli Reservoir

Kelavarapalli Dam is situated at the latitude of 12°52'42"N and longitude of 78°46'06" E which is located in the Northwestern part of Tamil Nadu, bordering Karnataka and Andhra Pradesh states. The Dam is operational from 10th November 2002. Salient features of the dam include:

(a) <u>Salient features of Dam:</u>

1. Type of dam : Masonnry cum earthern Dam
2. Length : 665m
3. Height : 13.50m
4. FRL Water spread Area : 433.20 Hec
5. Volume : 0.481 TMC
6. Catchment area : 2442.00 Sq.Km
7. Gross Capacity : 13.61 Mcum
8. Maximum Water level : 831.50
9. FRL : 831.50
10. Water Supply Period : 1st Crop = July to December - 150 Days
    : 2nd Crop = February to May - 90 Days
11. Spillway Type : Ogee Crest Type
12. Spillway Nos : 7 Nos
13. Spillway Size : 12.20m x 6.10m
14. Crest Level : 825.40
15. Design flood Discharge : 88980 Cusecs
16. River Sluice : 1 No (1.20m x1.82m)
17. Canal Sluice : 2 Nos (0.90m x 1.50m)
18. Length of Canals

Right Main Canal (RMC)	=	21.99 km
Left Main Canal (LMC)	=	25.500 km
LMC Branch canal I	=	5.40 km
LMC Branch canal II	=	3.80 km
LMC Branch canal III	=	2.78 km
LMC Branch canal IV	=	4.96 km
LMC Branch canal V	=	0.71 km
Distributaries I of B.C IV	=	1.80 km
Distributaries II of B.C. IV	=	2.00 km
Distributaries I of B.C V	=	1.48 km
Distributaries II of B.C. V	=	1.15 km
Total	**=**	**71.57km**

19. Irrigation Area : 3676 Hec
20. Approved Estimate : Rs. 551.50 Lakhs
21. Revised Estimate : Rs. 606.70 Lakhs

(b) <u>Present condition of Dam (as on 09.09.2020)</u>

1. Water level : 12.30 m
2. Water storage level : 343.74 Mcuft
3. Water incoming : 400 cusecs
4. Water discharge : 400 cusecs

Kelavarapalli Dam SIPCOT Central Water Supply Scheme provided 14.00 MLD of water to Hosur Municipality Phase I during 2015-16. Water supply of Hosur Municipality is mainly being met out from the Government of Tamilnadu's Hoganekkal water supply Project which was executed & maintained by Tamilnadu Water Supply and Drainage Board (a statutory body under Tamilnadu Government) and the other sources are from Kelavarapalli Dam, one from Perandapalli River and few local wells. At present the entire Municipality is receiving 30.39 MLD of water supply from all the above said sources. (*Source: https://www.twadboard.tn.gov.in/content/major-water-supply-schemes-1518*).

Since Thenpennai river is the sole water source in Krishnagiri, Tiruvannamalai and Cuddalore districts, it has been extensively dammed. As it enters Tamilnadu, the water is stored in the Kelavarapalli dam reservoir near Hosur. The surplus amount reaches the Krishnagiri dam, which is situated 60 km downstream.

4.2 Excerpts of Thenpennai River Monitoring in the matter of O.S No. 2 of 2015 before Hon'ble Supreme Court & in the matter of O.A No. 125/2017 before Hon'ble NGT

A) In O.S No. 2 of 2015 before Hon'ble Supreme Court

In compliance to Hon'ble Supreme Court directions in the Original Suit No. 02 of 2015, a joint monitoring Report on River Cauvery and Thenpennaiyar

was submitted by CPCB, KSPCB and TNPCB, wherein the monitoring team carried out sampling of water for the period September 2017 to May 2018. The committee filed the report before the Hon'ble Court in 2018 (the case is pending before Hon'ble Supreme Court). The findings of the Report is given as below:

1. In case of River Thenpennaiyar at Sokarasanapalli, the water quality falls below designated best use Class C during all nine monitoring and the critical parameters are BOD, DO and TC. The Total Coliform was always > 5000 MPN/1000 ml and DO was <1 except during January and February 2018 showing the DO as 2.4 and 3.8 mg/l respectively. BOD also exceeded the Sewage standards notified (i.e 20 mg/l) for all nine months showing the water is highly polluted.
2. The River Thenpennaiyar receives the outflow of treated and untreated sewage of Bellandur and varthur lake system. Comprehensive plan of restoration of these lakes along with identifying other sources of untreated sewage into the River only will help to restore the quality of the river. Government of Karnataka may prepare such plan on priority considering the pollution issues of Bellandur and varthur lake system, which contributes to the pollution of Thenpennaiyar River.

B) In O.A No. 125/2017 before Hon'ble NGT

On the subject of remedial action for restoration of Bellandur, Agara and Varthur lakes at Bangalore, including preventing discharge and dumping of pollutants, removing encroachments from catchment area and other steps for restoration, Hon'ble Tribunal, Principal Bench, New Delhi, in the matter of O.A No. 125/2017, constituted a monitoring committee headed by Justice Sh Santosh Hegde, former Judge of the Hon'ble Supreme Court to oversee the execution of the action plan. In this regard, summary of Compliance Report to the observations of the Monitoring Committee in respect of BWSSB, BDA, UDD, Minor Irrigation and KSPCB was filed before Hon'ble NGT, Principal Bench on 04.08.2020, wherein Hon'ble Tribunal vide orders dated 13.08.2020 has directed that ***"...the left-over work may be expeditiously completed which may be reviewed by the Monitoring Committee. The status of compliance as on 31.12.2020 may be compiled by the Monitoring Committee and report furnished to this Tribunal by 15.01.2021..."***.

4.3 Major Sources of Pollution

Major sources of pollution to River Thenpennai appear to be from untreated/partial treated sewage from Bangalore. Sewage generated from Bengaluru is the predominant reason for deterioration of lakes and water bodies in Bangalore, which is ultimately flowing into river Thenpennai.

There are various reasons such as ageing of sewers, encroachment of sewers, damages in the sewerage system, crown corrosion of sewers etc. for direct discharges of a part of wastewater from housing colonies and such discharge is flowing through Storm Water Drains and enters lakes in Bengaluru. Lakes in Bengaluru were created for rain water harvesting and once served as sources of water supply to the city. Lakes are under the custody of various departments namely Bangalore Bruhat Mahanagara Palike (BBMP), Bangalore Development Authority (BDA), Karnataka Forest Department (KFD), Lake Development Authority (LDA), Minor Irrigation and Water Resources Department.

In recent years, few lakes have been converted into built-up area owing to industrialization and urbanisation. Among all the lakes, Bellandur and Varthur are highly polluted due to discharge of untreated and partially treated sewage from the city. Bellandur lake receives nearly 40 % of Bangalore's sewage and further drains into varthur lake, then flows into Thenpennai River towards south of Bangalore. Lakes are polluted due to inadequate drainage system leading to bypassing of sewage into lakes, entry of sewage from apartments/commercial establishments into storm water drains leading to lakes, insufficient sewage treatment plants, encroachment of lakes and Rajakaluves (storm water drains), dumping of municipal solid waste, construction and demolition wastes, illegal discharge of industrial effluents etc. The foremost reason for pollution of Bellandur Lake is sewage/ Sullage flowing in the storm water drains. One of the main reasons for development of foam in the waste weir is agitation of water falling over a height and due to surfactants present in sewage. Now after establishment of sluice gate and weir modification, foam formation reduced considerably, informed KSPCB. Additionally, fertilisers used by farmers of Karnataka as well as Tamilnadu may add to the pollution of river thenpennai.

4.4 Status of Domestic Sewage Management in Bangalore

Sewage is one of the major causes for poor water quality of rivers, lakes and water bodies causing adverse impacts on human health and aquatic species. Bangalore Water Supply and Sewerage Board (BWSSB) was formed in 1964 to provide Sewerage system in areas of Bangalore in a phased manner. Domestic Sewage generation in Bengaluru has been estimated as 1160 MLD which is attributed to increased urbanization and population. The actual amount of sewage generated would be higher since a large number of private bore wells exist and there is no scientific estimate of the quantity of water withdrawn from the borewells.

Sewage flow follows the regional topography and flow down along the three principal valleys and five minor valleys ensuring free flow of sewage without any major pumping requirement. Also treated wastewater of Bangalore is also

being diverted to recharge drought ridden stretch/tanks of chikbellapur and kolar districts.

KSPCB informed that the industries have been encouraged to opt for Zero Liquid Discharge (ZLD). Further, 08 CETPs are operational for treating effluent generated from small scale industries from Bangalore. KSPCB has been directed by CPCB to make entries in the river basin module on status of ETPs in the state based on Hon'ble Supreme Court and Hon'ble NGT Orders and the same is under progress.

In compliance to Hon'ble Supreme Court directions in the Original Suit No. 02 of 2015, Chief Secretary, Government of Karnataka submitted to Hon'ble Supreme Court in 2018 that, *"…fourteen STPs of total 129 MLD for 110 villages under Japan International Cooperation Agency (JICA) Fund Scheme were proposed. It was then assessed that, with the establishment of those STPs, the total capacity of STPs to treat the sewage from Bengaluru would rise up from the existing capacity of 1050 MLD to 1575 MLD by 2020 and 1704 MLD by 2022."*

In this connection, BWSSB has now informed that fourteen STPs of total 124 MLD for 110 villages under Japan International Cooperation Agency (JICA) Fund Scheme were proposed and 3 STPs of 400 MLD capacities are under construction with the help of Megacity Revolving Fund (MCRF). It is now assessed that, with the establishment of those STPs, the total capacity of STPs to treat the sewage from Bengaluru would rise up from the existing capacity of 1182.5 MLD to 1582.5 MLD by 2021 and same would be increased to 1726.5 MLD by 2024.

Domestic sewage generation of hamlets/areas namely, Gottigere, JP Nagar, Puttenahalli, Bilekahalli, Arekere Lake, Hulimavu Lake, Madiwala lake, BTM Layout, HSR Layout, Agara Lake, Shivajinagar, Ulsoor Lake, Domlur, Indiranagar, HAL, Kalasipalya, Lalbagh Road, KH Road, Shantinagar Bus Station, National Games Village, Ejipura, Sinivagilu located in the stretch of Hebbal and K&C Valley, Bangalore is around 292 MLD & 574 MLD (total 866 MLD) respectively, of which 608 MLD (70 %) is being treated in 21 STPs (having capacity of 736.5 MLD located in the two valleys). Further, as per Action plan of BWSSB, 110 MLD of the balance sewage will be taken into sewerage network by completing the works in 2022.

BWSSB has also reported that as per the understanding with Minor Irrigation Department the treated waste water from 21 STPs are to be diverted to Kolar and Chikkaballapur districts to recharge the drought ridden tanks. Presently, it is estimated that approximately 290 MLD of treated wastewater (as against the quantity of 400 MLD as per MoU with Minor Irrigation) from 4 STPs located in K&C valley treated water is discharged to 126 minor irrigation tanks located in Kolar District. Further, it has been reported that around 100

MLD of treated wastewater from 03 STPs located in Hebbal Valley is discharged to 65 minor irrigation tanks of chikkaballapur district. The information on the quantity of treated wastewater that has been diverted for recharging the minor irrigation tanks, as provided by Minor Irrigation are given below;

S No	District	No. of Tanks filled till October, 2020	Water Pumped (TMC)
1.	Kolar	78	6.69
2.	Chikkaballapur	24	1.16
	Total	**102**	**7.85**

The status of sewage generation, treatment and enhancement of treatment capacity plan, as reported by BWSSB, is given below:

A. Quantity of Sewage generated in Bangalore	1160 MLD
B. Quantity of Sewage generated in K&C and Hebbal Valley, Bangalore	866 MLD
C. Number of STPs in two valleys	21 Nos.
D. Treatment capacity of the 21 STPs in two valleys	736.5 MLD
E. Quantity of Sewage actually treated by 21 STPs in two valleys (on an average)	608 MLD
F. Quantity of treated wastewater diverted for irrigation to Kolar & Chikkaballapur districts	390 MLD from 07 STPs
G. Total gap in wastewater treatment in the two valleys of Bangalore	(i) Gap in installed Capacity of STPs = 866 – 736.5 = 129.5 MLD (ii) Gap in actual treatment of wastewater in STPs = Installed capacity (736.5 MLD) – Operational Capacity (608 MLD) = 128.5 MLD Total Gap in waste water treatment = (i) + (ii) = 258 MLD
H. Total Enhancement of Sewage Treatment Capacity of STPs in two valleys, Bangalore estimated by BWSSB	K&C valley = 150 MLD Hebbal valley =133 MLD Total enhancement of capacity of STPs = 283 MLD
I. Enhancement of Sewage Treatment Capacity of STPs in entire Bengaluru (covering both the valleys) estimated by BWSSB	1582.5 MLD by 2021 1726.5 MLD by 2024

BWSSB has informed that in Hebbal valley, 02 STPs of 100 MLD capacity at Hebbal and 20MLD STP at K.R Puram is under construction and the same will be commissioned in 2021. In addition to that, construction of one STP with 07 MLD capacity is also under progress in Hebbal valley. To further enhance the sewage treatment capacity, a STP of 6MLD at Horamavu in Hebbal Valley is planned and the same will be operational by 2023. An average 59 MLD of sewage generation is estimated (which includes sewage generation from part of 110 villages in Hebbal Valley) where presently there is no sewer network.

In case of Koramangla & Challghatta valley, of 02 STPs, one STP at Chikkabegur has already started treating sewage and another STP (150 MLD) will be commissioned by Dec 2020. Status of Sewage Treatment Plants of K&C and Hebbal Valleys in Bangalore alongwith its performance in terms of capacity, as provided by BWSSB is given as **Annexure V.**

Considering 135 lpcd water supply for the population of 1062278 in 110 villages in 2019, the estimated quantum of sewage generation from 110 villages of BBMP limit in K&C and Hebbal Valley is calculated as 143.41 MLD, which remains untapped for treatment in STPs due to absence of Under Ground Drainage Network by BWSSB.

In addition to above, as per the Government of Karnataka Notification No. FEE 316 EPC 2015, Bengaluru dated 19.01.2016, KSPCB Clearance is required for the following projects:

a) All residential group housing projects/apartments with 20 units and above or having total BUA of 2,000 sq.m including basement
b) Commercial constructions projects (commercial complexes, office, IT related activities etc) with total built up area of 2,000 sq.m and above
c) Educational institutions with or without hostel facility having total built up area of 5,000 sq.m and above
d) Townships and area development projects with an area of 10 acres and above

Accordingly, KSPCB is covering apartments with 20 flats & above and commercial buildings of 2000 sq.mts and area development projects of 10 acres and above only. All the projects covered by KSPCB under consent mechanism are required to provide Sewage Treatment Plant (STP) for treating the sewage. However, sewage generated from the smaller projects like apartments with less than 20 flats, commercial buildings with less than 2000 sq.mts built up area are required to be treated by BWSSB.

KSPCB has filed two Criminal cases against BWSSB w.r.t pollution of Bellandur Lake. Further, as per the directions of Hon'ble NGT in the matter

of O.A.125/2017, Karnataka State Pollution Control Board has imposed Environmental Compensation against the defaulting Apartments/Housing Associations. Few projects have approached the Hon'ble High Court of Karnataka in this matter. As per the directions of Hon'ble High Court of Karnataka, Karnataka State Pollution Control Board is following the due procedure. Details of action taken by KSPCB on the defaulting apartments/housing complexes are provided in section 6.0 of Chapter VI.

CHAPTER V

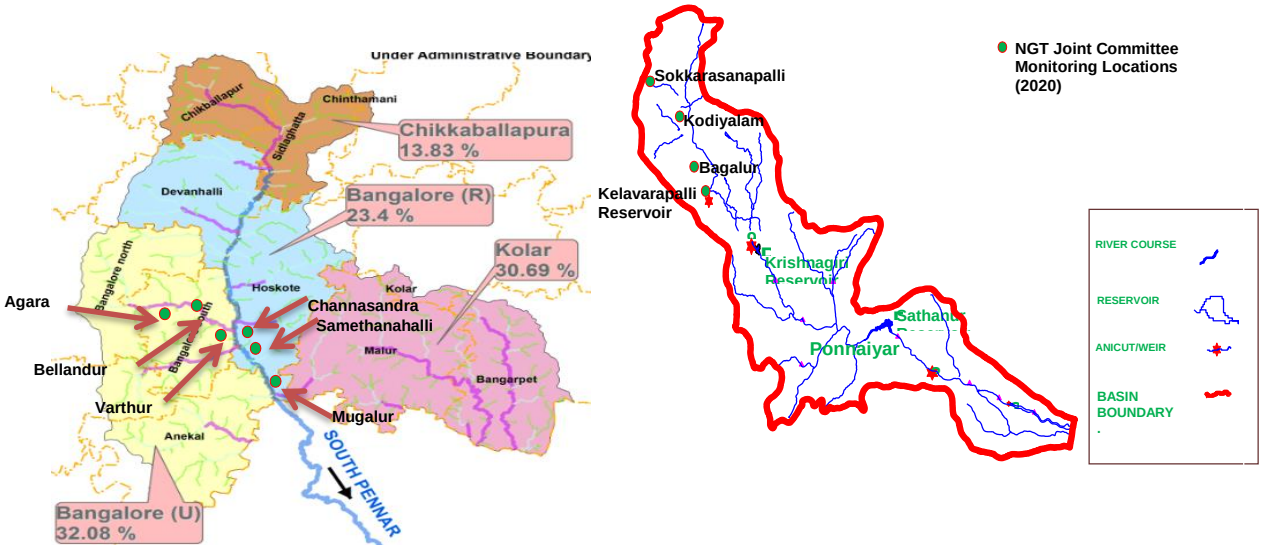
SAMPLING AND ANALYSIS OF SURFACE WATER FLOWING INTO RIVER THENPENNAI

5.0 Sampling Locations

The Joint Committee identified the following sampling points for collecting surface water samples based on the reconnaissance survey conducted in Tamilnadu and Karnataka during 28th August and 01st September, 2020;

S.No	State	Sampling Points (no. of samples)	Geo-Coordinates	
1.	Karnataka	i. Agara drain	12.923 °N	77.639 °E
		ii. Y junction drain (Agara/Koramangla)	12.923 °N	77.646 °E
		iii. Bellandur diversion channel	12.931 °N	77.677 °E
		iv. Varthur diversion channel	12.945 °N	77.746 °E
		v. Channasandra bridge	12.985 °N	77.776 °E
		vi. Samethanahalli weir	12.970 °N	77.784 °E
2.	Inter State Boundary	vii. Mugalur bridge (Karnataka	12.853 °N	77.831 °E
		viii. Sokkarasanapalli (Tamilnadu)	12.896 °N	77.831 °E
3.	Tamilnadu	ix. Bagalur bridge	12.769 °N	77.875 °E
		x. Kodiyalam	12.769 °N	77.877 °E
		xi. Kelavarapalli reservoir	12.857 °N	77.823 °E
		xii. Kelavarapalli outfall	12.831 °N	77.871 °E

Surface water samples of the above twelve locations were collected by Joint Committee on 09th and 10th September, 2020. Thenpennai River basin Map showing the sampling locations in Karnataka and Tamilnadu are given below as **Figure 8 & 9**;



a. Karnataka b. Tamilnadu

Figure 8. Sampling locations in the River Map of Thenpennai

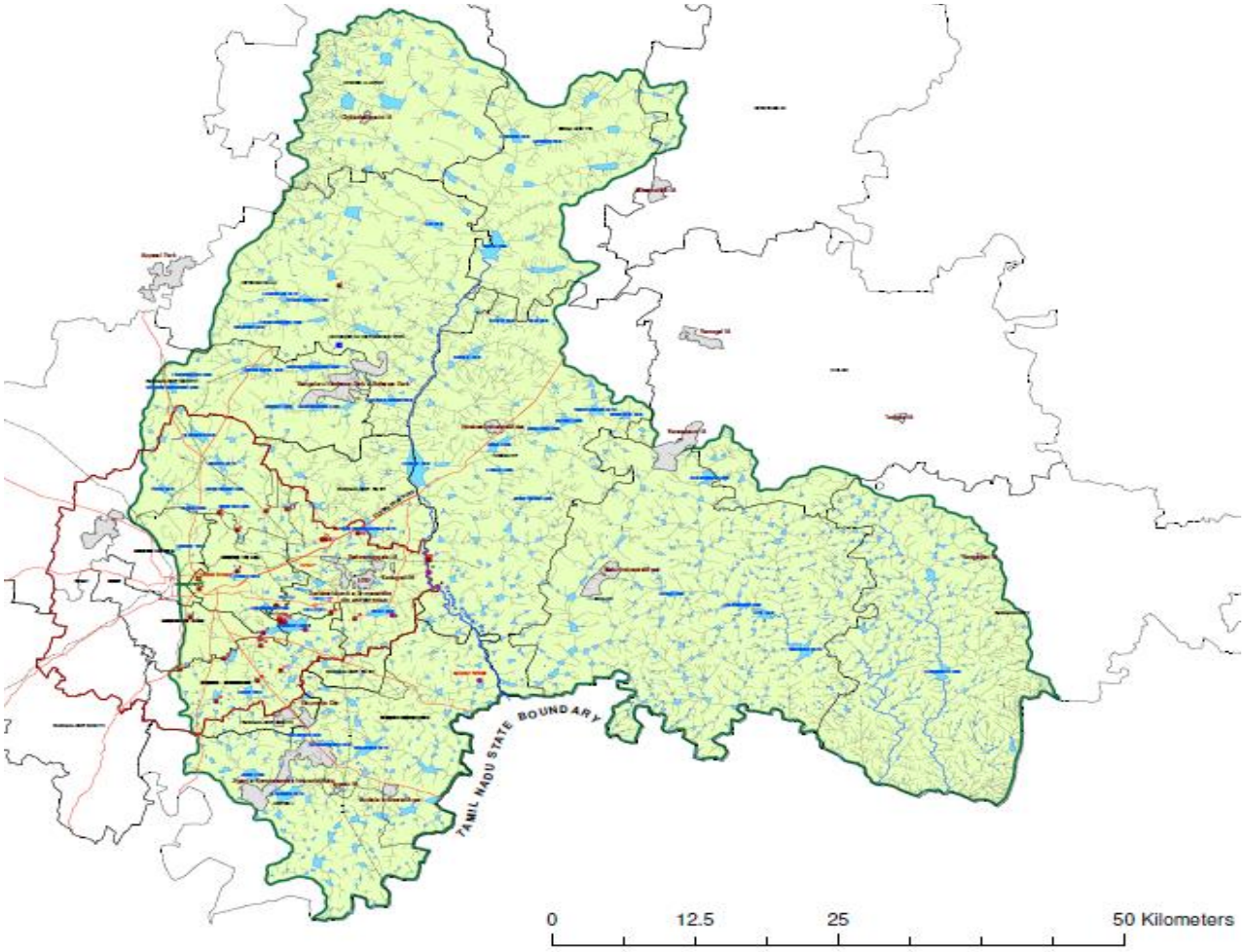
Geographic profile and details of the sampling locations in the sequence of the flow of River Thenpennai is provided below;

(i) Agara drain:

Agara lake spread over 98 acre, is located at Agara in southeast direction of Bengaluru. The lake receives outfall from the upstream Madivala lake. The excess water from Agara lake overflows through the storm water drain to Bellandur lake near southwest direction. At Agara, the flow of water was found clear and no frothing was found. However, domestic sewage and solid waste was found mixed down the drain with greyish color leading to Bellandur.

(ii) Bellandur diversion channel:

Bellandur Lake is located in southeast direction of Bengaluru and is the largest lake in the city and the weir flow of Agara Lake joins Bellandur lake. It was observed that, of the two Bellandur Lake weirs, water was flowing in one weir towards Southern direction (near Bellandur village, popularly called as Bellandur bridge) through channels created on the outer ring of the lake, whereas Northern weir (near Yamalur, popularly called as Yamalur bridge) was taken up for restoration work by BDA.



- Muglur Bridge
- STP's
- Sampling Stations
- District Mj Roads
- Drainage
- Railway Line
- BBMP Limit
- KIADB IA
- Tanks / River / Reservoir
- South Pennar Boundary

Sampling Locations	
1	Agara Lake
2	Y Junction
3	Belandur Kodi
4	Varthur Kere
5	Channasandra
6	Samethanahalli

STP Locations	
1	Faecal STP
2	BWSSB 6 MLD
3	Horamavu
4	Hennur
5	Hebbal Raja Canal
6	Cubbon Park
7	Lalbagh 1.5 MLD
8	Ulsoor
9	Lidkar CETP
10	Hulimavu
11	Sarakki
12	Chikk kudlu kere
13	Agara
14	K & C 60 MLD
15	K&C 218 MLD
16	K&C 30 MLD
17	K&C 150 MLD
18	Belandur Amanikere 90 MLD
19	Kadabeesanahalli 50 MLD
20	TC Palya 15 MLD
21	TC Palya U/C 20 MLD
22	Yelemallappa Chetty 15 MLD
23	Koralur 5 MLD
24	Madivala Not Operating
25	Chikk Begur U/C

Figure 9. River Basin Map of Thenpennai showing locations of Industrial area and tank/reservoirs in Karnataka

It was also observed that, the storm water drain near bellandur lake was found with lots of floating materials such as plastic bags and municipal solid waste etc. This might be due to local people residing in the area with no awareness about solid waste collection and management. There is a need for clearance of solid waste dumped in the storm water drain and lake by local authorities and monitoring by KSPCB to protect the lake from pollution. At Bellandur, the flow of water was found slightly clear and no frothing was found.

(iii) Varthur diversion channel:

The Varthur Lake takes the main inflow from outflow weirs of Bellandur Lake, along with some other water entry points (about 6 to 9) between outer ring road (that connects Marathalli with Sarjapura road) and Varthur, between which the Varthur Lake lies. It was seen that Varthur Lake has 02 outflow weirs viz: Northern weir near Sigma Softech Park, Ramagondanahalli (popularly called as Varthur Kodi) and Southern weir near Varthur (popularly called as Varthur Bridge).

Even in varthur lake, water was flowing only in southern weir as the Northern weir was taken up for restoration work by BDA. It was informed that both the weir flow of the lake joins at a point at about 600 m in South Eastern direction of the Northern weir, thereafter, the stream joins the South Pennar River, through Ajjigondahalli bridge, at about 3.8 Km in east of north eastern direction. The joined streams of out flow weir of Varthur Lake flowing en route, Ajjigondahalli Bridge, represents entire wastewater / domestic effluent of Koramangla & Challaghatta Valley flowing into South Pennar River. At varthur, the flow of water was found greyish to brown and no frothing was found.

(iv) Channasandra bridge:

Channasandra Bridge located on Hope Farm Junction towards Chikka Tirupathi Road, flows in Southern direction in order to further confluence with the out flow of Varthur Lake (K & C Valley).

Whereas, lakes of Hebbal Valley flows into Yelemalappa Chetty Lake (YMC Lake) located on Old Madras Road. Over flow through the outflow weir of YMC Lake joins the South Pennar River at about 4.9 Km South East of YMC Lake and flows in southern direction to join channasandra bridge. At channasandra, the flow of water was found green in color with absolutely no frothing. However, solid waste was found dumped near the bridge.

(v) Samethanahalli weir:

Samethanahalli is located downstream of varthur lake at south eastern direction of Bangalore outskirts. It was observed that domestic and industrial

discharges of samethanahalli confluences into tributaries of South pennar river basin and flows down to join downstream of ajjingondahalli towards Mugalur. At samethanahalli, the flow of water was greyish with froth floating over.

Few unauthorized micro/small scale dyeing units were found operational during the visit and found discharging untreated effluent down the drain. KSPCB has taken immediate action to close those units.

(vi) Mugalur bridge:

Mugalur Bridge is on Sarjapura – Chikka Tirupati road which is at a distance of about 11.47 Km south east of northern weir of Varthur Lake. The South Pennar River leaves Karnataka State and enters into Tamil Nadu and joins Kelavarapalli reservoir (about 7.5 Km north east of Hosur city) which is located at about 14.18 Km south east of Mugalur Bridge. At Mugalur Bridge, the flow of water was greyish to brown and it contained scanty pockets of froth here and there. Solid waste dumping and outlet of pig farming into the river was found near the area.

(vii) Sokarasanapalli:

Sokarasanapalli is located at interstate border of Tamilnadu and Karnataka with a distance of 500 m from the river bed.

Sokarasanapalli is an interstate water quality monitoring location being sampled by Karnataka on a quarterly basis. The flow of water in sokkarasanapalli was observed as greyish and with growth of floating aquatic plants in a large area.

(viii) Kodiyalam:

Kodiyalam is situated in north east direction of Hosur district, Tamilnadu. In kodiyalam, there is one anicut which has two sluices constructed to distribute water flowing from sokkarasanapalli for agriculture purpose. Central Water Commission, Cauvery and Southern Rivers Division monitors flow of the river at this location. Water was found to be flowing in greyish color and frothy foam was floating on the river.

(ix) Bagalur bridge:

Bagalur bridge is situated in north eastern direction of hosur district, Tamilnadu. Bagalur bridge was found with water flowing in brown to greyish color and solid waste was found dumped on either sides of the river bed. Cattles were also found grazing the grass near the solid waste dumped area which could cause lethal effects due to plastics and other inert materials dumped over.

(x) Kelavarapalli dam:

Kelavarapalli dam is located in the Northwestern part of Tamil Nadu. 400 cusecs of water was found flowing through spillway shutters with reasonably

clear water in green color on the day of visit. Also scanty pockets of froth were seen due to water flowing with force from high fall of the dam.

In the areas namely, samethanahalli, mugalur, sokkarasanapalli, kodiyalam, bagalur kelavarapalli water was found being pumped and used for agriculture in the nearby areas.

5.1 Sampling Protocol

The surface water samples of the above identified 12 locations in River Thenpennai were collected during 09th and 10th September, 2020 and submitted to laboratory for analysis. The Joint Committee followed CPCB's Standard Operating Procedure for National Water Quality Monitoring Programme and Submission of data (August, 2017). The scope of the SOP is to standardise the process of sample collection, preservation, handling and analysis, preparation of data reports, etc.

5.2 Results and Discussion:

The River originates in Nandi Hills of Chikkaballapur district and the flow is mostly dry to scanty from Origin (Nandi) towards Chikkaballapur district, Kolar District, Bangalore Urban District and Hoskote taluk of Bangalore Rural district. Therefore, no samples could be collected till Hoskote tank.

Subsequently, it was informed by KSPCB that overflow of water from Bellandur and Varthur lakes carrying domestic sewage of Koramangala & Challaghatta and Hebbal valleys of Bangalore adds to the flow in river Thenpennai. Accordingly, samples were collected from the diversion channels of Bellandur and Varthur lakes, Agara drain, Y Junction to ascertain the sources of pollution flowing into River Thenpennai.

The joint committee discussed that the quality of water flowing in river Thenpennai could be assessed based on the water samples from the above four major drains/channels, river flowing in major confluence points and interstate monitoring locations identified in consultation with concerned State Pollution Control Boards such as Channasandra bridge, Samethanahalli, Mugalur bridge, Sokkarasanapalli, Bagalur bridge, Kodiyalam, Kelavarapalli.

The analysis results of the samples collected from all the above 12 locations were compared with Designated Best Use (DBU) criteria and Classification notified under Environment (Protection) Rules, 1986. The categorisation and classification of water flowing in River Thenpennai is given below at **Table 1**.

Table 1. Classification as per Designated Best Use Criteria of Samples collected in River Thenpennai

Sample Locations	Designated Best Use Criteria										Class
	pH	DO	SS	Turbidity (NTU)	FC (MPN/100 ml)	BOD	EC (µs/cm)	SAR	Boron	Free Ammonia	Designated Best Use Criteria
Sampling in diversion channel of Lakes / Tanks, Bengaluru – Outfall into River Thenpennai											
Agara Drain	6.92	3.8	21.5	18.9	500	16	810	1.6	0.016	nil	E
Y junction	6.87	4.9	59	11.4	900	15	762	1.3	0.019	nil	D
Bellandur diversion channel	6.89	5	45	10.4	1600	11	758	1.4	0.016	nil	D
Varthur diversion channel	7.04	3.7	115	27.5	500	10	706	1.4	0.015	nil	E
Sampling Locations in River Thenpennai											
Channasandra bridge	7.02	3.8	171	13.8	900	11	931	2	0.017	nil	E
Samethanahalli	6.98	2.4	78	35	1600	10	825	1.8	0.015	nil	E
Mugalur Bridge	6.79	2.4	574	450	500	21	628	1.5	0.017	nil	E
Sokkarasanapalli	6.83	3.5	806	630	900	23	648	1.6	0.015	nil	E
Kodiyalam	6.82	1.6	1474	997	900	26	727	1.5	0.018	nil	E
Bagalur bridge	6.92	2.2	1121	850	500	53	1111	2.2	0.019	nil	E
Kelavarapalli Reservoir	7.35	4.7	50	12.4	500	11	1069	2.4	0.019	nil	D
Kelavarapalli Outfall	7.19	5.2	10	7.5	900	10	1049	2.2	0.017	nil	D
Designated Best Use Criteria	A - Drinking Water Source without conventional treatment but after disinfection B - Outdoor bathing (Organised) C - Drinking water source after conventional treatment and disinfection D – Propagation of Wild life and Fisheries E - Irrigation, Industrial Cooling, Controlled Waste disposal										
Classification of River Thenpennai	The analysis of Water Samples collected at 12 locations joining River Thenpennai shows that the Water Quality of the River falls under the Class E as per Designated Best Use Criteria notified under Environment (Protection) Rules, 1986.										

Analysis of water quality in River Thenpennai reveal that Dissolved oxygen concentration was found be above > 4mg/l only in kelavarapalli reservoir, its outfall, Y junction, and Bellandur diversion channel. The water quality was found to be deteriorated in terms of presence of oxygen from

channasandra bridge till Bagalur bridge of River Thenpennai and also in varthur diversion channel and Agara drain. Improved oxygen level found in kelavarapalli reservoir may be attributed to large area of the reservoir allowing the suspended solids to settle and the water flowing through sluices with a high rise fall. Further, greenish plants/algal growth in scanty pockets seen in Kelavarapalli and Sokkarasanapalli known as Eutrophication, arises from the oversupply of nutrients (N & P), which leads to overgrowth of plants and algae. Degradation of dead algae and plants by microbes consuming dissolved oxygen in the water may lead to the state of hypoxie.

Further, BOD of the water was found to be not complying in all the sampled locations as per Designated Best Use Criteria notified under Environment (Protection) Rules, 1986. Wherein, BOD is found to be beyond the permissible limit in Bagalur bridge (53 mg/l) when compared with the General Standards for discharge of Environmental Pollutants Part-A: Effluents notified under The Environment (Protection) Rules, 1986, which is also shown in Figure 10 below.

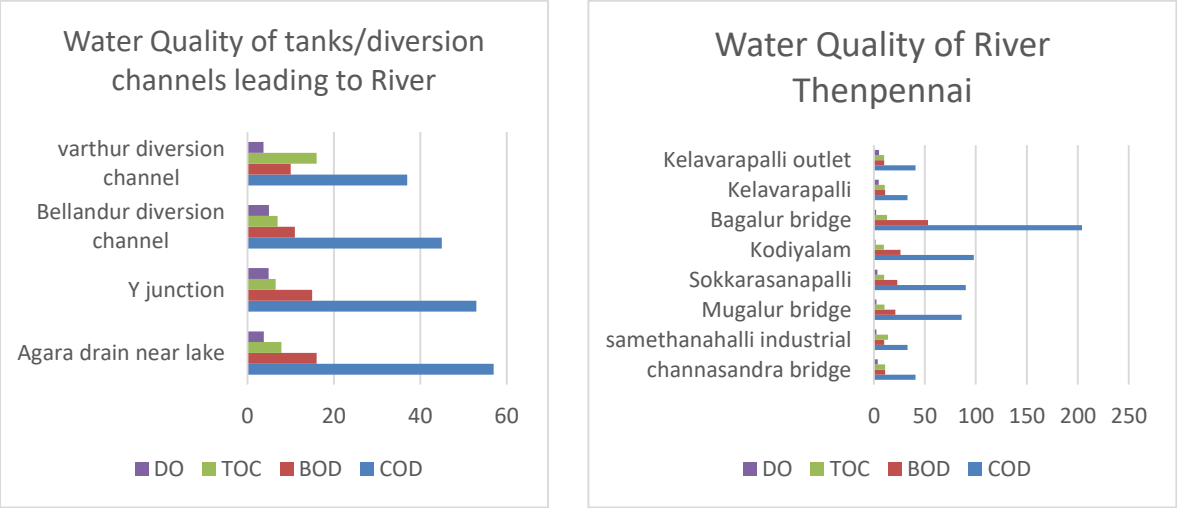


Figure. 10 Analysis results of DO, BOD, COD and Organic load

The total and faecal coliform analysis indicates the 'potability' of water & its suitability for consumption/drinking. The count measures the concentration of total coliform bacteria associated with the possible presence of disease causing organisms. The Total Coliform was found to be non complying in all the sampling points of River Thenpennai. Analysis of Faecal coliform count in River Thenpennai shows that the concentration of microbial

count in the range of 500 to 1600 MPN/100 ml which may be attributed to discharge of untreated and partially treated sewage into the River.

Figure 11 gives the comparison of TC and FC in the 12 locations of River Thenpennai.

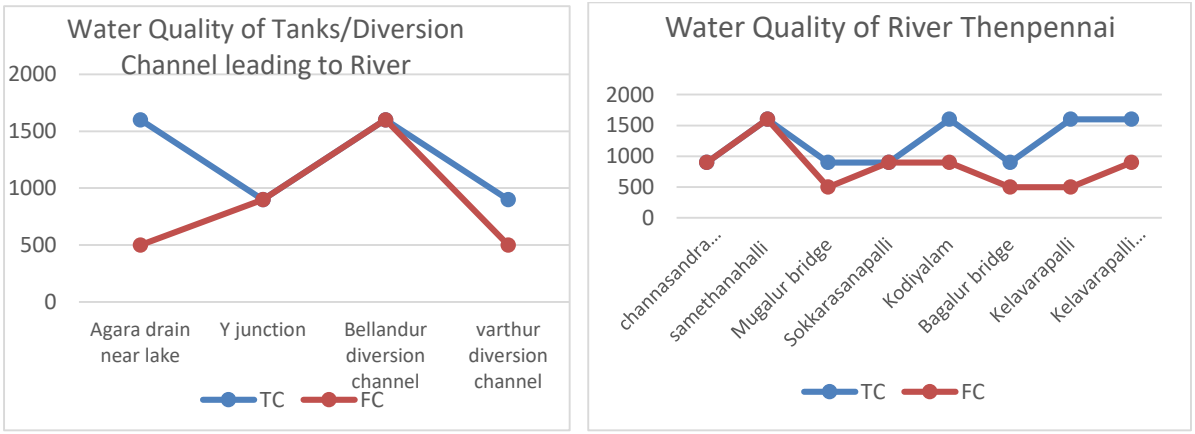
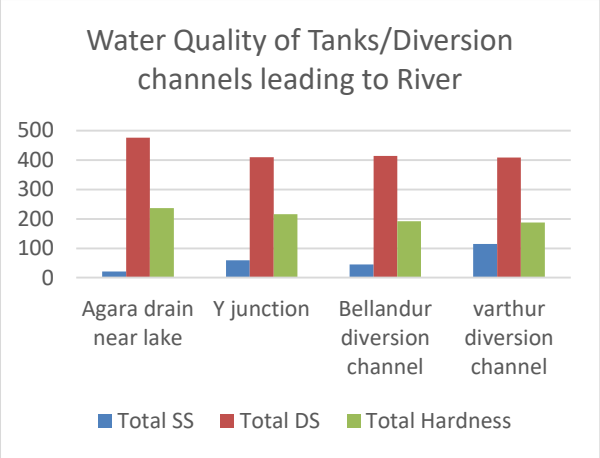


Figure. 11 Analysis results of Total Coliform and Faecal Coliform

Results of suspended solids in the Analysis of water quality in River Thenpennai were compared with the prescribed limits of General Standards for discharge of Environmental Pollutants Part-A: Effluents notified under The Environment (Protection) Rules, 1986, which reveal that the values were not complying in the locations viz., Varthur diversion channel, Channasandra bridge, Mugalur bridge, Sokkarasanapalli, Bagalur bridge, Kodiyalam. The larger the Suspended solids, the larger shall be the presence of bacteria, protozoa and viruses. High TSS wastewater cannot be easily disinfected, as the suspended particles “hide” these microorganisms and also react with chemical disinfectants. The Physico-Chemical Parameters analysed for the samples collected in River Thenpennai is given at **Table 2**. Figure 12 below shows the comparison chart of TSS, TDS and total hardness.

Sample Locations	Table 2. Physico-chemical Parameters (mg/l) analysed in River Thenpennai																				
	TDS	COD	Total Coliform	Total Alk	Fluoride	Chloride	Sulphate	O-Phosphate as P	Total Phosphate as P	Anionic surfactant	Surface Active Agents	Ammoniacal Nitrogen	Total Hardness	Calcium	TKN	Nitrate-N	Nitrite-N	TOC	Na	K	Mg	Phenols
Bengaluru diversion channel of Lakes / Tanks – Outfall into River Thenpennai																					
Agara Drain	476	57	1600	227	3.8	65	41	0.53	0.68	BDL	BDL	BDL	237	69	12.3	2	0.05	7.9	57	11	16	BDL
Y junction drain	410	53	900	216	0.19	65	62	0.47	0.61	BDL	BDL	BDL	216	62	12.6	2	0.23	6.5	44	11.8	15	BDL
Bellandur diversion channel	414	45	1600	216	0.25	75	22	0.84	1.01	BDL	BDL	1.6	192	62	11.5	2	0.12	7	45	10.5	9	BDL
Varthur diversion channel	408	37	900	169	3.8	75	51	0.42	0.62	BDL	BDL	BDL	188	54	11	BDL	0.12	16	44	10.2	13	BDL
Sampling Locations in River Thenpennai																					
Channasandra bridge	536	41	900	216	3.8	126	49	1.06	1.38	BDL	BDL	BDL	209	69	17.3	5	0.36	11	66	12.2	9	BDL
Samethanahalli industrial zone	484	33	1600	192	2.3	100	53	1.11	1.32	BDL	BDL	BDL	184	57	11.3	4	0.3	14	56	11.3	10	BDL
Mugalur Bridge	363	86	900	137	0.23	70	57	0.53	1.73	BDL	BDL	BDL	139	41	12.1	2	0.05	10.4	41	9.3	9	BDL
Sokkarasanapalli	363	90	900	157	0.2	70	21	0.63	0.8	0.34	0.45	BDL	145	41	14.8	BDL	0.01	10	44	9	10	BDL
Kodiyalam	404	98	1600	196	0.35	100	55	0.6	1.7	BDL	BDL	BDL	180	44	19.5	2.2	0.11	9.9	47	9.5	17	BDL
Bagalur bridge	640	204	900	298	1.2	138	19	0.93	1.32	0.43	0.49	BDL	265	74	26.9	BDL	0.03	13	80	13	19	BDL

Kelavarapalli Reservoir	620	33	1600	200	0.23	131	52	0.98	1.57	BDL	BDL	BDL	241	70	6.6	4.9	0.24	10.7	86	14	16	BDL
Kelavarapalli Outfall	612	41	1600	235	0.3	150	33	1.97	2.23	BDL	BDL	BDL	265	65	7.1	2.7	0.25	10	81	13.5	25	BDL
Classification of River Thenpennai	The analysis of Water Samples collected at 12 locations joining River Thenpennai reveals that characteristics of water w.r.t Fluoride is not complying with the permissible limits prescribed under Drinking Water specification of Indian Standard IS 10500:2012 and General Standards for discharge of Environmental Pollutants Part-A: Effluents notified under The Environment (Protection) Rules, 1986 in the areas viz., Agara drain, Varthur diversion channel, Channasandra bridge and Samethanahalli.																				



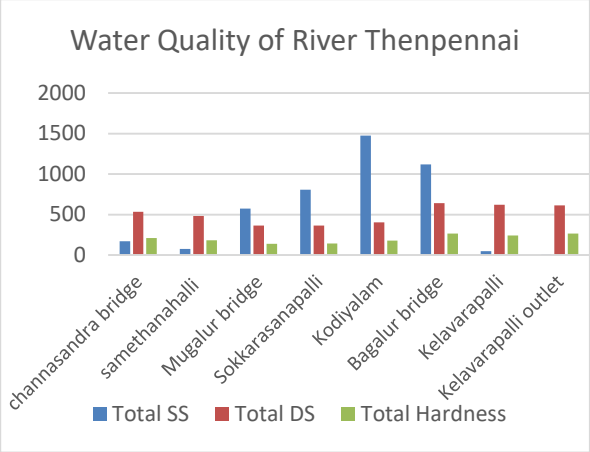


Figure. 12 Analysis results of Suspended Solids and Total Solids

Analysis results of heavy metals in River Thenpennai are given at **Table 3** below. Metals and heavy metals namely, Aluminium, Chromium, Manganese, Iron, Cobalt, Nickel, Copper, Zinc, Total Arsenic, Selenium, Cadmium, Mercury and Lead were analysed in all the 12 locations of River.

Table 3. Heavy Metal Concentrations of 12 locations in River Thenpennai

Sample Locations	Heavy Metals in mg/l												
	Al	Cr	Mn	Fe	Co	Ni	Cu	Zn	Total As	Se	Cd	Hg	Pb
Sampling in diversion channel of Lakes / Tanks, Bengaluru – Outfall into River Thenpennai													
Agara Drain	0.661	0.009	0.152	1.380	BLQ	BLQ	0.004	0.066	BLQ	BLQ	BLQ	0.001	BLQ
Y junction	0.640	0.003	0.221	1.405	BLQ	0.003	0.031	0.051	BLQ	BLQ	BLQ	0.005	0.006
Bellandur diversion channel	0.668	BLQ	0.182	1.174	0.001	0.003	0.010	0.046	BLQ	BLQ	BLQ	0.012	0.005
Varthur diversion channel	0.758	BLQ	0.225	1.637	BLQ	BLQ	0.013	0.042	0.001	BLQ	BLQ	0.005	0.005
Sampling Locations in River Thenpennai													
Channasandra bridge	0.174	BLQ	0.200	0.728	BLQ	BLQ	0.006	42.051	BLQ	BLQ	BLQ	0.003	BLQ
Samethanahalli weir	0.354	BLQ	0.110	0.990	BLQ	BLQ	BLQ	0.003	BLQ	BLQ	BLQ	0.006	BLQ
Mugalur Bridge	1.378	BLQ	0.219	3.148	BLQ	BLQ	0.024	0.042	BLQ	BLQ	BLQ	0.003	0.007
Sokkarasanapalli	1.798	BLQ	0.268	4.202	0.003	0.004	0.022	0.062	BLQ	BLQ	BLQ	BLQ	0.008
Kodiyalam	3.239	0.003	0.379	10.286	0.007	0.010	BLQ	0.172	BLQ	BLQ	0.004	BLQ	0.025
Bagalur bridge	1.510	BLQ	0.348	4.891	0.003	0.005	0.010	0.096	BLQ	BLQ	BLQ	BLQ	0.010
Kelavarapalli Reservoir	BLQ	BLQ	0.216	0.104	BLQ	BLQ	BLQ	21.483	BLQ	BLQ	BLQ	0.002	BLQ
Kelavarapalli Outfall	BLQ	BLQ	0.200	0.221	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	BLQ	0.002	BLQ

Analysis results reveal that concentration of fluoride has been found to be not complying in the locations namely, Agara drain, Varthur diversion channel, Channasandra bridge and Samethanahalli weir. The concentration of fluoride in the River Thenpennai in the above areas were reported to be in the range of 0.19 to 3.8 mg/l, which may be attributed to usage of groundwater as drinking water source alongwith water supplied by Bangalore Water Supply and Sewerage Board followed by untreated sewage discharge into the river. However, as reported by World Health Organisation in its report Fluoride in Drinking Water, Fluorides may also enter a river as a result of industrial discharges (Slooff et al., 1988). The maximum level of fluoride which the body may tolerate is 1.5 parts per million (ppm) which is often based on water fluoride content. The other sources for fluoride are infiltration of agricultural runoff containing chemical fertilisers, improper disposal of liquid waste from industries, alumina smelting, cement production and ceramic and brick firing. Analysis results of Fluorides, Phosphates and Nitrates are given as **Figure 13 and 14** respectively.

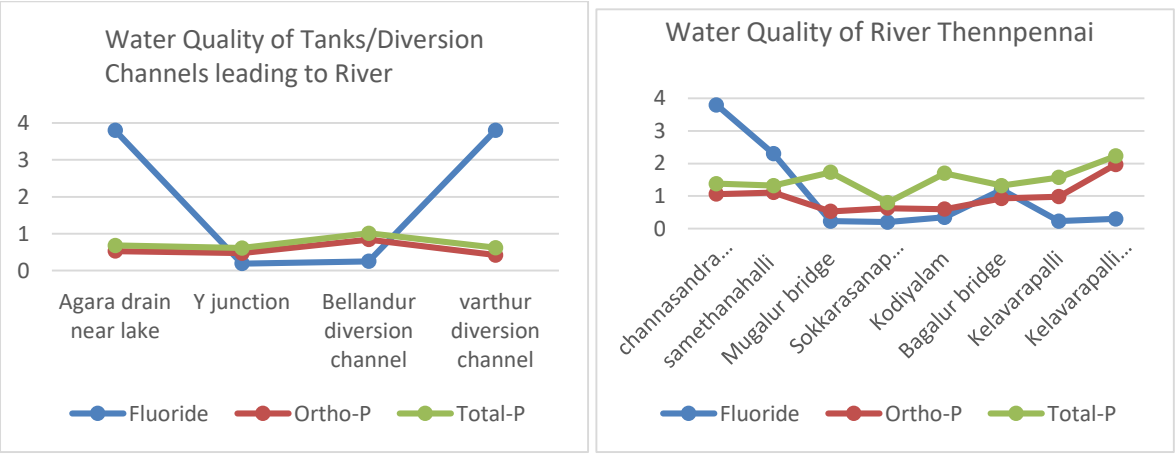


Figure. 13 Analysis results of Fluorides and Phosphates

Nitrogen and phosphorus in all forms are major rate limiting elements essential for the growth of algae and other vegetation in water bodies leading to a state called eutrophication. The greenish color water with large vegetation growth is common sight for not only lakes and ponds but also slow moving rivers. Eutrophication leads to many problems related to water quality: • Large Dissolved oxygen variation leads to fish kills • Filling the water body with dead

algae and other vegetation. • Decomposition of dead algae and vegetation at the bottom causing oxygen depletion and further release of nutrient. • Release of algal toxins and odors causing substances make the water unsuitable for human and animal consumption.

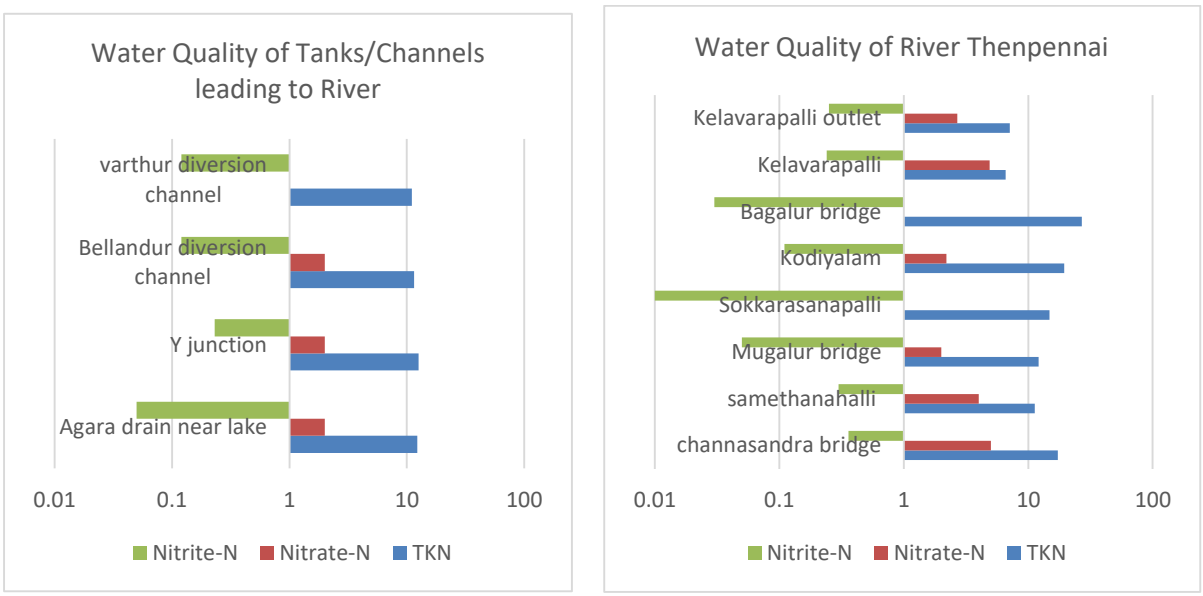


Figure. 14 Analysis results of Nitrates

The water quality was also analysed for the presence of pesticides namely, Anilopho, 2-4 D, Carbaryl, Beta Endosulfan, Aldrin, Dieldrin, Alpha HCH, Alpha Endosulfan, Beta HCH, Delta HCH, Endosulfan sulphate, Ethion, Gamma HCH, o,p' DDD, o,p' DDE, o,p' DDT, p,p' DDD, p,p' DDE, p,p' DDT, Methyl parathion, Malathion, Chlorpyriphos. However, no traces of pesticides was found in the samples collected in River Thenpennai and channels/drain/overflow of tanks leading to the River.

Analysis of water samples collected also reveal that no presence of Anionic Surfactants and Surface Active Agents in River Thenpennai except in Sokkarasanapalli and Bagalur bridge.

It is submitted that, there recorded an average rainfall of more than 100 mm on the previous night of sampling i.e 09.09.2020. Subsequent to the rainfall day, the locations namely, Agara drain, Y junction, Bellandur diversion channel, Varthur diversion channel, Channasandra bridge, Samethanahalli were inspected and samples were collected on 10.09.2020.

5.3 Findings and Observations of the Joint Committee:

1. The stretch of the river is mostly dry to scanty from Origin (Nandi) towards Chikkaballapur district, Kolar District, Bangalore Urban District and Hoskote taluk of Bangalore Rural district. Overflow of water from Bellandur and Varthur lakes carrying domestic sewage of Koramangala & Challaghatta and Hebbal valleys of Bangalore adds to the flow in river Thenpennai thereby causes frothing of river stretch.
2. The Joint committee has also observed that flow of Surface water in River Thenpennai carries about a portion of treated wastewater from STPs i.e 300 MLD {750 (STP capacity) – 450 (Treated water diverted to Kolar & Chikkaballapur)} and untreated sewage i.e 258 MLD (i.e 866 MLD – 608 MLD) of Bangalore, as informed by BWSSB.
3. Solid Waste dumping was found in the locations including Agara drain, Bellandur diversion channel, Y Junction, Channasandra bridge, Mugalur bridge and bagalur bridge, which needs to be removed by the concerned agencies of the State Government. Tamilnadu Pollution Control Board has instructed the Block Development Officer for taking action for proper disposal of solid waste and domestic sewage in the area of investigation, which is provided in Section 6.0 of Chapter VI.
4. Frothy flow was found in locations namely, Samethanahalli, Mugalur, Kodiyalam, Kelavarapalli which may be attributed to mix of industrial effluents and domestic sewage flowing from the areas. However, it is also noted that no presence of surface active agents and anionic surfactants were found in the samples collected during the monitoring except in Sokkarasanapalli and Bagalur bridge.
5. Analysis results of River Thenpennai reveals that the quality of the surface water flowing in River Thenpennai falls under Category E of the Designated Best Use Criteria notified under Environment (Protection) Rules, 1986, which is attributed to absence of sufficient dissolved oxygen and presence of suspended solids followed by faecal coliform in all the locations. There appears deteriorated Dissolved Oxygen in the river stretches from Channasandra bridge to Bagalur bridge.

6. Faecal coliform count in River Thenpennai were found to be in the concentration of 500 to 1600 MPN/100 ml which may be attributed to discharge of untreated and partially treated sewage with night soil contamination.
7. No traces of pesticides were found in the surface water samples collected.
8. It was observed that water flowing in samethanahalli, mugalur, sokkarasanapalli, kodiyalam, bagalur, kelavarapalli is being pumped and used for agriculture in the nearby fields/farms, which may be checked for water quality, on a regular basis by concerned authorities to ensure the water quality, as it is also being used for edible food crops. Necessary steps may be taken by the agricultural departments of respective State Governments.
9. The surface water quality needs improvement in terms of dissolved oxygen, Total Coliform/Faecal Coliform, suspended solids, dissolved solids, fluorides, nitrates, phosphates, organic pollutants and heavy metals.
10. Therefore, the joint committee recommends development of Biodiversity park and wetland as per CPCB Guidelines titled 'Guidelines for setting up of Biodiversity parks in Floodplains of Rivers of India, including River Ganga', at suitable locations and its feasibility may be identified by State Government Authorities of Karnataka and Tamilnadu as a means of remedial measures.

CHAPTER VI

ACTION PLAN AND REMEDIAL MEASURES

6.0 Action Taken Report on Defaulters

A. Action taken on defaulting industries by Tamilnadu Pollution Control Board

In the matter of O.A No. 111 of 2020, Tamilnadu Pollution Control Board carried out inspections of unauthorized dyeing units on 14.09.2020 based on the telephonic message received from the public of Paduthepalli village, Hosur Taluk, Krishnagiri district. During the inspection, TNPCB made following observations;

(i) Two unauthorized dyeing units carrying out dyeing of cotton fabric/hosieries were found operational, namely (a) M/s Veeraraj Dyeing, SF No. 156/1, Pauthepalli Village, Nanthimangalam Post, Hosur Taluk, Krishnagiri District, owned by Smt Yellamma, w/o Sh Bowseruvappa and (b) M/s Moorthy dyeing, SF No. 209/3B2, Pauthepalli village, Nanthimangalam post, Hosur taluk, Krishnagiri district, owned by Smt. Sikkathayamma, w/o Sh Kembaiyya.

(ii) The above units have not obtained Consent to Operate from TNPCB and permission from other Government agencies/authorities. The units were found to be drawing water from agri borewell for the dyeing activity and discharging untreated dyeing effluent into the River Thenpennai through pipeline causing pollution of River.

(iii) The above two units were found to be located within 5 km from the Riverbed of Thenpennai, against the regulations passed by G.O Ms. No. 127/E&F/EC Dept./ECIII/ dated 08.05.1998.

(iv) No Effluent Treatment Plant was provided for the treatment of the trade effluent generated and the untreated dyeing colored effluent was being discharged directly into River Thenpennai through pipeline.

(v) TNPCB sought permission from DC, Krishnagiri and Chairman of District Coordination Committee for Krishnagiri district to stop the illegal discharge of effluent into water bodies/land and to take stringent action against defaulting units as per the guidelines.

(vi) Subsequent to the approval of the Chairman, DCC dated 15.09.2020, actions were taken to disconnect TNEB power supply followed by demolishing of machineries/shed installed by the unauthorized dyeing units on 17.09.2020 by the members of DCC with police protection, to prevent any such dyeing

operations in the future. Photographs taken before and after demolishing the units are provided as Figure 15 below:

(a) Unit I – M/s Veeraraj dyeing (b) Unit II - M/s Moorthy dyeing

(c) Demolishing of M/s Veeraraj dyeing (d) Demolishing of M/s Moorthy dyeing

Figure 15. Action Taken on Unauthorized dyeing units by Tamil Nadu Pollution Control Board

B. Water Quality Analysis of River Thenpennai by TNPCB

TNPCB informed that samples at sokkarasanapalli village have been continued till date. From the said analysis reports, it has been revealed that parameters such as Dissolved oxygen, Biochemical oxygen demand and Total Coliform are exceeding the standards prescribed by the Board.

It has also been submitted by TNPCB that, the industries generating trade effluent in Krishnagiri District are treating their trade effluent through Effluent Treatment Plants and the treated effluent are being either recycled back to their process or discharged on their own land for green belt development after satisfying the standards prescribed by the Board. There is no discharge of trade effluent into river thenpennai from Krishnagiri district. However, all the industries are being closely monitored by Tamilnadu Pollution Control Board. A note on the water quality analysis carried out by TNPCB is appended as ***Annexure VI***.

C. Action Taken by TNPCB with regard to Solid Waste Management and domestic sewage management

On the basis of field survey and investigation carried out by the joint committee in Bagalur bridge alongside River Thenpennai, the following instructions have been given to the Block Development Officer, Hosur Panchayat Union, Hosur, Krishnagiri District by TNPCB;

(i) The Solid Waste and Biomedical waste generated from the areas viz., Bagalur covered under the local body jurisdiction shall be collected, segregated and disposed as per the provisions of Solid Waste Management Rules, 2016.

(ii) The Solid Wastes dumped in the banks of River Thenpennai shall be cleared immediately around the river bed in Bagalur area and near Bagalur Bridge, and to dispose them in a proper scientific manner as per the provisions of Solid Waste Management Rules, 2016.

Similarly, TNPCB has given instructions to the Block Development officer of Hosur panchayat Union in Hosur, Krishnagiri District that the domestic sewage generated from the households, commercial establishments and other activities shall not be discharged into River Thenpennai, and the entire sewage shall be treated and disposed by providing suitable treatment system.

In this regard, the local body has also been instructed to submit action taken report w.r.t solid waste management and sewage management alongwith short term and long term action plan to avoid discharging of sewage into River from the inhabitants of Bagalur.

D. Action Taken on defaulters by Karnataka State Pollution Control Board

(i) Action taken on defaulting industries

1. Thenpennai or Dakshina Pinakini River catchment area is spread over in the following districts;
    a. Part of Bengaluru Urban
    b. Part of Bengaluru Rural
    c. Part of Kolar
    d. Part of Chikkaballapura
2. Following Industrial Areas are located in Thenpennai or Dakshina Pinakini River catchment area:
    i. Jigani
    ii. Electronic city
    iii. Veerasandra Industrial Area
    iv. Bommasandra Industrial Area
    v. Old Airport and HAL Complex.
    vi. Doddanakundi Industrial Area.

vii. Sadaramangala Industrial Area
viii. White field
ix. New Air Port
x. Aerospace park near New Air Port
xi. Hardware Park near New Air Port
xii. Software Park near New Air Port
xiii. Hoskote Industrial Area
xiv. Malur Industrial Area

3. None of the above Industrial Areas are located on the banks of Thenpennai or Dakshina Pinakini River
4. All the above Industrial Areas are located away from the Dakshina Pinakini River.
5. None of the industries are permitted to discharge its effluents in to Thenpennai or Dakshina Pinakini River.
6. Quantity of effluent generation, treatment and utilization in Thenpennai or Dakshina Pinakini River catchment area is as below: -

(i) Generation of Domestic and trade effluents from industries

Total No. of industries (Red+Orange)	Quantity of effluent generated/treated in MLD		Total
	Domestic	Trade	
882	27.04	19.58	46.62

(ii) Treatment and disposal of Domestic and trade effluents from industries

Total generation of Domestic and Trade effluent in MLD	Treatment and disposal of effluent in MLD					
	Septic Tank and Soak Pit (Domestic only)	UGD	CETP	Reuse/On land	Stream	River
46.62	1.79	0.96	0.65	43.22	00	00

Note: As observed from the above table about 93% of treated effluents are utilized on land or reused.

KSPCB has issued Closure Directions to 72 nos. of defaulting industries during 2018 – 2020. Out of which 29 No's of closure directions were revoked after compliance. The list and status is enclosed as ***Annexure VII***. Further, Environmental Compensation imposed on the defaulting industries are discussed in Section 6.1 below.

(ii) Action taken by KSPCB w.r.t Sewage Management in Bangalore

i. Bangalore has nearly 3000 decentralized STPs. The treated sewage is proposed to be used mandatorily for the construction, gardening and Parks maintenance. KSPCB has identified the parks of City Corporation and the forest lands in the Bangalore Rural and Urban Districts and also other plantation on medians, avenues. Their GPS locations and latitude and longitude are obtained. The Excess treated sewage from the independent apartments is being connected to these usages. A user-friendly app is also being developed in the lines of aggregation of Cabs.

ii. A Study is being conducted by the Indian Institute of Science, Bengaluru to check the safety of using the treated sewage for the construction purpose with respect to the strength and the corrosion of steel. The requirement of water for the construction alone is expected to be 52 MLD including the Ready Mix Concrete (RMC) plants and about 20 MLD for other usages.

iii. It is proposed to introduce the Sensors for the online measurement of quality of treated sewage. The specifications have been developed in consultation with the experts and the Indian Institute of Science to make it mandatory to have these sensors to check the quality of the final treated water. This would help in making the quality treated sewage available.

iv. On Continuous persuasion of KSPCB, online real time monitoring equipments are installed by BWSSB at 15 Nos. of STPs located in the Thenpennai or Dakshina Pinakini River Catchment area. The Real time monitoring data is linked to KSPCB server and it is available in KSPCB and BWSSB websites.

Besides above, KSPCB has filed cases against 16 defaulting Apartments w.r.t domestic sewage management. The list and status is enclosed as ***Annexure VIII***. Further, Environmental Compensation imposed on the Apartments are discussed in the section 6.1 below.

(iii) Action taken by KSPCB w.r.t pollution of lakes

KSPCB is monitoring the water quality of 79 lakes located in Dakshina Pinakini River catchment area. The annual water quality is confirming to D/E Class of Primary Water Quality Criteria. The list of lakes and its Quality is appended as ***Annexure- IX***.

Action taken by Karnataka State Pollution Control Board on pollution of lakes in Bangalore is as below;

1. The KSPCB, Regional Office, Bangalore East has filed a Criminal Case under Water Act, 1974 against BWSSB (CC No. 928/2006) w.r.t. pollution of Bellandur Lake.
2. The KSPCB, Regional Office, Bommanahalli has filed one more Criminal Case under Water Act, 1974 against BWSSB in May 2015 (CC No. 30236/2015) w.r.t. pollution of Madiwala Lake, Arakere Lake and Hulimavu Lakes which are feeder Lakes for Bellandur Lake.
3. The Board is monitoring Lake Water quality, treated water quality from BWSSB STPs & other STPs of apartment / Commercial complexes / IT Parks etc., are being regularly monitored by the Board.

(iv) Water Quality Analysis of River Thenpennai by KSPCB

KSPCB is monitoring the water quality of Thenpennai or Dakshina Pinakini River near Mugalur bridge. The water quality is confirming to D/E Class of Primary Water Quality Criteria. The Water Quality of River Thenpennai is appended as ***Annexure X***. Dakshina Pinakini is not a perennial river and the flow is only treated /untreated sewage of Bengaluru. The river water quality can be improved if and only when the sewage is treated in the STPs.

(v) Other Actions and Initiatives by KSPCB for Waste Management

Facilities available at Bengaluru for effective management of various wastes generated:

i. 08 No's of CETPs of total capacity of 1775 KLD are facilitating industries located in and around Bengaluru for effective treatment and disposal of effluents generated from SSI sectors.

ii. 2 No's of TSDF are facilitating Transport, Storage, treatment and Disposal of Hazardous Wastes generated from the industries.

iii. 5 No's of Common Bio Medical Waste Treatment Plants are facilitating Health care establishment in and around Bengaluru for effective treatment and disposal of Bio Medical Waste.

iv. Plastic carry bags are banned in the entire State by Government of Karnataka vide Gazette Notification No. FEE l7 EPC 2012 dated 11.03.2016.

v. For managing the solid waste, 9 land fill sites of 3350 TPD is established by BBMP. To encourage segregation at source, BBMP has established 188 Dry Waste Collection Centre. 10 mixed waste treatment facility, 7 landfill sites, 15 decentralized bio-methanation facility with 5 TPD capacity each. Further, Bulk Generators of waste like Hotels, Restaurants, Kalyan Mantaps, Apartments etc., have

been directed to establish a system to handle Municipal Solid Waste generated in their premises or through empanelled service providers.

vi. Board has accorded permission to BBMP to establish solid waste processing units at 7 different locations. Board has given authorization to M/s Rock Crystals, Bengaluru of installed capacity 1000 TPD for C&D waste processing.

vii. An Integrated Control & Command Centre has been set up at KSPCB, Bengaluru, wherein a common number (080) 2558 2559 is made available for the public. This Centre monitors the complaints until it is attended and the issue is resolved. This centre will also monitor the Emergency Response Vehicles.

viii. KSPCB has addressed the letter to Heads of the Stake Holders viz., BBMP, BWSSB, DMA, BESCOM and Rural Development and Panchayat Raj (RDPR) to co-operate in identifying the polluting industries operating without consent of the Board and having trade license or not to prevent pollution of Water bodies. Copy of the letter is enclosed as ***Annexure-XI***.

ix. KSPCB has called expression of interest for installation CETP (Common Effluent Treatment Plant) at Peenya Industrial Area for treatment of Industrial Effluents generated from the Small Scale Surface treatment units.

x. All the common effluent treatment plants of the state are being fitted with the sensors which monitor the key parameters and also the quantity of effluents received and treated. The movement of vehicles is also tracked through GPS. The data is synced with the Command Control Centre for effective monitoring.

The control and prevention of pollution is a continuous process. Hence, the KSPCB is making all efforts to arrest and prevent pollution both Air & Water pollution on a continuous basis. Active co-operation is being sought from other Departments like BWSSB, BBMP, BDA and local bodies, else, the task of prevention and control of pollution cannot be accomplished. The KSPCB will undertake to continue its efforts to prevent and control the pollution within the parameters laid down under the provisions of Environmental Protection Act, Air Act and Water Act and abide by any directions to be issued by the Hon'ble NGT.

6.1 Environmental Compensation

(i) With Respect to Violations observed in Sewage Management by KSPCB

With regard to generation of sewage by the 873 Apartments located in the catchment area of the lakes (Bellandur and Varthur), the Hon'ble NGT vide order dated 6.12.2018 having accepted the recommendations of the NGT

commission directed defaulting units to pay Environmental Compensation as per the table given below:

S No	Violations	Environmental Compensation
1	Where STP is required as per the EC/ Consent, but the facility has not constructed the STP despite generating sewage.	Rs. 10 Lakhs per month from the date of completion certificate or date of completion
2	Where actual capacity of STP is less than the capacity as shown in the EC/ Consent	Rs. 20000/per day from the date of inspection till final upgradation
3	Where the number of flats/ units actually constructed is more than the number of flats / units disclosed to KSPCB while obtaining Consent	Rs. 1 Lakh per unit per month from the date of construction until the grant of fresh requisite consent
4	Where STP is not functioning or parameters are not being met or untreated sewage is being bypassed from the STP or being otherwise diverted	Rs. 5 lakhs per default.

Thereafter, the Hon'ble NGT vide direction in its order dated 21.10.2019 in OA No. 125/2017 in Paragraph (13), Karnataka SPCB has been made responsible to collect Environmental Compensation charges towards non – compliance by the Apartments/ Township/Commercial Establishments.

In view of the above, Board had assessed and issued Environmental Compensation notice related to not providing STP and also for non-conformity/by pass/discharge of treated/untreated sewage by the defaulting units. Further, Show-Cause notice and notice of proposed directions were issued for continued violation.

In respect of the non compliances of the treated sewage, out of 376 units, 22 units have paid an Environmental Compensation (EC) amount of Rs 115 lakhs. Further, 6 Number of Petitioners have approached the Hon'ble High Court (writ petition No. 4540/2020). The Hon'ble High Court has issued interim order on 26.02.2020 directing the KSPCB to issue Show cause notice to the petitioner.

Post-COVID 19, Video Conference was done on 04.07.2020 calling all the Apartments who are due to pay the EC. After hearing them, the Board has taken a decision and directed the defaulters to pay the Environmental Compensation Charges as assessed by the Board earlier otherwise to initiate actions under 33(A) of the Water Act and as per the direction of the Hon'ble

NGT. Post the personal hearing, as no EC has been paid, and the personal hearing proceedings are being brought to the notice of the Hon'ble NGT, Hon'ble High Court and Board would initiate action and the process is initiated and shortly the closure orders will be issued for such units by Karnataka SPCB.

KSPCB has imposed EC of Rs. 288.80 Crores on 496 No's of Apartment/Commercial establishment and Rs. 1.40 crores was collected. Details of Environmental Compensation imposed and collected are appended as ***Annexure- XII & XIII***.

Further, it is also submitted that in compliance with the Hon'ble Green Tribunal order dated 18.12.2019 in the matter of O.A No. 125/2017 before Principal Bench, the status and progress on sewage management (as on 15.07.2020) as submitted by Bangalore Water Supply and Sewerage Board before Hon'ble Tribunal is appended as ***Annexure XIV***.

(ii) With Respect to Violations observed in Industrial Discharge by KSPCB

As per the directions of the Hon'ble NGT in OA 1038/2018, KSPCB has imposed Environmental Compensation in respect of 36 No's. of industries. However, the Hon'ble Supreme Court of India has stayed the process of levying of Environmental Compensation vide Civil Appeal Diary No.19271/2020 on 22.09.2020. Details of Environmental Compensation imposed by KSPCB on defaulting units are enclosed as ***Annexure XV***.

With regard to industries observed to be discharging into River Thenpennai during the Joint committee monitoring, it is submitted that those units were illegally operating and the same were made to close immediately. The joint committee also observed that those units are falling under small and micro scale units operating illegally.

6.2 Long Term and Short Term Action Plan for improving the Water Quality of River Thenpennai

The joint monitoring team comprising of CPCB, KSPCB and TNPCB have reported in the case of Original Suit No. 02 of 2015 that, "*the River Thenpennaiyar receives the outflow of treated and untreated sewage of Bellandur and Varthur lake system. Comprehensive plan of restoration of these lakes along with identifying other sources of untreated sewage into the River only will help to restore the quality of the river. Government of Karnataka may prepare such plan on priority considering the pollution issues of Bellandur and Varthur lake system, which contributes to the Pollution of Thenpennaiyar River*". Further, Hon'ble Tribunal, Principal Bench, New Delhi, in the matter of O.A No. 125/2017, constituted a monitoring committee headed by Justice Sh Santosh Hegde, former Judge of the Hon'ble Supreme Court to oversee the execution of the action plan on

remedial action for restoration of Bellandur, Agara and Varthur lakes at Bangalore.

The joint committee with due cognizance of the water quality of River Thenpennai reported in section 5.2 above and the action plan already reported by the joint monitoring team comprising of CPCB, KSPCB and TNPCB and execution of the action plan on remedial action for restoration of Bellandur, Agara and Varthur lakes at Bangalore by the monitoring committee in O.A no. 125/2017, the following long term and short term action plan has been prepared;

Action Points	**Present Status**	**Proposed Action by the Joint Committee**	**Agency Responsible (Timeline)**
Estimation of flow of water in River Thenpennai	The outfall flow of water in major tanks/lakes located in Bengaluru leading to River Thenpennai are being estimated by BWSSB as (as on September, 2020): (i) Agara lake – 139.31 MLD (ii) Bellandur lake – 268.25 MLD (iii) Varthur lake – 275.25 MLD In the absence of flow data of the tanks/lakes and major drains whose outfall joins River Thenpennai, the flow data of River Thenpennai can not be arrived at.	1. BWSSB to measure the flow and discharge of all the tanks / lakes located in Koramangla & Challaghatta, Hebbal Valleys flowing in to River Thenpennai viz., Agara, Bellandur, Varthur, Channasandra, Yellamalappa Chetty, samethanahalli weir Mugalur etc. Flow details of tanks in the upstream (Hoskote taluk, Bangalore rural, chikkaballapur) may also be included if overflow is detected. 2. Flow or discharge of each of the tanks that are recharged by treated wastewater by BWSSB i.e. 126 tanks in Kolar District and 65 tanks in Chikaballapur district. 3. Measurement of flow of all the major	BWSSB and Minor Irrigation (Three months) Minor Irrigation (Three months) BWSSB and Minor Irrigation (Three months)

		drains (i.e storm water drains) joining the river for estimate of flow of River Thenpennai and maintenance of all records.	
Study of Performance evaluation of Sewage Treatment Plants in Bangalore by engaging a CSIR institute	The performance of the STPs located in Koramangla and Challaghatta, Hebbal Valleys are being assessed based on its capacity utilised and characteristics by BWSSB. However, the treated waste water quality needs to be ascertained. Further, Water quality of water (treated water by BWSSB) diverted for irrigation to chikkaballapur and Kolar Districts through Minor Irrigation Department is required to be assessed. Therefore, there is need to conduct audit of the data of quantity of sewage generation, sewage treatment capacity installed vs actually operated and treated wastewater characteristics.	(i) BWSSB may engage a CSIR Institute like CLRI or NEERI or others for evaluating performance of STPs located in K&C and Hebbal valleys. (viz., there are 32 STPs in Bangalore including 21 STPs in Koramangla & Challaghatta and Hebbal Valleys). The same may be supervised by KSPCB. The final report may be submitted to KSPCB for review. (ii) Completion of sewerage network for the villages in Koramangla & Challaghatta and Hebbal Valleys (of 110 villages identified by BBMP) for tapping the sewage generated, as already submitted to Hon'ble Tribunal, Principal Bench, Delhi in the matter of O.A no. 125/2017. (Next date of hearing: 15.01.2021)	BWSSB and KSPCB (Six months) BWSSB (as per the timeline fixed in O.A No. 125/2017)

		(iii) Strengthening of STP conveyance system to improve sewage getting completely tapped and treated, in order to avoid discharge into River Thenpennai. (iv) The outcome of the performance study of STPs may be submitted as Status of Compliance of the State Functionaries of Karnataka to the Monitoring Committee constituted in the matter of O.A 125/2017, for review and reporting.	BWSSB (on a regular basis) KSPCB and BWSSB (after completion of the study)
Random Verification of grossly polluting (water polluting) industries located in the River Basin and Assessment of wastewater management and discharge mode.	The information of grossly polluting industries located in the river basin alongwith the status of effluent management has been compiled by KSPCB.	Among the industries those that are Red/Orange category (small, medium and large) with treated effluent discharge option as surface water/sewer drain/others (which includes industries having ZLD) in River basin of Thenpennai be monitored for effluent characteristics by concerned SPCBs, so as to ascertain the quality of treated effluent discharge as per the Consent Conditions of SPCBs. The details of the compliance status and action taken report be placed in public	TNPCB & KSPCB (six months)

		domain (TNPCB and KSPCB website).	
Rejuvenation of lakes to remediate the pollution caused in River Thenpennai	Bellandur and Varthur lakes are being desilted by Bangalore Development Authority (BDA) and awaits guidelines and silt analysis report from Karnataka SPCB for disposal of the silt followed by development of Biodiversity park and wetlands in compliance with the Hon'ble NGT Orders in the matter of O.A No. 125/2017.	Advisory for development of Biodiversity park and wetland in the River basin of Thenpennai or Dakshina Pinakini as per CPCB Guidelines titled '*Guidelines for setting up of Biodiversity parks in Floodplains of Rivers of India, including River Ganga*' be notified in consultation with Government of Karnataka and KSPCB. Completion of Biodiversity park, which comprises of; (i) Feasibility study for development of Biodiversity parks in the River basin of Thenpennai (ii) Preparation of Detailed Project Report (DPR) for development of Biodiversity parks in Bellandur an Varthur (iii) Award of Project (iv) Completion of the Project	BDA and concerned State functionaries of Government of Karnataka (six months) Bangalore Development Authority (not more than One year or as per the timeline fixed in O.A No. 125/2017)
Environmental Compensation be imposed by SPCBs after evaluating performance of STPs and identification of defaulters upon Random Verification.	Performance evaluation of STPs by BWSSB and random inspection of industries is required to be carried out by KSPCB/TNPCB with	EC be calculated and imposed based on the Performance Evaluation of STPs and Random Verification of Grossly Polluting Industries.	BWSSB and KSPCB (Six months) TNPCB (Six months)

	specific reference to River Thenpennai.	EC be calculated and imposed based on Random Verification of Grossly Polluting Industries Calculation of EC by the three member Committee comprising of CPCB, TNPCB and KSPCB, after submission of Reports by the concerned authorities (BWSSB, KSPCB, TNPCB).	CPCB (Six months on receipt of the Study Report and recommendations/criteria for imposing EC from KSPCB and TNPCB)
Sewage and Solid Waste Management in the villages (13) adjoining River Thenpennai up till Kelavarapalli	Among the villages located near River Thenpennai, Bagalur is having population of about 11,000 and the domestic sewage generation is estimated to be 0.0715 MLD. Further, Solid Waste generation in Bagalur is estimated to be about 1.5 Tons/day.	Feasibility study for providing Sewage Treatment options (such as oxidations ponds/ diversion channels or wetlands etc.) by TNPCB followed by implementation by Local authority of the district. Solid Waste Management Plan be devised and executed by concerned Block Development Officer, Hosur taluk to ensure the solid wastes are not disposed on the riverside and managed as per Solid Waste Management Rules, 2016.	Feasibility study by TNPCB in consultation with local authority for implementation (six months) Concerned Block Development Officer to submit to TNPCB (six months)
Regular Water Quality Monitoring at important locations	Water Quality is being monitored by KSPCB by installing real time monitoring stations in Bellandur and Varthur. Further, Mugalur bridge and sokkarasanapalli is being monitored under National Water	The trend of water quality and its improvement at major confluence points may be monitored for the year 2021-22 on a monthly basis and a report be submitted to CPCB to ensure the quality of water	TNPCB & KSPCB (to monitor on yearly basis)

	Quality Monitoring Programme.	flowing in River Thenpennai. Responsibility as a Custodian of Rivers/tanks in Karnataka vests with State Functionaries namely, BWSSB, BBMP, BDA, Lake Development Authority, Minor Irrigation Department. Therefore, Water Quality of the water flowing in River Thenpennai be maintained pristine and tested for its characteristics in the respective jurisdictions.	BWSSB, BBMP, BDA, Minor Irrigation Department (every year)

6.3 Remedial Measures - Action Plan for Rejuvenation of Lakes

The Bellandur Lake has a catchment area of about 148 sq.km (37,000 acres) spread across Central, South, East & South East of Bangalore. The Lake receives water from three main valleys: a) Valley originating from JP Nagar, Puttenahalli, Bilekahalli, Arekere Lake, Hulimavu Lake, Madiwala lake, BTM Layout, HSR Layout, Agara Lake & finally joining Bellandur Lake; b) Valley originating from Shivajinagar, Ulsoor Lake, Domlur, Indiranagar, HAL and finally joining Bellandur Lake; and c) Valley originating from Kalasipalya, Lalbagh Road, KH Road, Shantinagar Bus Station, National Games Village, Ejipura, Sinivagilu and finally joining Bellandur Lake.

There are two outflow weirs to Bellandur Lake – One near Bellandur Village & other near Yemlur Village. Lake series joining Bellandur Lake are Sarakki Lake, Arakere Lake, Begur Lake, Madiwala Lake, Agara Lake, Ibblur Lake. Both the outflow finally joins Varthur Lake. The outflow from Varthur Lake joins South Pinakini River.

Varthur lake has a total area of 439 acres and 34 Guntas with total periphery length of 8.4 km. The lake receives water from 5 inlets and the 02 outlets. For flood control and water level management near Varthur, waste weir sluice gates are provided.

Desilting work is under progress in Bellandur and Varthur lakes as per the directions of Hon'ble NGT. Then, wetland construction will be carried out

post de-silting work by Bangalore Development Authority which is shown in **Figure 16** below.

a. Varthur Lake

B. Bellandur Lake

Figure 16. Desilting work under progress by Bangalore Development Authority

Further, development of biodiversity parks in those lakes are also under progress. The above status has been reported by BDA in compliance to the orders of Hon'ble NGT dated 14.08.2020 in the matter of O.A No. 125/2017, to oversee the execution of the action plan on remedial action for restoration of Bellandur, Agara and Varthur lakes at Bangalore, including preventing discharge and dumping of pollutants, removing encroachments from catchment area and other steps for restoration by the monitoring committee headed by Justice Sh Santosh Hegde, former Judge of the Hon'ble Supreme Court.

6.4 Notification of Standards for Phosphorus in Soaps & Detergents

Froth formation and related items are taken up by NGT in OA 125/2017 and noted that, major cause for foam formation is considered to be discharge of untreated sewage through open drains.

i. As per directions of the Hon'ble National Green Tribunal, MoEF& CC and CPCB have been requested by KSPCB to limit the phosphorous content in Soaps & Detergents being manufactured by the industries. Since it is a Standard specified on a product, the same is to be effected by Bureau of Indian Standards. In this regard Bureau of Indian Standards has published notification during August 2020 for the following products.
    a. Synthetic Detergents for washing woollen and silks Fabrics - Specification (Second Revision)
    b. Household Laundry Detergent Bars- Specification (Third Revision)

c. Household Laundry Detergent Powders- Specification. (Fifth Revision).

ii. The above notifications are enclosed as ***Annexure- XVI***.

CHAPTER VII

CONCLUDING REMARKS

The causes and sources of pollution has been assessed by the joint committee based on the samples collected from 12 locations in River Thenpennai during September, 2020. It has been ascertained that, the water quality of River Thenpennai falls under the category of Class E (Irrigation, Industrial Cooling, Controlled Waste disposal) of the Designated Best Use Criteria notified under Environment (Protection) Rules, 1986. The reason being largely, the discharge of treated and untreated sewage from Bangalore, a Comprehensive plan for restoration of the quality of River Thenpennai is under consideration before Hon'ble Supreme Court in O.S No. 02 of 2015 and Hon'ble National Green Tribunal O.A No. 111 of 2020.

In cognizance of the above, the joint committee has devised an Action plan (Long Term and Short Term with timelines) under section 6.2 of Chapter VI for restoring the quality of River Thenpennai. Therefore, it is humbly prayed that, the improvement of River Water Quality would require union of orders/directions of Hon'ble NGT in O.A No. 125/2017 and in O.A No. 111/2020 along with directions of Hon'ble Supreme Court in O.S No. 02 of 2015.

.....

Sh. Gunasekaran
Revenue Divisional Officer &
Sub Divisional Magistrate, Hosur

.....

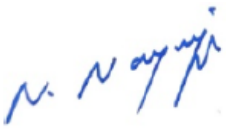
Sh M G Shivanna
Asst. Commissioner
Bangalore(South)

.....

Sh. N Suresh
SE, PWD, Tiruvannamalai

.....

Sh B H Manjunath
SE, PWD, Bangalore



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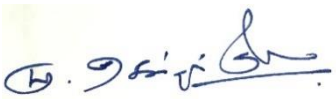
Sh N Nagaraj
SE, Minor Irrigation Dept
Bangalore



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Dr M Senthil Kumar
DEE, TNPCB, Hosur

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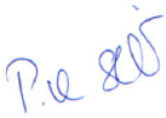
Sh M K Prabhudev
CEO, KSPCB
Bangalore



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Ms. P K Selvi
Sc D, CPCB
Bangalore

(Note: The Joint Committee members have given concurrence by email and e-signatures were obtained)

Item No.02:

BEFORE THE NATIONAL GREEN TRIBUNAL

SOUTHERN ZONE, CHENNAI

Original Application No.111 of 2020 (SZ)

(Through Video Conference)

IN THE MATTER OF:

Tribunal on its own motion SUO MOTU
Based on the News Item in Tamil Newspaper Dinamalar Chennai Edition dated 13.07.2020, "Frothing of Chemical foam in the River Thenpennai.

...Applicant(s)

Versus

1. The Principal Secretary to Government,
   Public Works Department,
   Secretariat, Fort St. George,
   Chennai – 600 009.

2. The Secretary to Govt. of Tamil Nadu,
   Department of Environment,
   Govt. Secretariat, Fort St. George,
   Chennai, Tamil Nadu - 600 009.

3. The Secretary to Government to Karnataka
   Department of Forest Environment & Ecology,
   Room No. 708, Gate 2, Multi Storied Building,
   Dr. Ambedkar Veedhi, Bangalore 560 001.

4. Engineer –in – Chief (Water Resources Organisation),
   And Chief Engineer (General),
   Public Works Department,
   Chepauk, Chennai 600 005.

5. The Chairman,
   Tamil Nadu Pollution Control Board
   No. 76, Anna Salai, Guindy,

Chennai, Tamil Nadu – 600 032.

6. The Chairman,
   Karnataka State Pollution Control Bard,
   "Parisara Bhavn" No. 49 4th& 5th Floor,
   Church Street, Bangalore 560 001.

7. The District Collector,
   Krishnagiri District,
   Ist Floor Collectorate,
   Krishnagiri 635 001.

...Respondent(s)

Date of hearing: 20.07.2020.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER

For Applicant(s) By Court

For Respondent(s): Sri. S.N. Parthasarathy through M/s. Girija for R1,2,4,5 & 7

Sri. Abdul Saleem through Sri. Saravanan for R5

Sri. M.R. Gokul Krishnan for Karnataka State pollution Control Board.

ORDER

1. The above case has been SuoMotu registered by this Tribunal on the basis of the news paper report published in Dinamalar,

Chennai City Supplement Edition dated, 13.07.2020 under the caption "*தென் பெண்ணை ஆற்றில் தேங்கிய ரசாயன நுரை*"

"**Frothing of Chemical Foam in the River Thenpennai"**

2. It is seen from the report that large scale foam has been seen in Thenpennai River which according to the report is due to discharge of untreated chemical effluents from the industries and the allegation was that it is coming from Karnataka state.
3. Further, it is also alleged that whenever the water is released through this river from Kelavarappalli Reservoir, then the foam appears in the river which affects the water quality.
4. It is also alleged that apart from discharge of chemical effluents from the industries, residential sewage is also being mixed with the water affecting the quality of the water.
5. When the matter came up for hearing for admission today through Video Conference, Sri. S.N. Parthasarathy through M/s. Girija represented Respondents 1,2,,4,5 & 7 and Sri. Abdul Saleem through Sri. Saravanan represented 5th respondent and Sri. M.R. Gokul Krishnan represented Karnataka State pollution Control Board, 6th respondent.
6. On going through the allegations in the report, we are satisfied that there arises a substantial question of environment which requires the interference of this Tribunal for resolving the same.

Time and again it has been reiterated by the Hon'ble Apex Court and also by the National Green Tribunal in several cases, that there is a duty cast on the state machineries and the local bodies to protect the water bodies against encroachment and pollution as provided in the directive principles under Article 48 (A) of Constitution of India as providing clean water is treated as part of right to life as enshrined Under Article 21 of the Constitution of India.

7. Considering the circumstances and also to ascertain the present status and genuineness of the allegations made in the report, we feel it appropriate to appoint a joint committee comprising of the following officials:

(i)District Collector, Krishnagiri District or the Officer not below the rank of Assistant Collector, or Sub-Divisional Magistrate who is in charge of that area nominated by the District Collector,

(ii) Superintending Engineer of Public Works Department and Water Resources Organisation, who is in charge of this area.

(iii) a Senior Officer from Central pollution Control Board, Regional Officer, Bangalore.

(iv)a Senior Officer deputed by the Chairman from Tamil Nadu Pollution Control Board.

(v) a Senior Officer deputed by the Chairman, Karnataka State Pollution Control Board.

(vi) District Collector, Bangalore Urban District or any Officer not below the rank of Assistant Collector or a Sub-Divisional Magistrate deputed by the District Collector, Attibele, Bangalore Urban District to inspect the area in question and submit status as well as action taken report, if there is any violation found.

8. The committee is directed to ascertain the water quality and also ascertain the sources of pollution and take action against the person who are responsible in accordance with law including imposition of environmental compensation.

9. The committee is also directed to submit a long term and short term action plan with shorter time lines to protect the water body against pollution. If there is any contamination caused, the committee is also directed to suggest ways and means to remedy the same.

10. The Central Pollution Control Board, Regional Office, Bangalore will be the nodal agency for co-ordination and for providing all necessary logistics for this purpose.

11. The committee is directed to submit the report to this Tribunal within a period of two months i.e., on or before 05.10.2020 through e-mail @ ngtszfiling@gmail.com or by e-filing.

12. The Registry is directed to communicate this order to the members of the committee along with the paper report and the gist

of the Suo-Motu proceedings with the cause title and also to the official respondents immediately by e-mail, so as to enable them to submit the report as well as their independent responses of the official respondents in this matter.

13. For consideration of report and for filing of independent responses by the official respondents regarding the matter, post on 05.10.2020.

.....J.M.
(Justice K. Ramakrishnan)

.....E.M.
(Shri. Saibal Dasgupta)

O. A. No. 111/2020(SZ)
20th July 2020. Sr.

Item No.10:

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Original Application No. 111 of 2020 (SZ)

(Through Video Conference)

IN THE MATTER OF:

Tribunal on its own motion
Suo Motu based on the news
Item in Tamil Newspaper
Dinamalar Chennai Edition
Dt.13.07.2020, "Frothing of
Chemical Foam in the River Thenpennai"

... Applicant(s)

Versus

The Principal Secretary to
Government,
Public Works Department,
Chennai & Ors.

...Respondent(s)

Date of hearing: 05.10.2020.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER

HON'BLE MR. SAIBAL DASGUPTA, EXPERT MEMBER

For Applicant(s): By Court.

For Respondent(s): Sri. S.N.Parthasarathi through
M/s. Girija for R1, R2, R4, R7.
Sri. Darpan for R3.
Sri. C.Kasirajan through
Sri. Ajith for R5.
Sri. M.R. Gokul Krishnan for R6.
Sri. Thirunavukarasu for CPCB.

ORDER

1. The above case has been Suo Motu registered by this Tribunal on the basis of the newspaper report published in Dinamalar Chennai City Supplementary edition dated 13.07.2020 under the caption "*தென் பெண்ணை ஆற்றில் தேங்கிய ரசாயண நுரை*" *(Frothing of Chemical Foam in the River Thenpennai).*

2. As per order dated 20.07.2020, this Tribunal had constituted a Joint Committee and directed the committee to submit the report and posted the case to today for that purpose.

3. When the matter came up for hearing today through Video Conference, Sri. S.N. Parthasarathi through M/s. Girija represented respondents 1, 2, 4, & 7, Sri. Darpan represented 3rd respondent, Sri. C.Kasirajan through Sri. Ajith represented 5th respondent, Sri. M.R. Gokul Krishnan represented 6th respondent and Sri. Thirunavukarasu represented Central Pollution Control Board who has been designated as the nodal agency. So, service is complete.

4. We have received an interim report submitted by the Joint Committee which reads as follows:-

> *"**1.0 Background:***
>
> *Hon'ble National Green Tribunal, Southern Zone, Chennai in the matter of O.A No. 111 of 2020; Tribunal on its own motion based on the News Item in Tamil Newspaper Dinamalar Chennai Edition dated 13.07.2020, "Frothing of Chemical Foam in the River Thenpennai" Vs The Principal Secretary to Government, Public Works*

Department, Chennai & Ors., passed orders dated 20.07.2020. Copy of Hon'ble NGT Orders dated 20/07/2020 is appended as ***Annexure I.***

Excerpts of the News Item in Tamil Newspaper Dinamalar Chennai Edition dated 13.07.2020, "Frothing of Chemical Foam in the River Thenpennai" is given below:

(i)On 13th July, 2020 about 640 Cusecs water was discharged from Kelavarapalli Reservoir, Hosur and huge amount of chemical foam was found in Thenpennai River.

(ii)The flow of water into the reservoir increased gradually from 320 cusecs (09th July, 2020) to 480 cusecs (11th July, 2020) due to heavy rainfall in the catchment area.

(iii)In general, whenever the flow of water increases in Kelavarapalli reservoir the domestic sewage and industrial effluent from Karnataka mixes into the river in huge quantity.

(iv)On the day of 13th July, 2020, a huge quantity of sewage/effluent were discharged into Thenpennai and therefore, chemical froth/foam were found floating on the surface of water flowing in Kelavarapalli and near thattakalapalli bridge.

Hon'ble Tribunal(SZ), Chennaivide its ordersdated 20.07.2020 appointed a Joint Committee to inspect the area in question and submit status as well as action taken report, if there is any violation found. The Hon'ble Tribunal has also issued following directions to the committee;

(i)To ascertain the water quality and also ascertain the sources of pollution and take action against the person who are responsible in accordance with law including imposing of environmental compensation.

(ii)To submit a long term and short term action plan with shorter time lines to protect the water body against pollution. If there is any contamination caused, the committee is also directed to suggest ways and means to remedy the same.

Hon'ble Tribunal vide aforesaid orders directed the committee to submit the report within a period of two months i.e., on or before 05.10.2020.

2.0 ***Constitution of Joint Committee and Meetings***

In compliance to the aforesaid orders dated 20/07/2020 of Hon'ble Tribunal (SZ), Chennai, a Joint Committee comprising of following members has been constituted by Central Pollution Control Board (Nodal Agency) vide its Office Memorandum No. Tech 39/Legal(NGT)/RDS/2020-21/466-474 dated 24.08.2020 and 16.09.2020. Copy of the said Office Memorandum is appended as ***Annexure II& III.***

1.	*Sh. Gunasekaran* *Revenue Divisional Officer &* *Sub Divisional Magistrate* *Hosur Division, Tamilnadu*	*Member*
2.	*Sh. N Suresh* *Superintending Engineer, WRO* *Public Works Department* *Tiruvannamalai, Tamilnadu*	*Member*
3.	*Sh B H Manjunath** *Superintending Engineer* *Public Works Department* *Bangalore Circle, Karnataka*	*Member*
4.	*Sh. N Nagaraj* *Superintending Engineer* *Minor Irrigation & Ground Water Development Circle,* *Jayanagar,* *Bangalore, Karnataka*	*Member*
5.	*Dr M Senthil Kumar* *District Environmental Engineer* *Tamilnadu Pollution Control Board* *Hosur District, Tamilnadu*	*Member*
6.	*Sh. M K Prabhudev* *Chief Environmental Officer – 2*	*Member*

	Karnataka Pollution Control Board *Bangalore, Karnataka*	
7.	*Sh Shivanna M G* *Assistant Commissioner (South)* *Bangalore Urban* *Karnataka*	*Member*
8.	*Smt. Selvi P K* *Scientist D, Regional Directorate* *Central Pollution Control Board* *Bangalore*	*Nodal Officer & Member*

**Subsequent to transfer of Sh. K Durugappa, Superintending Engineer vide Government of Karnataka Order dated 28-08-2020, Sh B H Manjunath, Superintending Engineer, PWD, Bangalore has been nominated as a member of the above Joint Committee.*

Three meetings were organized by Central Pollution Control Board, Bangalore (Nodal Agency) with the members of Joint Committee on 20.08.2020, 04.09.2020 and 18.09.2020 and minutes were circulated for necessary actions. First and Second Meeting of the Joint Committee were conducted on 20.08.2020& 04.09.2020 to discuss about the preliminary information to be collected before conducting Monitoring and Sampling of River Thenpennai. Therefore, the joint committee decided to collate following information from the concerned departments to carry out further investigations in the matter;

S.No	***Information Required from concerned Departments /Organisations in Tamilnadu and Karnataka***
A.	***Minor irrigation and Water Resources Organisations***
1. *2.*	*Drainage River Map of Thenpennai.* *Details of Water Quality Monitoring locations (viz.,drainage (flow), length, velocity etc.) in the entire stretch of river from origin till Kelavarapalli Reservoir.*

3. 4. 5. 6.	*Designated use of water flowing in the river stretch* *Quantity of water discharged from the river stretch for irrigation and other purposes* *Annual Rainfall and Rainfall details for August, September, October 2020* *Custodian of the river to preserve the quality of water to be pristine.*
B.	***State Pollution Control Boards***
7. *8.*	*Details of Water quality Monitoring Locations and water quality data of the River in terms of DO, BOD, COD, TC, phosphates & others for the last three years.* *Major Sources of pollution (industrial and domestic) –* *(a) Status of list of industries with its type/category/classification,Effluent generation, characteristics, treatment, discharge details etc.* *(b) Details of domestic effluent generation, treatment, discharge options etc.* *(c) Status of Operation of Sewage Treatment Plants with its performance evaluation.* *(d) Information regarding open dumping of solid or biomedical or hazardous waste, open burning of waste and illegal encroachment or other activities along the river bed etc.*
C.	***Public Works Department***
9. *10.*	*Status of sewage discharge and sewerage networking plan in the unsewered area.* *About Kelavarapalli dam and designated use of dam water.*

Subsequently, it was discussed and decided to collect the following information from Bangalore Water Supply and Sewerage Board (BWSSB), Bangalore Development Authority (BDA) and Bangalore Bruhat Mahanagara Palike (BBMP) in the second meeting of the Joint Committee conducted on 04.09.2020;

(a) Status of Sewage Treatment Plants (STPs) (existing & operational, under construction and proposed) in Koramangala &Challaghatta valley and Hebbal Valley

(b) Drainage map / layout showing locationsof STPs with capacity and sewerage networking in those valleys

(c) Details of flow of domestic sewage measured at inlet and outlet (after treatment) of each of the STPs

(d) Performance of STPs based on its operational capacity, Waste water generated vs actual quantity treated, gap analysis andtreated waste water quality (w.r.t discharge standards of STP) in Real Time Monitoring stations installed etc.

(e) Quantum of untreated sewage flowing in Koramangala&Challaghatta and Hebbal valley with its proposed Underground Drainage network plan and others

(g) Details of plan for diversion of treated wastewater to Kolar, Chikaballapurand other districts of Karnataka

(h) Details of Rejuvenation of lakes and water bodies in Bengaluru etc.

Third meeting of the Joint Committee was conducted on 18.09.2020 to discuss and review the status of Action taken on the defaulters followed by Action Plan for compliance etc.

CHAPTER 3

3.0 About River Thenpennai

Thenpennai River also known as South Pennar or Dakshina Pinakini is an interstate River. The River originates on the south eastern slopes of Chennakesava Hills, northwest of Nandidurg of Chikkaballapur district in Karnataka State at an altitude of 1000m above mean sea level, which flows in the southern direction through Chikkaballapura, Bengaluru Rural and Bengaluru Urban districts in Karnataka state and descends to Tamilnadu near Hosur.

Thenpennai river basin is one of the largest rivers of the state of Tamil Nadu. The river has supported many a civilizations of peninsular India in supplying precious water for drinking, irrigation and industry to the people of the states of Karnataka, Tamil Nadu and Pondicherry.The total length of Ponnaiyar River is 432 km, of which 112 km lies in Karnataka state, 180 km in Dharmapuri andKrishnagiri, 34 km in Thiruvannamalai and 106 km in Cuddalore, Kallakurichi and Villupuram districts of Tamil Nadu before joining Bay of Bengal. En route, it branches into Chinnar, Markanda, Vaniar and Pamban rivers in Tamilnadu. With a total catchment of approximately 16,019 km^2, it is dry for the most part of the year but swells during the north east monsoon season.

In Karnataka, the river traverses through series of zilla panchayat tanks and also Minor Irrigation tanks namely Nandi tank, Kuppalli tank, Chadalapura tank, Kothanuru tank, Kolavanahalli tank, Cikkadigenahalli tank, Bommanahalli tank, Kanithahalli tank, Muthur tank, malluru tank, Amani Bhadranakere tank in Chikkaballapur district, HosakoteDoddakere tank in Bengaluru Rural district, and YelemallappaChettykere tank in Bengaluru Urban District.Drainage basin of River Thenpennai or South Pennar flowing in Karnataka & Tamilnadu is given as ***Figure 1****.*

The stretch of the river is mostly dry to scanty from Origin (Nandi) towards Chikkaballapur, Hoskote and Kolar districts of Karnataka. Before descending the interstate border into Tamilnadu, overflow of water from Bellandur and Varthur lakes carrying domestic sewage of Koramangala&Challaghatta andHebbal valleys of Bangalore adds to the flow in river Thenpennaithereby causes frothing of river stretch.

CHAPTER – 4

4.0 Preliminary Joint Committee Survey and Investigation

Joint Committeeconducted a preliminary survey during 28.08.2020 and 01.09.2020, in order to investigate thecurrent scenario of River flowing in both the states (Karnataka and Tamilnadu). The findings of the preliminary reconnaissance survey of

Chikkaballapur, Kolar and Hoskote districts in Karnataka are given below:

(A) Chikkaballapur District:*South Pinakini river flows in Chikkaballapur, Siddlaghatta and Chintamani (border) taluks in Chikkaballapur District.*

The basin of the river is very small and for majority of the period in a year, the river basin remains dry.

Since this river connects many tanks, water flow can be seen only when the tanks overflows.

Under Chikkaballapur district jurisdiction, on the banks of this river, no major industries can be seen.

Photographs of the river between Bommanahalli tank and Kanithahalli tank in Chikkaballapur taluk is given below as ***Figure 2.***

(B) ***Kolar District:*** *South Pinakini river flows in Kolar, Malur and Bangarpet taluks in Kolar District.*

- *The basin of the river is very small and for majority of the period in a year, the river basin remains dry.*
- *Since this river connects many tanks, water flow can be seen only when the tanks overflows.*
- *Under Kolar district jurisdiction, Markandeya major tank in Bangarpet taluk (the catchment area is in Malur taluk) discharged water only 15 years back and the tank is having a flood discharge of 8,200 Cusecs. Catchment area is 113.14 Sq miles with tank's total capacity of 807 Units which irrigates the total irrigation area of about 847 acres. At the time of discharge, water flow through this valley joins at Yarragolu dam. Water will be used for drinking purpose by people in 3 taluks namely Kolar, Bangarpet, Malur. Finally the discharge of Yarragolu dam water joins the valley of south pennar of Krishnagiri district in Tamilnadu state.*

Photographs of the river flowingin Markandaya tank of Bangarpet taluk are given as ***Figure 3.***

(C) Hoskote District: *South Pinakini river flows in Hoskote and Anekal (border) in Bangalore Rural District.*

- *The basin of the river is very small and for majority of the period in a year, the river basin remains dry.*

- *Since this river connects Hoskote and Channasandra tanks, water flow can be seen only when the tanks overflows.*
- *Under Hoskote jurisdiction, on the banks of this river, no major industries can be seen.*

Photograph of Hoskote tank in Hoskote taluk is given as ***Figure 4.***

In addition to above, preliminary reconnaissance survey of River basin of South Pennar flowing in Bangalore district was also conducted and the observations are given below;

(D) ***Bangalore District:****Survey was carried out in the areas of River South Pennar drainage basin covering Hebbal Valley and Koramangla / Chalghatta Valley, wherein series of lakes/tanks namely, Agara, Bellandur, Varthur (K & C Valley), yellamalappachetty lake, kadugodi bridge, Channasandra bridge (Hebbal), Hoskote tank, Mugalur bridge followed by few industrial pocketsin Samethanahalli and Thiruvaranga were also visited.*

i. *Water was found to be flowing clear from Agaralake to the storm water drain, however domestic sewage and solid waste was found mixing down the drain near Agara lake.*
ii. *It was observed that due to the desilting work, temporary channels were created on the outer ring of the tanks in Bellandur and Varthur for enabling flow of water through the tanks. Color of water was found to be flowing greyish in varthur as compared to Bellandur lake and it was informed that untreated domestic sewage from about 110 villages/hamlets in Bangalorejoins varthur(sewerage networking is under progress and same will be completed by 2023) .*
iii. *Two weirs of Hoskote tanks were observed to be having less water and no flow was found during the visit.*
iv. *Further, water flowing in Mugalur (KSPCB monitoring location) was also observed to be frothy and greyish, where few piggery units were found discharging washings/effluent.*
v. *Some micro/small scale dyeing units were also found operational illegally and discharging untreated effluent down the drain nearly 50 maway from the river stretch in Samethanahalli and immediate actions were taken by Karnataka SPCB to close those units.*

vi. *Also, a few other non-operational/closed and dismantled dyeing units in Samethanahalli and Thiruvaranga were also visited during the survey. In Samethanahalli, water was observed to be flowing greyish and frothy, where few dyeing units were found dismantled and non-operational.*

vii. *It is prudent to be noted that, washings and droppings of piggery farms located in samethanahalli and thiruvaranga add to organic load of the River flowing in Samethanahalli.*

viii. *Information regarding number of STPs (operational status) and proposed STPs (capacity) of K&C Valley and Hebbal valley was explained by Bangalore Water Supply and Sewerage Board (BWSSB) during the survey with the help of layout map. Desilting work carried out in Bellandur and Varthur tanks was also shared by Bangalore Development Authority (BDA).*

Photographs of the survey conducted are given as ***Figure 5 (a, b & c).***

Figure 5. a) Solid Waste dumping in Chennasandrabridge;b) frothy foam floating in Samethanahalli weir; c) few micro/small scale dyeing units discharging untreated effluent down the drain in Samethanahalli

Then, the joint committee conducted survey in the areas of River South Pennar drainage basin flowing down southcovering Sokarasanapalli (KSPCB monitoring location), Singasadanapalli (Central Water Commission monitoring location), Kodiyalam, Bagalur villages near hosur and Kelavarapalli Reservoir in Tamilnadu.

(E) Villages near Hosur, Tamilnadu:

(i) *Details of the villages with Population density located on Thenpennai riverine namely, singasadanapalli, kodiyalam, kooliganapalli, sokkarasanapalli, bagalur, lingapuram, ottapallithinna, kanimangalam, padathepalli, nanjapuram, sathyamangalam, muneeswararnagar, kembasandhiram, chennasandiram, kallipuram were provided as below;*

S. No.	*Name of Village*	*Distance from the River bed*	*Number of houses*	*Population*	*Population density (Sq. Km)*

		(m)			
1.	*Singasadanapalli*	*1000*	*120*	*660*	*242.50*
2.	*kodiyalam (kooliganapalli)*	*500*	*260*	*1106*	*217.03*
3.	*sokkarasanapalli*	*500*	*250*	*855*	*348.97*
4.	*bagalur*	*50*	*1500*	*11000*	*2534*
5.	*lingapuram*	*100*	*300*	*2000*	*1666.67*
6.	*ottapallithinna*	*400*	*35*	*130*	*97.01*
7.	*kanimangalam*	*1000*	*110*	*310*	*94.80*
8.	*padathepalli*	*1000*	*120*	*390*	*127.03*
9.	*nanjapuram*	*-*	*-*	*-*	*-*
10.	*sathyamangalam, muneeswararnagar*	*500*	*255*	*1390*	*260.787*
11.	*kembasandhiram*	*500*	*25*	*550*	*705.12*
12.	*chennasandiram*	*600*	*300*	*1417*	*885.62*
13.	*kallipuram*	*-*	*-*	*-*	*-*
	Total		***3275***	***19808***	***7179.5***

ii. It has been informed by representative of Tamilnadu Pollution Control Board that there are no industrial discharge along the stretch of Thenpennai River in Tamilnadu and no underground sewerage lines or STPs operating near the Riverside. Further, Tamilnadu SPCB informed that following industries are located near the river stretch;

S.No	***Name of the industry***	***Classification/ Category***	***Discharge Options***	***Remarks***
1.	*M/s Premier VVG & SPG Mills Pvt Ltd., Belathur, Bagalur*	*Textile / Large /Red*	*Zero Liquid Discharge*	*dyeing and printing operation suspended for past six months*
2.	*M/s Exide*	*integrated battery*	*Zero*	*4 km away*

	Industries Ltd., , Chichuruganapalli, Sevaganapalli	*manufacturing unit/ Large /Red*	*Liquid Discharge*	*from river and divided by undulated terrain*
3.	*M/s Shahi Exports Pvt. Ltd.,Sevaganapalli*	*Textile garment unit / Large / Green*	*STP and treated effluent utilized for green belt*	*No discharge outside premises.*

iii. *Color of Water flowing in the River stretch was observed to be greyish in sokkarasanapalli, frothy/slight greyish in kodiyalam, brownish to grey in Bagalur bridge and greenish in Kelavarapalli Reservoir.*

iv. *Solid waste dumping and mixing of domestic sewage into the river stretch flowing through bagalur bridge was also observed and Tamil Nadu Pollution Control Board was asked to take note of the scenario for appropriate actions.*

v. *Representative of Tamilnadu Pollution Control Board has informed that sewage generation has been estimated as 0.8 MLD (approx.) from Bagalur village and 0.01 MLD to 0.15 MLD (approx.) from rest of the villages in Tamilnadu. It was also informed that the sewage generated in the above hamlets percolates within the hamlet limits and therefore may not get discharged into River Thenpennai.*

vi. *Average rainfall of Kelavarapalli is about 533 mm.*

4.1 About Kelavarapalli Reservoir

Kelavarapalli Reservoir Project wasbuilt in 1978-1995 at Krishnagiri district, Tamilnadu and the Reservoir or Dam is situated at a distance of 8 km from Karnataka and 10 km away from Hosur, tamilnadu across the River Thenpennai, which actually originates from the eastern slopes of Chennakesava Hills in karnataka. The dam further leads water to the districts of Dharmapuri, Tiruvannamalai, Kallakuruchi, Villupuram and Cuddalore before joining Bay of Bengal. Google earth image of Kelavarapalli reservoir with sampling locations are shown as **Figure 7.**

Kelavarapalli Dam is situated atthe latitude of 12°52'42"N and longitude of 78°46'06" E which is located in the Northwestern part of Tamil Nadu, bordering Karnataka and Andhra Pradesh states. The Dam is operational from 10th November 2002. Salient features of the dam include:

(a) <u>Salient features of Dam:</u>

1. *Type of dam : Masonnry cum earthern Dam*
2. *Length : 665m*
3. *Height : 13.50m*
4. *FRL Water spread Area : 433.20 Hec*
5. *Volume : 0.481 TMC*
6. *Catchment area : 2442.00 Sq.Km*
7. *Gross Capacity : 13.61 Mcum*
8. *Maximum Water level : 831.50*
9. *FRL : 831.50*
10. *Water Supply Period : 1st Crop = July to December - 150 Days*
11. *Spillway Type : Ogee Crest Type*
12. *Spillway Nos : 7 Nos*
13. *Spillway Size : 12.20m x 6.10m*
14. *Crest Level : 825.40*
15. *Design flood Discharge : 88980 Cusecs*
16. *River Sluice : 1 No (1.20m x1.82m)*
17. *Canal Sluice : 2 Nos (0.90m x 1.50m)*
18. *Length of Canals*

Right Main Canal (RMC)	=	*21.99 km*
Left Main Canal (LMC)	=	*25.500 km*
LMC Branch canal I	=	*5.40 km*
LMC Branch canal II	=	*3.80 km*
LMC Branch canal III	=	*2.78 km*
LMC Branch canal IV	=	*4.96 km*
LMC Branch canal V	=	*0.71 km*
Distributaries I of B.C IV	=	*1.80 km*
Distributaries II of B.C. IV	=	*2.00 km*

Distributaries I of B.C V = 1.48 km

Distributaries II of B.C. V = 1.15 km

Total = 71.57km

19. *Irrigation Area : 3676 Hec*
20. *Approved Estimate : Rs.551.50 Lakhs*
21. *Revised Estimate : Rs.606.70 Lakhs*

(b) <u>Present condition of Dam (as on 09.09.2020)</u>

1. *Water level : 12.30 m*
2. *Water storage level : 343.74 Mcuft*
3. *Water incoming : 400 cusecs*
4. *Water discharge : 400 cusecs*

Kelavarapalli Dam SIPCOT Central Water Supply Scheme provided 14.00 MLD of water to Hosur Municipality Phase I during 2015-16. Water supply of Hosur Municipality is mainly being met out from the Government of Tamilnadu's Hoganekkal water supply Project which was executed & maintained by Tamilnadu Water Supply and Drainage Board (a statutory body under Tamilnadu Government) and the other sources are from Kelavarapalli Dam, one from Perandapalli River and few local wells. At present the entire Municipality is receiving 30.39 MLD of water supply from all the above said sources. (Source: https://www.twadboard.tn.gov.in/content/major-water-supply-schemes-1518).

Since Ponnaiyar river is the sole water source in Krishnagiri, Tiruvannamalai and Cuddalore districts, it has been extensively dammed. As it enters Tamilnadu, the water is stored in the Kelavarapalli dam reservoir near Hosur. The surplus amount reaches the Krishnagiri dam, which is situated 60 km downstream.

4.2 Excerpts of Thenpennai River Monitoring in the matter of O.S No. 2 of 2015& O.A No. 125/2017

In compliance to Hon'ble Supreme Court directions in the Original Suit No. 02 of 2015, ajoint monitoring Report on River Cauvery and Thenpennaiyar was submitted by CPCB, KSPCB and TNPCB, wherein the monitoring team carried out sampling of water for the period September 2017 to May 2018. The committee filed the report before

the Hon'ble Court in 2018 (the case is pending before Hon'ble Supreme Court). The findings of the Report is given as below:

1. *In case of River Thenpennaiyar at Sokarasanapalli, the water quality falls below designated best use Class C during all nine monitoring and the critical parameters are BOD, DO and TC. The Total Coliform was always > 5000 MPN/1000 ml and DO was <1 except during January and February 2018 showing the DO as 2.4 and 3.8 mg/l respectively. BOD also exceeded the Sewage standards notified 20 mg/l for all nine months showing the water is highly polluted.*
2. *The River Thenpennaiyar receives the outflow of treated and untreated sewage of Bellandur and varthur lake system. Comprehensive plan of restoration of these lakes along with identifying other sources of untreated sewage into the River only will help to restore the quality of the river. Government of Karnataka may prepare such plan on priority considering the pollution issues of Bellandur and varthur lake system, which contributes to the pollution of Thenpennaiyar River.*

On the subject of remedial action for restoration of Bellandur, Agara and Varthur lakes at Bangalore, including preventing discharge and dumping of pollutants, removing encroachments from catchment area and other steps for restoration, Hon'ble Tribunal, Principal Bench, New Delhi, in the matter of O.A No. 125/2017, constituted a monitoring committee headed by Justice ShSantosh Hegde, former Judge of the Hon'ble Supreme Court to oversee the execution of the action plan. In this regard, summary of Compliance Report to the observations of the Monitoring Committee in respect of BWSSB, BDA, UDD, Minor Irrigation and KSPCB was filed before Hon'ble NGT, Principal Bench on 04.08.2020, wherein Hon'ble Tribunal vide orders dated 13.08.2020 has directed that ***"…the left-over work may be expeditiously completed which may be reviewed by the Monitoring Committee. The status of compliance as on 31.12.2020 may be compiled by the Monitoring Committee and report furnished to this Tribunal by 15.01.2021…"****.*

4.3 Major Sources of Pollution

Major sources of pollution to River Thenpennai appear to be from untreated/partial treated sewage from Bangalore. Sewage generated from Bengaluru is the predominant reason for deterioration of lakes and water bodies in Bangalore, which is ultimately flowing into river Thenpennai.

There are various reasons such as ageing of sewers, encroachment of sewers, damages in the sewerage system, crown corrosion of sewers etc. for direct discharges of a part of wastewater from housing colonies and such discharge is flowing through Storm Water Drains and enters lakes in Bengaluru. Lakes in Bengaluru were created for rain water harvesting and once served as sources of water supply to the city. Lakes are under the custody of various departments namely Bangalore Bruhat Mahanagara Palike (BBMP), Bangalore Development Authority (BDA), Karnataka Forest Department (KFD), Lake Development Authority (LDA), Minor Irrigation and Water Resources Department.

In recent years, few lakes have been converted into built-up area owing to industrialization and urbanisation. Among all the lakes, Bellandur and Varthur are highly polluted due to discharge of untreated and partially treated sewage from the city. Bellandur lake receives nearly 55 to 60 % of Bangalore's sewage and further drains into varthur lake, then flows into Thenpennai River towards south of Bangalore. Lakes are polluted due to inadequate drainage system leading to bypassing of sewage into lakes, entry of sewage from apartments/commercial establishments into storm water drains leading to lakes, insufficient sewage treatment plants, encroachment of lakes and Rajakaluves (storm water drains), dumping of municipal solid waste, construction and demolition wastes, illegal discharge of industrial effluents etc.The foremost reason for pollution of Bellandur Lake is sewage/ Sullage flowing in the storm water drains. One of the main reasons for development of foam in the waste weir is agitation of water falling over a height and due to surfactants present in sewage. Now after establishment of sluice gate and weir modification development of foam reduced considerably. Additionally, fertilisers used by farmers of

Karnataka as well as Tamilnadu may add to the pollution of river thenpennai.

4.4 ***Status of Domestic Sewage Management in Bangalore***

Sewage is one of the major causes for poor water quality of rivers, lakes and water bodies causing adverse impacts on human health and aquatic species. Bangalore Water Supply and Sewerage Board (BWSSB) was formed in 1964 to provide Sewerage system in unsewered areas in Bangalore in a phased manner. Domestic Sewage generation in Bengaluru has been estimated as 1157 MLD which is attributed to increased urbanization and population.The actual amount of sewage generated would be higher since a large number of private bore wells exist and there is no scientific estimate of the quantity of water withdrawn from them.

Sewage flow follows the regional topography and flow down along the three principal valleys and five minor valleys ensuring free flow of sewage without any major pumping requirement. It is estimated that roughly 1,400 MLD of wastewater flows through its three valleys – the Vrishabhavathi, the Koramangla - Challaghatta, and the Hebbal. Also treated wastewater of Bangalore is also being diverted to recharge drought ridden stretch/tanks of chikbellapur and kolar districts.

KSPCB informed that the industries have been encouraged to opt for Zero Liquid Discharge (ZLD). Further, 08 CETPs are operational for treating effluent generated from small scale industries from Bangalore. KSPCBhas been directed by CPCB to make entries in the river basin module on status of ETPs in the state based on Hon'ble Supreme Court and Hon'ble NGT Orders and the same is under progress.

Status of Sewage Treatment Plants of K&C and Hebbal Valleys in Bangalore, as provided by BWSSB is given as ***Annexure IV.*** *Domestic sewage generation of hamlets/areas located in the stretch of Hebbal and K&C Valley, Bangalore is around 420 MLD & 611 MLD respectively, of which 814.5 MLD is being treated in 21 STPs located in the two valleys. BWSSB informed thatin hebbal valley, 03 STPs of 100 MLD, 20 MLD and 10 MLD capacities are under construction phase and the same will be commissioned by Dec 2020. In addition to that, construction of one STP with 07 MLD capacity is also under pipeline in hebbal valley.In case of*

Koramangla & Chalghatta valley, of 02 STPs, one STP (150 MLD) will be commissioned by Dec 2020.

In compliance to Hon'ble Supreme Court directions in the Original Suit No. 02 of 2015, Chief Secretary, Government of Karnataka submitted to Hon'ble Supreme Court in 2018 that, fourteen STPs of total 129 MLD for 110 villages under Japan International Cooperation Agency (JICA) Fund Scheme were proposed. It was then assessed that, with the establishment of those STPs, the total capacity of STPs to treat the sewage from Bengaluru would rise up from the existing capacity of 1050 MLD to 1575 MLD by 2020 and 1704 MLD by 2022.

In addition to above, as per the Government of Karnataka Notification No. FEE 316 EPC 2015, Bengaluru dated 19.01.2016, KSPCB Clearance is required for the following projects:

a) *All residential group housing projects/apartments with 20 units and above or having total BUA of 2,000 sq.m including basement*
b) *Commercial constructions projects (commercial complexes, office, IT related activities etc) with total built up area of 2,000 sq.m and above*
c) *Educational institutions with or without hostel facility having total built up area of 5,000 sq.m and above*
d) *Townships and area development projects with an area of 10 acres and above*

Accordingly, KSPCB is covering apartments with 20 flats & above and commercial buildings of 2000 sq.mtsand area development projects of 10 acres and above only. All the projects covered by KSPCB under consent mechanism are required to provide Sewage Treatment Plant (STP) for treating the sewage. However, sewage generated from the smaller projects like apartments with less than 20 flats, commercial buildings with less than 2000 sq.mts built up area are required to be treated by BWSSB.

KSPCB has filed two Criminal cases against BWSSB w.r.t pollution of Bellandur Lake. Further, as per the directions of Hon'ble NGT in the matter of O.A.125/2017, Karnataka State Pollution Control Board has imposed Environmental Compensation against the defaulting Apartments/Housing Associations. Few projects have approached the

Hon'ble High Court of Karnataka in this matter. As per the directions of Hon'ble High Court of Karnataka,Karnataka State Pollution Control Board is following the due procedure.

CHAPTER V

SAMPLING AND ANALYSIS OF RIVER THENPENNAI

5.0 Sampling Locations

The Joint Committee identified the following sampling points for collecting surface water samples based on the reconnaissance surveyconducted in Tamilnadu and Karnataka during 28th August and 01st September, 2020;

S. No.	State	Sampling Points (No. of samples)	Geo-Coordinates	
1	Tamil Nadu	i) Kelavarapalli reservoir	12.769^0N	77.875^0E
		ii) Kelavarapalli outfall	12.769^0N	77.877^0E
		iii) Kodiyalam	12.857^0N	77.823^0E
		iv) Bagalur Bridge	12.831^0N	77.871^0E
2.	Inter State Boundary	v) Sokkarasanapalli	12.853^0N	77.831^0 E
		vi) Mugalur Bridge	12.896^0N	77.831^0E
3.	Karnataka	vii) Agara Lake	12.923^0N	77.639^0E
		viii) Y Junction (Agara/Koramangla)	12.923^0N	77.646^0E
		ix. Bellandur	12.931^0N	77.677^0E
		x. Varthur	12.945^0N	77.746^0E
		xi. Channasandra	12.985^0N	77.776^0E
		xii. Samethanahalli	12.970^0N	77.784^0E

Surface water samples of the above twelve locations were collected by Joint Committee on 09th and 10th September, 2020. Thenpennai River basin Map showing the sampling locations in Karnataka and Tamilnadu are given below as ***Figure 8****;*

Geographic profile and details of the sampling locations in the sequence of the flow of River Thenpennai is provided below;

(i) ***Agara:***

Agaralake spread over 98 acre, is located at Agara in southeast direction of Bengaluru. The lake receives outfall from the upstream Madivala lake.The excess water from Agara lake overflows through the storm water drain to Bellandur lakenear southwest direction. At varthur, the flow of water was found clear and no frothing was found. However, domestic sewage and solid waste was found mixed down the drain with greyish color leading to Bellandur.

(ii) ***Bellandur:***

Bellandur Lake is located in southeast direction of Bengaluru and is the largest lake in the city and the weir flow of Agara Lake joins Bellandurlake. It was observed that, of the two Bellandur Lake weirs, water was flowing in one weir towards Southern direction (near Bellandur village, popularly called as Bellandur bridge) through channels created on the outer ring of the lake, whereas Northern weir (near Yamalur, popularly called as Yamalur bridge) was taken up for restoration work by BDA.

It was also observed that, the storm water drain near bellandur lake was found with lots of floating materials such as plastic bags and municipal solid waste etc. This might be due to local people residing in the area with no awareness about solid waste collection and management. There is a need for clearance of solid waste dumped in the storm water drain and lake by local authorities and monitoring by KSPCB to protect the lake from pollution. At Bellandur, the flow of water was found slightly clear and no frothing was found.

(iii) ***Varthur:***

The Varthur Lake takes the main inflow from outflow weirs of Bellandur Lake, along with some other water entry points (about 6 to 9) between outer ring road (that connects Marathalli with Sarjapura road) and Varthur, between which the Varthur Lake lies. It was seen that Varthur Lake has 02 outflow weirs viz: Northern weir near Sigma Softech Park, Ramagondanahalli (popularly called as Varthur Kodi) and Southern weir near Varthur (popularly called as Varthur Bridge).

Even in varthur lake, water was flowing only in southern weir as the Northern weir was taken up for restoration work by BDA.It was informed that both the weir flow of the lake joins at a point at about 600

m in South Eastern direction of the Northern weir, thereafter, the stream joins the South Pennar River, through Ajjigondahalli bridge, at about 3.8 Km in east of north eastern direction. The joined streams of out flow weir of Varthur Lake flowing en route, Ajjigondahalli Bridge, represents entire wastewater / domestic effluent of K & C Valley flowing into South Pennar River. At varthur, the flow of water was found greyish to brown and no frothing was found.

(iv) ***Channasandra:***

Channasandra Bridge located on Hope Farm Junction towards Chikka Tirupathi Road, flows in Southern direction in order to further confluence with the out flow of Varthur Lake (K & C Valley).

Whereas, lakes of Hebbal Valley flows into Yelemalappa Chetty Lake (YMC Lake) located on Old Madras Road. Over flow through the outflow weir of YMC Lake joins the South Pennar River at about 4.9 Km South East of YMC Lake and flows in southern direction to joinchannasandra bridge. At channasandra, the flow of water was found green in colorwith absolutely no frothing. However, solid waste was found dumped near the bridge.

(v) ***Samethanahalli:***

Samethanahalliis located downstream of varthur lake at south eastern direction of Bangalore outskirts. Domestic and industrial discharges of samethanahalli confluences into tributaries of South pennar river basin and flows down to join downstream of ajjingondahalli towards Mugalur. At samethanahalli, the flow of water was greyish with froth floating over.

Few unauthorized micro/small scale dyeing units were found operational during the visit and found discharging untreated effluent down the drain. KSPCB has taken immediate action to close those units.

(vi) ***Mugalur:***

Mugalur Bridge is on Sarjapura – Chikka Tirupati road which is at a distance of about 11.47 Km south east of northern weir of Varthur Lake. The South Pennar River leaves Karnataka State and enters into Tamil Nadu and joins Kelavarapalli reservoir (about 7.5 Km north east of Hosur city) which is located at about 14.18 Km south east of Mugalur Bridge. At Mugalur Bridge, the flow of water was greyish to brown and it contained

scanty pockets of froth here and there. Solid waste dumping and outlet of piggery farm into the river was found near the area.

(vii) ***Sokarasanapalli:***

Sokarasanapalli is located at interstate border of Tamilnadu and Karnataka with a distance of 500 m from the river bed.

Sokarasanapalli is an interstate water quality monitoring location being sampled by Karnataka on a quarterly basis. The flow of water in sokkarasanapalli was observed as greyish and with growth of floating aquatic plants in a large area.

(viii) ***Kodiyalam:***

Kodiyalam is situated in north east direction of Hosur district, Tamilnadu. In kodiyalam, there is one anicut which has two sluices constructed to distributewater flowing from sokkarasanapalli for agriculture purpose. Central Water Commission, Cauvery and Southern Rivers Division monitors flow of the river at this location. Water was found to be flowing in greyish color and frothy foam was floating on the river.

(ix) ***Bagalur:***

Bagalur bridge is situated in north eastern direction of hosur district, Tamilnadu. Bagalur bridge was found with water flowing in brown to greyish color and solid waste was found dumped on either sides of the river bed. Cattles were also found grazingthe grass near the solid waste dumped area which could cause lethal effects due to plastics and other inert materials dumped over.

(x) ***Kelavarapalli:***

Kelavarapalli dam is located in the Northwestern part of Tamil Nadu.400 cusecs of water was found flowing through spillway shutters with reasonably clear water in green color on the day of visit. Also scanty pockets of froth was seen due to water flowing with force from high fall of the dam.

In the areas namely, samethanahalli, mugalur, sokkarasanapalli, kodiyalam, bagalur kelavarapalli water was found being pumped and used for agriculture in the nearby areas.

5.1 ***Sampling Protocol***

The surface water samples of the above identified 12 locations in River Thenpennai were collected during 09th and 10th September, 2020 and submitted to laboratory for analysis. The Joint Committee followed CPCB's Standard Operating Procedure for National Water Quality Monitoring Programme and Submission of data developed in August, 2017. The scope of the SOP is to standardise the process of sample collection, preservation, handling and analysis, preparation of data reports, etc.

The analysis results of the aforesaid surface water samples of12 locations in River Thenpennai are awaited.

Submission of Joint Committee to the Hon'ble NGT, Southern Zone, Chennai

The Joint Committee constituted in O.A No. 111 of 2020,is of the opinion that to complete the assigned tasks as per Terms of Referencei.e (i) to inspect the area in question and submit status as well as action taken report to CPCB, if there is any violation found; (ii) to ascertain the water quality and also ascertain the sources of pollution and take action against the person who are responsible in accordance with law including imposition of environmental compensation; (iii) to submit a long term and short term action plan with shorter timelines to protect the water body against pollution (iv) to suggest ways and means to remedy the same if there is any contamination caused, the committee requires ***an additional time of six weeks****.*

In view of above, it is humbly prayed that a time period of 06 weeks may kindly be given to this Joint Committee to submit report upon incorporating the analysis results of samples taken, Action Taken Report on defaulters, Long Term and Short Term Action Plan with shorter timelines, Recommendations, etc. in compliance to the Hon'ble NGT Orders dated 20.07.2020."

5. It is seen from the report that water analysis has not been completed and the environmental compensation has not been calculated for which they require six weeks time.

6. So considering the circumstances, we feel that some more time can be given to the committee to submit the report as directed by this Tribunal.
7. The committee is directed to submit the report on or before 26.11.2020 by e-filing along with necessary hardcopies to be produced as per Rules.
8. The concerned State departments are also directed to submit their independent response to the allegations made and the steps taken by them to avoid such things in future, before the next hearing date.
9. The Registry is directed to communicate this order to the members of the committee as well as to the official respondents by e-mail immediately so as to enable them to comply with the direction.
10. For consideration of further report and completion of pleadings, post on 26.11.2020.

.....J.M.
(Justice K. Ramakrishnan)

.....E.M.
(Shri. Saibal Dasgupta)

O.A. No.111/2020,
05th October, 2020. Mn.

ANNEXURE III

Tech 39/Legal (NGT)/RDS/2020-21/ 466 – 474 August 24, 2020

OFFICE MEMORANDUM

Sub: Constitution of Joint Committee as per Hon'ble NGT, Southern Zone, Chennai order dated 20.07.2020 in the matter of O.A No. 111/2020 regarding "Chemical Foam in the River Thenpennai"

Ref.: Hon'ble NGT, Southern Zone, Chennai order dated 20.07.2020

In the matter of O.A No. 111/2020 regarding "Frothing of Chemical Foam in the River Thenpennai", Hon'ble NGT, Southern Zone, Chennai vide orders dated 20.07.2020 directed to constitute a Joint Committee comprising of District Collectorate, Krishnagiri; Public Works Department and Water Resources Organisation; CPCB, RD, Bangalore; Tamilnadu Pollution Control Board; Karnataka State Pollution Control Board; District Collectorate, Bangalore Urban to inspect the area in question and submit status as well as action taken report, if there is any violation found.

In compliance to the aforesaid orders of the Hon'ble NGT, Southern Zone, Chennai, a Joint Committee is being constituted herewith based on the nominations received from the concerned departments comprising of following members;

Constitution of Joint Committee

1.	Sh. Gunasekaran Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division, Tamilnadu	Member
2.	Sh. N Suresh Superintending Engineer, WRO Public Works Department Tiruvannamalai, Tamilnadu	Member
3.	Sh. K Durugappa Superintending Engineer Public Works Department Bangalore Circle, Karnataka	Member
4.	Sh. N Nagaraj Superintending Engineer Minor Irrigation & Ground Water Development Circle, Jayanagar Bangalore, Karnataka	Member

Contd/...

DESPATCHED
No.: 466 – 474
Date: 24/8/20
Signature: Saya

S. Suresh
24/8/2020

5.	Dr M Senthil District Environmental Engineer Tamilnadu Pollution Control Board Hosur District, Tamilnadu	Member
6.	Sh. M K Prabhudev Chief Environmental Officer - 2 Karnataka Pollution Control Board Bangalore, Karnataka	Member
7.	Sh Shivanna M G Assistant Commissioner (South) Bangalore Urban Karnataka	Member
8.	Smt. Selvi P K Scientist D, Regional Directorate Central Pollution Control Board Bangalore	**Nodal Officer** & Member

Terms of Reference:

1. The Committee shall inspect the area in question and submit status as well as action taken report to CPCB, if there is any violation found.
2. The Committee shall ascertain the water quality and also ascertain the sources of pollution and take action against the person who are responsible in accordance with law including imposition of environmental compensation.
3. The committee shall submit a long term and short term action plan with shorter timelines to protect the water body against pollution. If there is any contamination caused, the committee shall suggest ways and means to remedy the same.
4. The Committee shall submit a report to Hon'ble NGT, Southern Zone, Chennai on or before 05.10.2020.
5. CPCB being the nodal agency for co-ordination, shall provide all technical support in carrying out sampling and analysis of water samples as per the committee decision.
6. CPCB shall pay Sitting fee, local transport, TA/DA etc. to the members of the Joint Committee as per the Hon'ble NGT order dated 20.04.2017 in O.A. 24 of 2011. The expenditure in this regard will be met from the Budget Head "NGT 25%" by CPCB.

S. Suresh 24/8/2020

(S. Suresh)
Regional Director
9480672128
cpcbsuresh@gmail.com

To

1. All Members of Joint Committee (as per list enclosed at Annexure I)
2. Divisional Head – Law, CPCB, Delhi
3. Divisional Head – WQM-I, CPCB, Delhi

Annexure I

List of Members of Joint Committee

S. No.	Name & Designation	Contact Details (Address / Mail ID)
1.	Sh. Gunasekaran Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division, Tamilnadu	Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division Denkanikottai Road, Kamaraj Nagar Hosur, Krishnagiri – 635 109 Tamil Nadu 9445000430(M) / rdohosur@gmail.com
2.	Shri. N Suresh Superintending Engineer, WRO Tiruvannamalai, Krishnagiri District Tamilnadu	Public Works Department Pennaiyar basin Circle, Chengam Road Opp. Ramanashramam, Tiruvannamalai - 606603 9443925367(M) / sepbc52@yahoo.co.in
3.	Sh. K Durugappa Superintending Engineer Public Works Department Bangalore Circle Bangalore	Superintending Engineer Public Works Department Ananda Rao Circle Bangalore 560009 9449407909 (M) / sebgl@kpwd.gov.in
4.	Sh N Nagaraj Superintending Engineer Minor Irrigation & Ground Water Development Bengaluru	Superintending Engineer Minor Irrigation & Ground Water Development Circle, Jayanagar Complex, Bengaluru 560041 8762055904 (M) / semibng@gmail.com
5.	Sh M Senthil Kumar District Environmental Engineer Tamilnadu Pollution Control Board Hosur, Krishnagiri District Tamil Nadu	District Environmental Engineer Tamil Nadu Pollution Control Board No. 149-A, 1st Floor, Dharga, SIPCOT-I Hosur – 635 126 Krishnagiri District, Tamil Nadu 9176661265(M) / deehosur@gmail.com
6.	Sh. Prabhudev M K Chief Environmental Officer Karnataka State Pollution Control Board Bangalore, Karnataka	Karnataka State Pollution Control Board Parisara Bhavan, #49, Church St, Bengaluru – 560 001 Karnataka 9845335355 (M) / prabhudevkspcb@gmail.com
7.	Sh Shivanna M G Assistant Commissioner (South) Bangalore, Karnataka	Office of Assistant Commissioner (South) Kandaya Bhavana, II Floor, K.G Road Bangalore – 560 009 9513513156 / acbloresouth@gmail.com
8.	Smt. P K Selvi	Regional Directorate

S. Suresh
24/8/2096

	Scientist D, Regional Directore Central Pollution Control Board	Central Pollution Control Board Nisargha Bhavan, Shivanagar, Bangalore – 560079 9868166753 (M) / pkselvi.cpcb@nic.in ; pkselvi.cpcb@gmail.com

*****

S. Smruth

24/8/2020

केन्द्रीय प्रदूषण नियंत्रण बोर्ड
CENTRAL POLLUTION CONTROL BOARD
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय, भारत सरकार
MINISTRY OF ENVIRONMENT, FOREST & CLIMATE CHANGE, GOVT. OF INDIA

ANNEXURE IV

Tech 39/Legal (NGT)/RDS/2020-21/ September 16, 2020

OFFICE MEMORANDUM

Sub: Re-Constitution Joint Committee as per Hon'ble NGT, Southern Zone, Chennai order dated 20.07.2020 in the matter of O.A No. 111/2020 regarding "Chemical Foam in the River Thenpennai"

Ref.: Hon'ble NGT, Southern Zone, Chennai order dated 20.07.2020

In compliance to the aforesaid orders of the Hon'ble NGT, Southern Zone, Chennai, a Joint Committee was constituted vide CPCB Office Memorandum No. Tech 39/Legal(NGT)/RDS/2020-21/466-474 dated 24.08.2020 based on the nominations received from the concerned departments. Subsequent to transfer of Sh K Durgappa, Superintending Engineer vide Karnataka Government Order dated 28-08-2020, Sh B H Manjunath, Superintending Engineer, PWD has been nominated, thereby, the Joint Committee is being re-constituted which comprises of following members;

Re-Constitution of Joint Committee

1.	Sh. Gunasekaran Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division, Tamilnadu	Member
2.	Sh. N Suresh Superintending Engineer, WRO Public Works Department Tiruvannamalai, Tamilnadu	Member
3.	Sh. B H Manjunath Superintending Engineer Public Works Department Bangalore Circle, Karnataka	Member
4.	Sh. N Nagaraj Superintending Engineer Minor Irrigation & Ground Water Development Circle, Jayanagar Bangalore, Karnataka	Member

Contd/...

क्षेत्रीय निदेशालय (दक्षिण) : निसर्ग भवन, ए-ब्लाक, प्रथम एवं द्वितीय तल, तिम्मय्या रोड, 7-डी मैन, शिवनगर, बेंगलूरु - ५६० ०७९.
Regional Directorate (South) : " Nisarga Bhawan ", A-Block, 1st & 2nd Floors, Thimmaiah Road, 7th D - Main, Shivanagar, Bengaluru - 560 079.
दूरभाष / Telephone : 080-23233739. 23233827, 23233996, 23233600, 23232559, 23226002, 23222539, Fax : 080-23234059
ई-मेल / E-mail : cpcbszo@yahoo.com, zobangalore.cpcb@nic.in

प्रधान कार्यालय : परिवेश भवन, पूर्वी अर्जुन नगर, दिल्ली- ११० ०३२.
Head Office : Parivesh Bhawan, East Arjun Nagar, Delhi - 110 032.
दूरभाष / Telephone : 011-43102030, Fax : 22305793, 22307078, 22307079, 22301932, 22304948
ई-मेल / E-mail : cpcb@nic. in वेबसाईट / Website : www.cpcb.nic.in

5.	Dr M Senthil District Environmental Engineer Tamilnadu Pollution Control Board Hosur District, Tamilnadu	Member
6.	Sh. M K Prabhudev Chief Environmental Officer - 2 Karnataka Pollution Control Board Bangalore, Karnataka	Member
7.	Sh Shivanna M G Assistant Commissioner (South) Bangalore Urban Karnataka	Member
8.	Smt. Selvi P K Scientist D, Regional Directorate Central Pollution Control Board Bangalore	**Nodal Officer** & Member

Terms of Reference:

The Terms of Reference of the Joint Committee constituted vide CPCB Office Memorandum No. Tech 39/Legal(NGT)/RDS/2020-21/466-474 dated 24.08.2020 shall remain applicable (copy enclosed).

16/9/2020

(S. Suresh)
Regional Director
9480672128
cpcbsuresh@gmail.com

To

1. All Members of Joint Committee (as per list enclosed at Annexure I)
2. Divisional Head – Law, CPCB, Delhi
3. Divisional Head – WQM-I, CPCB, Delhi

Annexure I

List of Members of Joint Committee

S. No.	Name & Designation	Contact Details (Address / Mail ID)
1.	Sh. Gunasekaran Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division, Tamilnadu	Revenue Divisional Officer & Sub Divisional Magistrate Hosur Division Denkanikottai Road, Kamaraj Nagar Hosur, Krishnagiri – 635 109 Tamil Nadu 9445000430(M) / rdohosur@gmail.com
2.	Shri. N Suresh Superintending Engineer, WRO Tiruvannamalai, Krishnagiri District Tamilnadu	Public Works Department Pennaiyar basin Circle, Chengam Road Opp. Ramanashramam, Tiruvannamalai - 606603 9443925367(M) / sepbc52@yahoo.co.in
3.	Sh. B H Manjunath Superintending Engineer Public Works Department Bangalore Circle Bangalore	Superintending Engineer Public Works Department Ananda Rao Circle Bangalore 560009 9148704554 (M) / sebgl@kpwd.gov.in
4.	Sh N Nagaraj Superintending Engineer Minor Irrigation & Ground Water Development Bengaluru	Superintending Engineer Minor Irrigation & Ground Water Development Circle, Jayanagar Complex, Bengaluru 560041 8762055904 (M) / semibng@gmail.com
5.	Dr M Senthil Kumar District Environmental Engineer Tamilnadu Pollution Control Board Hosur, Krishnagiri District Tamil Nadu	District Environmental Engineer Tamil Nadu Pollution Control Board No. 149-A, 1st Floor, Dharga, SIPCOT-I Hosur – 635 126 Krishnagiri District, Tamil Nadu 9176661265(M) / deehosur@gmail.com
6.	Sh. Prabhudev M K Chief Environmental Officer Karnataka State Pollution Control Board Bangalore, Karnataka	Karnataka State Pollution Control Board Parisara Bhavan, #49, Church St, Bengaluru – 560 001 Karnataka 9845335355 (M) / prabhudevkspcb@gmail.com
7.	Sh Shivanna M G Assistant Commissioner (South) Bangalore, Karnataka	Office of Assistant Commissioner (South) Kandaya Bhavana, II Floor, K.G Road Bangalore – 560 009 9513513156 / acbloresouth@gmail.com
8.	Smt. P K Selvi Scientist D, Regional Directorate Central Pollution Control Board Bangalore	Regional Directorate Central Pollution Control Board Nisargha Bhavan, Shivanagar, Bangalore – 560079 9868166753 (M) / pkselvi.cpcb@nic.in ; pkselvi.cpcb@gmail.com

16/9/2020

Status of Sewage Treatment Plants (Koramangla & Chalghatta valley and Hebbal Valley in Bangalore, Karnataka)

S.No	Name of the STP	Location	Plant Capacity (MLD)	Treatment Process / Technology used	Sewage Treated (MLD)		Final Discharge / designated use of treated water
					inlet	outlet	
Koramangla & Challaghatta Valley							
1.	K&C Valley	Belur Nagasandra *12°56'27.14"N 77°39'25.92"E*	218	Activated Sludge Process (2°)	196	191	to recharge 126 tanks of kolar district
2.	K&C Valley	Belur Nagasandra *12°56'27.14"N 77°39'25.92"E*	30	Activated Sludge Process (2°)	30	27	to recharge 126 tanks of kolar district and karnataka golf
3.	K&C Valley	Belur Nagasandra *12°56'22.79"N 77°39'23.13"E*	60	Activated Sludge Process (2°)	60	57	to recharge 126 tanks of kolar district
4.	Lalbagh	Lalbagh Kere *12°56'38.48"N 77°35'2.65"E*	1.5	activated aeration+plate settler+UV (3°)	1.5	1.5	horticulture department
5.	Cubbon Park	Cubbon Park(upgraded) *12°58'15.40"N 77°35'28.56"E*	4	Membrane bioreactor (3°)	3	2.83	horticulture department, rajbhavan, Hon'ble High court, Bang Golf course, planetarium, war memorial, CID, vidhana soudha, KPSC, KPWD, Civil court
6.	Bellandur Amani Kere	Vartur kere *12°93'21.97"N 77°71'65.59"E*	90	Activated Sludge Process (3°)	93.1	90.3	to recharge 126 tanks of kolar district
7.	Kadabeesanahalli Ph-I	Marathalli Outer Ring *12°56'50.9"N 77°41'53.7"E*	50	Extended aeration (2°)	42.32	41.44	presently let into SWD, proposed for utilisation in KIADB industrial area at

							Narasapur with completion of TTP
8.	Kadugodi	Kadugodi *13°00'50.10"N 77°72'92.33"E*	6	Sequential batch reactor(2°)	5	4.85	presently let into SWD, proposal to utilise at HPCL (2 MLD) and later increasing to 6 MLD after completion of pipeline
9.	Ulsoor	Halasuru lake *12°59'10.4"N 77°37'20.3"E*	2	Sequential batch reactor(2°)	1.61	1.6	halasuru lake
10.	Sarakki	Sarakki kere *12°53'44.6"N 77°34'28.8"E*	5	Sequential batch reactor(2°)	2.5	2.4	proposal to recharge sarakki lake
11.	Agram	Agara Ring Road *12°54'58.9"N 77°38'25.6"E*	35	Sequential batch reactor(2°)	18.25	18.21	agram lake (15 MLD)
12.	Hulimavu	Hulimavu kere *12°86'52.20"N 77°60'36.45"E*	10	Sequential batch reactor(2°)	2.8	2.6	hulimavu lake
13.	Chikkabeguru	Near chikkabeguru kere *12°53'02.0"N 77°38'16.3"E*	5	Sequential batch reactor(2°)	1.2	1.1	-
14.	*K&C Valley*	-	*150*	-	-	-	*under construction and operational by Dec '20*
Hebbal Valley							
17.	Hebbal STP	Nagavara kere *13°03'58.0"N 77°59'70.0"E*	60	Activated sludge process (2°)	108	24	presently let into nagavarakere, proposal to recharge 65 tanks of chikkaballapur
18.	Rajacanal Ph I	Geddalahalli near Hebbal *13°02'22.5"N 77°63'02.41"E*	40	Extended aeration (2°)	35	32	to recharge 65 tanks of chikkaballapura & 5 MLD to Devanahalli KIADB industrial area

19.	Rajacanal Phase II	Geddalahalli near Hebbal *13°02'22.5"N 77°63'02.41"E*	40	Sequential batch reactor(2°)	40.45	39.96	to recharge 65 tanks of chikkaballapura
20.	Yelahanka Phase I	Allalsandra lake *13°10'05.0"N 77°59'40.0"E*	10	Activated sludge process (3°)	6.83	6.5	M/s Kempegowda International Airport Limited, M/s Indian Tobacco Company, M/s Indian Air Force, M/s Bharath electronics limited, M/s Rail wheel factory, prestige, Embassy and excess effluent to allasandra lake
21.	Horamavu Agra	kalkere lake *13°02'51.0"N 77°65'97.0"E*	20	Activated sludge process (2°)	22.22	21.53	to recharge 65 tanks of chikkaballapura
22.	Jakkur	jakkur lake *13°06'31.0"N 77°62'07.0"E*	15	upflow aerobic sludge blanket (UASB)+ extended aeration	15.3	15.1	M/s KPCL
23.	K R Puram	Tambuchetti palya road *13°1'0.75"N 77°41'37.45"E*	20	UASB+ extended aeration	20	20	Vengaiana kere
24.	Yelemallappa Chetti kere	yelemallpa chetti kere *13°1'17.64"N 77°43'11.44"E*	15		15.8	15	yelemallpa chetti kere
25.	*Hebbal STP*	-	*100*	-	-	-	*under construction and commissioned by Jan 2021*
26.	*Puttenahalli - Yelahanka*	-	*7*	-	-	-	*under construction and commissioned by Jan 2023*
27.	*BEL*	*Doddabommasandra lake*	*10*	-	-	-	*under construction and*

							commissioned by Dec '20
28.	*K.R Puram*	*-*	*20*	*-*	*-*	*-*	*under construction and commissioned by Dec '20*
29.	*Jakkur*	*jakkur*	*7*	*-*	*-*	*-*	*proposed*
30.	*Doddabettahalli*	*Attur*	*7*	*-*	*-*	*-*	*proposed*
31.	*Yelahanka*	*Yelahanka lake*	*6*	*-*	*-*	*-*	*proposed*
32.	*Horamavu*	*-*	*60*	*-*	*-*	*-*	*proposed*

Note on water pollution in river Thenpennaiyar due to the discharge of untreated sewage from Bangalore city.

The River Thenpennaiyar is originated in Karnataka and it passes 85 Kms in the state and it enters Tamil Nadu border through Northern side of Bangalore. The river reaches Bagalur village, Hosur Taluk, Krishnagiri District at a distance about 4 Kms and it passes through Krishnagiri, Dharmapuri, Thiruvannamalai, Villupuram, Cuddalore Districts of about 400 Kms and finally joints to Bay of Bengal.

Government of Tamil Nadu has filed a case in the Hon'ble Supreme Court of India in O.S.No.2/2015 against the State Government of Karnataka regarding the discharge of Bangalore city's untreated sewage in the river Cauvery and river Thenpennaiar. Subsequently, the Hon'ble Supreme Court vide its order dated 7.7.2017 has directed that joint monitoring and sampling of rivers shall be carried out by CPCB, KSPCB and TNPCB with nodal agency as CPCB. As per the directions, joint monitoring and sampling of rivers was carried out once in a month from September 2017. In this regard, the nodal agency, CPCB, has filed the interim report along with the river water analysis reports of 9 months from September 2017 to May 2018 to the Hon'ble Supreme Court of India during July 2018. It has been continued to carried out the sample collection by this office at Chokkarasanapalli Village till date. From the said analysis reports of river Thenpennaiyar, it was observed that the parameters such as Dissolved Oxygen, Biochemical Oxygen Demand and Total coliform are exceeding the standards prescribed by the Board. The case is pending and under process in the Hon'ble Supreme Court of India.

The Industries generating trade effluent in Krishnagiri District are treating their trade effluent through Effluent treatment plants and the treated trade effluent are being either recycled back to their process or discharged on their own land for green belt development after satisfying the standards prescribed by the Board. There is no discharge of trade effluent into the river of Thenpennaiyar from Krishnagiri District. However, all the Industries are being closely monitored by Tamil Nadu Pollution Control Board.

ANNEXURE - III

Thenpennaiyar River Water samples collected at Chokarasanapalli village at the inter State Border (on Behalf of TNPCB during Joint Monitoring Committee Visit from September 2017 to May 2018)

Sl. No.	Parameter	Units	Date of Sample Collection								
			20.09.2017	24.10.2017	21.11.2017	12.12.2017	18.01.2018	22.02.2018	22.03.2018	26.04.2018	24.05.2018
1	pH	Number	7.13	7.65	7.28	6.90	7.58	7.89	7.72	7.54	7.32
2	Total Suspended Solids	mg/l	-	-	38	36	38	36	34	42	44
3	Total Dissolved Solids	mg/l	610	-	1040	780	880	760	1510	1008	1160
4	Chloride	mg/l	-	-	325	320	360	300	320	400	440
5	Sulphate	mg/l	-	-	260	140	160	120	140	200	210
6	Oil and Grease	mg/l	-	-	1.0	1.0	1.0	1.0*	1.0*	1.0*	1.0*
7	BOD 3 days at 27°C	mg/l	6	10	20	30	26	28	26	32	26
8	COD	mg/l	64	-	64	88	80	80	80	88	88
9	Conductivity	mg/l	1050	-	1368	1280	1050	1403	1760	1388	1154
10	Dissolved Oxygen	mg/l	1.0*	1.0*	1.0*	1.0*	2.60	4.20	2.60	1.00	1.0*
AEL, TNPCB, Salem											
11	Total Coliform	MPN / 100 ml	1400	2200	110000	350000	280000	170000	170000	140000	170000
12	Fecal Coliform	MPN / 100 ml	490	----	----	----	----	----	----	----	----

Thenpennaiyar River Water sample collected at Chokarasanapalli village at inter State Border by the DEE, TNPCB, Hosur from June 2018 to December 2018

Sl. No.	Parameter	Units	Date of Sample Collection						
			28.06.2018	25.07.2018	22.08.2018	27.09.2018	26.10.2018	29.11.2018	31.12.2018
1	pH	Number	7.68	7.56	6.22	7.16	7.44	6.13	5.87
2	Total Suspended Solids	mg/l	18	96	260	124	36	24	24
3	Total Dissolved Solids	mg/l	808	960	986	972	716	670	708
4	Chloride	mg/l	205	185	225	410	200	275	244
5	Sulphate	mg/l	91	117	20	60	43	36	38
6	Oil and Grease	mg/l	1.0*	1.0*	1.0*	1.0*	2.0*	1.0*	2.0
7	BOD 3 days at 27°C	mg/l	6.0	16	12	20	22	32	32
8	COD	mg/l	40	80	80	80	160	128	80
9	Dissolved Oxygen	mg/l	0.88	2.55	-	2.30	1.94	2.12	5.40
AEL, TNPCB, Salem									
10	Total Coliform	MPN / 100 ml	----	220000	17000	1700	2100	2200	2800
11	Fecal Coliform	MPN / 100 ml	----	----	----	----	----	----	----

Thenpennaiyar River Water samples collected at Chokarasanapalli village at the inter State Border by the TNPCB, DEE, Hosur from January 2019 to December 2019

Sl. No.	Parameter	Units	Date of Sample Collection											
			24.01.2019	22.02.2019	28.03.2019	11.04.2019	09.05.2019	20.06.2019	11.07.2019	16.08.2019	20.09.2019	18.10.2019	27.11.2019	25.12.2019
1	pH	Number	7.12	6.57	6.19	6.38	7.50	6.72	7.64	7.62	8.14	7.42	7.92	8.23
2	Total Suspended Solids	mg/l	18	26	38	40	18	28	568	540	280	126	38	450
3	Total Dissolved Solids	mg/l	702	852	810	928	698	1620	968	788	654	624	760	754
4	Chloride	mg/l	265	250	230	230	200	640	425	235	195	325	220	220
5	Sulphate	mg/l	42	42	40	7.0	19.0	299	148	81	35	88	59	138
6	Oil and Grease	mg/l	1.0*	1.0	1.0*	2.0	2.0	1.0*	1.0*	2.0	1.0*	1.0*	3.0	16
7	BOD 3 days at 27°C	mg/l	14	18	16	24.0	10.0	20	56	152	10	15	48	40
8	COD	mg/l	80	176	80	200	48	80	104	216	152	96	72	96
9	Dissolved Oxygen	mg/l	13.8	4.15	4.56	3.34	4.00	4.20	2.08	4.58	2.86	2.21	5.04	3.21
AEL, TNPCB, Salem														
10	Total Coliform	MPN / 100 ml	----	3300	2400	2400	2100	3500	3400	2800	3500	4300	3900	4800
11	Fecal Coliform	MPN / 100 ml	----	----	----	----	----	----	----	----	----	----	----	----

Thenpennaiyar River Water samples collected at Chokarasanapalli village at the inter State Border by the TNPCB, DEE, Hosur from January 2020 to September 2020

Sl. No.	Parameter	Units	Date of Sample Collection								
			23.01.2020	20.02.2020	19.03.2020	22.05.2020	26.06.2020	30.07.2020	19.08.2020	20.08.2020	24.09.2020
1	pH	Number	8.12	8.01	7.91	8.01	6.95	7.15	7.27	7.24	7.19
2	Total Suspended Solids	mg/l	548	308	140	122	756	324	426	958	258
3	Total Dissolved Solids	mg/l	820	866	832	662	502	616	710	632	598
4	Chloride	mg/l	250	225	210	185	130	160	175	180	157
5	Sulphate	mg/l	98	143	74	117	79	37	278	112	24
6	Oil and Grease	mg/l	1.0*	1.0	1.0*	6.00	2.00	1	2	1	2
7	BOD 3 days at 27°C	mg/l	12	40	42	48	21	47	168	33	24
8	COD	mg/l	144	176	96	128	128	72	480	168	320
9	Dissolved Oxygen	mg/l	3.72	0.31	2.40	2.79	0.32	4.77	4.72	4.61	4.3
10	Dissolved Phosphate	mg/l	-	-	-	-	-	-	3.35	-	-
11	Total Hardness	mg/l	-	-	-	-	-	-	430	-	-
12	Suplphide	mg/l	-	-	-	-	-	-	1.0*	-	-
AEL, TNPCB, Salem											
13	Total Coliform	MPN / 100 ml	5800	6300	1200	210	940	1100	----	1400	----
14	Fecal Coliform	MPN / 100 ml	----	----	2800	----	----	----	----	----	----

ANNEXURE VII

LIST OF 72 INDUSTRIES HAVE BEEN ISSUED CLOSURE DIRECTIONS				
Sl No	Name and Address of the Industry	Category	Date of Issue	Remarks
1	Kumar Organic Products Limited , Plot No.60/65, Road No.3, Jigani Industrial Area, Anekal, Bangalore Urban - 562106	LR	26.10.2018	Revocation order issued under Water and Air Act on 07.09.2019
2	Kumar Organic Products Private Limited, ; Plot NO:62, Road NO:3 & 5, Jigani Industrial Area, Anekal Taluk, Bangalore Urban District - 560105	LR	26.10.2018	Revocation order issued under Water and Air Act on 07.09.2019
3	Sharada Electrochem, No. S.P 175, 1st Phase, Jigani, KSSIDC Industrial Area, Anekal Taluk, Bengaluru Urban District - 560105	SR	05.11.2018	Revocation order issued under Water and Air Act on 04.06.2019
4	Sri Shivashakthi Rubbers, No.84-P4, 1st Phase, J.I.A, Jigani Hobli, B'lore	SR	13.11.2018	Revocation order issued under Water Act on 24.01.2019
5	Sathya Industries, No.142/145,Jigani Industrial Area, Dr. B.R Ambedkar Industrial Estate, 1st Phase, Anekal Taluk, Bengaluru Urban District - 560 106	SR	19.11.2018	Revocation order issued under Water Act on 22.12.2018
6	Pavithra Chemicals, No. 183, Jigani, KSSIDC Industrial Estate, Jigani, Anekal Taluk, Bengaluru Urban District	SR	05.11.2018	Revocation order issued under Water Act on 31.12.2019
7	Shine Chemical Industries, No.SP-165, Jigani Industrial Estate, Jigani, Anekal Taluk, Bengaluru Urban District - 562106	SR	24.11.2018	Revocation order issued under Water and Air Act on 17.09.2019
8	SB Refinaries, Plot No. 81, Bommasandra - Jigani Link Road Industrial Area, 4th Phase, Anekal Taluk, Bangalore Urban District- 560 099	SO	26.06.2018	Revocation order issued under Water and Air Act on 02.05.2019
9	Chowdeshwari Brick Industry, Survey No. 271/3 & 271/2B, Haragadde Village, Jigani Hobli, Anekal Taluk, Bangalore Urban District	SG	25.03.2019	Industry demolished
10	Vohra Packaging, No:94, Ii Phase, , Jigani Industrial Area, Anekal, Bangalore Urban - 562106	SG	25.03.2019	Revocation order issued under Water Act on 04.09.2019
11	Poonam's Furniture House, No. 121/3, Kachanayakanahalli Village, Hennagara Post, Jigani Hobli, Anekal Taluk, Bangalore Urban District	SG	25.03.2019	Industry demolished

12	Poonam's Interiors & Decorators, Survey No. 121/2, Kachanayakanahalli Village, Hennagara Post, Jigani Hobli, Anekal Taluk, Bangalore Urban District	SG	25.03.2019	Industry demolished
13	Yashashwini Concrete Blocks & Its Allied Products, Survey No. 342, Hulimangala Village, Jigani Hobli, Anekal Taluk, Bangalore Urban District	SG	25.03.2019	Closed
14	Ekomate Systems India Private Limited, Plot No. 141, Bommasandra - Jigani Link Road Industrial Area, 4th Phase, Anekal Taluk, Bangalore Urban District- 560 099	SG	27.03.2019	Revocation order issued under Water Act on 03.06.2019
15	Sapthagiri Brick Works, Survey Nos. 345/2A 345/2B & 346/1, 346/3 & 346/36 of Anekal Town, Kasaba Hobli, Anekal Taluk, Bangalore Urban District	SG	27.03.2019	Closure order inforce
16	Hatson Agro Product Limited, Anekal Chilling Center., Sy No. 382, Marsoor Village, Bangalore	SO	27.03.2019	Closed
17	Leo Concrete Pvt Ltd., D.L.F Maiden Heights, # 260/1, Rajapura, Jigani Link Road, Bangalore	SG	27.03.2019	Closed
18	Maini Materials Movement Private Limited, Survey No. 150/1, Bandapura Village, Marsur Post, Kasaba Hobli, Anekal Taluk, Bangalore Urban District	SG	27.03.2019	Closure order inforce
19	Jyothi Can Mix, 93/2, Audadenahalli Village, Kasaba Hobli, Bangalore	SG	27.03.2019	Closed
20	R.S.R Stone Works, 23/P, 50, Thammanayakanahalli, Kasaba Hobli, Anekal Taluk, Bangalore	SO	27.03.2019	Temporarily closed
21	Sudarshan Brick Works, Survey Nos. 5 & 7, Chikkahagade Village, Sidi Hosakote Post, Kasaba Hobli, Anekal Taluk, Bangalore Urban District	SG	27.03.2019	CFO issued from this office vide No. A-108866 dtd: 11.02.2019 valid up to 31.12.2025 under Air Act.
22	N.R Granites, Sy No. 5/1, Agara Thimmanahalli, Kasaba Hobli, Bangalore	SG	27.03.2019	Closed
23	Nagarjuna Chamber Brick Works, Survey No. 492, Bodarahalli, Sidi Hosakote (Post), Kasaba Hobli, Anekal Taluk, Bangalore Urban District	SG	27.03.2019	Closed
24	P.K Plastics, Sy No. 30/29, Thirupalya , Angala Main Road, Near New Town Layout, Jigani Hobli, Anekal Taluk, Bengaluru Urban District	SO	17.09.2019	Closure order inforce

25	Sri Shivashakthi Rubbers, No.84-P4, 1st Phase, Jigani Industrial Area, Jigani Hobli, Bengaluru	SR	02.01.2020	Closure order issued. Applied for revocation of closure order.
26	Manjunatha Metal Finishers, No. 105, 4th Phase, Bommasandra Jigani Link Road, Anekal Taluk, Bengaluru	SR	23.01.2020	Closed
27	Shine Electroplating Industries, No. 105, 4th Phase, Bommasandra Jigani Link Road, Anekal Taluk, Bangalore	SR	23.01.2020	Revocation order issued under Water Act on 05.08.2020
28	Power Control Equipment, Unit-II, ; Plot No.40-A, Phase-I, Road No.3, Jigani Indl. Area, Bangalore.	MR	05.02.2020	Revocation order issued under Water and Air Act on 21.03.2020
29	Ravi Industries, Plot No. 206, Survey No. 239-P, Bommasandra - Jigani Link Road Industrial Area, Anekal Taluk, Bengaluru Urban District - 560 099	SR	05.02.2020	Revocation order issued under Water and Air Act on 02.03.2020
30	Sun Clad Coaters, Plot No.18/A, 2nd Phase KSSIDC Indl. Area, Jigani, Anekal Taluk, Bangalore.	SR	05.02.2020	Revocation order issued under Water and Air Act on 22.04.2020
31	Aron Universal Private Limited, Survey No: 25/1, Jigani Industrial Area, 2nd Phase, Anekal Taluk, Bengaluru Urban District - 560105	LR	05.02.2020	Revocation order issued under Water and Air Act on 14.07.2020
32	Arihant Metals & Extruded Private Limited, Plot No. 9-L, Yarandahalli, Bommasandra Industrial Area, I Phase, Anekal Taluk, Bengaluru Urban District - 562 158	MR	06.02.2020	Revocation order issued under Water and Air Act on 02.03.2020
33	Saify industries (plant-3),(formerly Automax) ; Plot No.75, Jigani Indl Area, Jigani, Anekal Taluk, Bengaluru Urban District - 560 099	MR	05.02.2020	Hon'ble High Court order industry was operating (W.A No. 3532/2020 dtd: 02.03.2020) & applied for revocation of closure order
34	Vishal Precision Steel Tubes & Stripes Pvt Ltd (Formerly known as Arryaa Bright Industries,) Unit-2, Plot No. 88, Bommasandra Jigani Link Road, 4th Phase, Bommasandra Indl Area, Bangalore	SR	05.02.2020	Industry permanently closed

35	Omax Autos Limited, Plot No. 6, KIADB Industrial Area, Bommasandra - Jigani Link Road Industrial Area, 4th Phase, Anekal Taluk, Bangalore Urban District- 560 099	LR	05.02.2020	Revocation order issued under Water Act on 02.02.2020
36	Stellance Pharmascience Ltd., (Formerly Karnataka Chemzyn Limited,), Plot No:456/1 A&B, Jigani Industrial Area, Anekal, Bangalore Urban District	LR	20.03.2020	Closure order issued. Applied for revocation of closure order.
37	Progressive Poly Pack Industries, Plot No. 90, Road No. 3, Bommasandra Industrial Area, 4th Phase, Anekal Taluk, Bangalore Urban District- 560 099	SG	22.06.2020	CFO issued from this office vide No. AW-110206 dtd: 14.06.2019 valid up to 31.12.2025 under Water and Air Act.
38	Murugan Dyeing Unit, Ward. No.191, 7th Cross, Bhuvaneshwari Layout, Naganathapura, Bengaluru 100	Red	17.12.2018	Closed
39	Abhishek Washing Tech (Other name Sneha Fab Solutions) No.7, Lakshmi Layout Main Road, Chikkabegur Road, Bengaluru	Red	17.12.2018	Closed
40	Jayalakshmi Dyeing, Lakshmi Layout, G B Palya, Begur Hobli, Bengaluru	Red	17.12.2018	Closed
41	V M Process, Sy.No.182, Begur Village, Begur Hobli, Bengaluru	Red	03.01.2019	Closed
42	Srindraj Dyeing, Lakshmi Layout, Garvebhavi Pallya, Begur Hobli, Bengaluru	Red	16.01.2019	Closed
43	Sachin Design Creations, 13th Main, 18th Cross, Viratanagar, Bommanhalli, Bengaluru	Red	30.01.2019	Closed
44	Shree Mahalakshmi Dyeing Works , No.55, 3rd Cross, Mangammanpallya Main Road, Popular Colony, Bommanhalli, Bengaluru - 560068	Red	22.02.2019	Closed
45	Subramani Dyeing Works, 8th Cross, Hongasandra, Begur Post, Bengaluru -560068	Red	22.02.2019	Closed
46	Om Shakthi Dyeing Works, No.97/7B, No. 253, Balaksrishna Reddy Building, Hongsandra, Bengaluru- 560068	Red	26.02.2019	Closed
47	H.M.Process, Sy.No. 176/65, Bilekhalli, Bannerughatta Main Riad, Bengaluru	Red	28.06.2019	Closed
48	Manjunatha Condiments , No. 166/7, Amruthappa layout, Doresanipallya, BG Road, Bengaluru	Orange	06.07.2019	Closed

49	Hyat Heat Transformers.No. 860/1, Bilekhalli, Doresanipallya, Bg Road, Bengaluru	Orange	06.07.2019	Closed
50	MA Interiors & Manufacturrers.No. 116/7, Amruthappa Layout, Bengaluru	Green	06.07.2019	Closed
51	Om Shakthi Dyeing Works, Sy.No. 230, Begur Village & Hobli, Bengaluru	Red	19.07.2019	Closed
52	Velkan Engineering Pvt Ltd, 139/1/7A, Sarvabhouma Industrial Area, Behind HSBC, Futura, Bannerghatta Road, Bangalore - 560076.	Green	16.09.2019	Closed
53	Samrudhi Packaging Industry. NO. 83/2, Doddamma Layout, Hulimavu Road, Bengaluru	Green	17.09.2019	Closed
54	Ravika Creations, No. 62/4, Bommanahalli, Begur Road, Bengaluru	Green	18.09.2019	Closed
55	TMA Hospitality Services Pvt Ltd., Ammis Biryani-Central Kitchen, No.3, Begur Kodichikkanahalli Road, Bommanahalli, Bangalore-61.	Red	18.09.2019	Closed
56	Rakashan Enterprises, No.14, Kunnappa Industrial Estate, Doddakallasandra, Kanakapura Main Road, Bangalore-560 062	Red	**18.09.2019**	**Closure order revoked & Operating**
57	Thirumala Dyeing Work, No. 13, 3rd Cross' Lakshmi Layout, Garvebhavipallya, Bengaluru	Red	27.09.2019	Closed
58	Prime Lences Pvt Ltd. No. 229/296/264, NR Layout, roopena Agarahara, Bengaluru	Orange	18.12.2019	Closed
59	Sri Lakshmi Ranganatha Industries, No.78, Singasandra Village, Begur Hobli, Bengaluru	Red	29.05.2020	Closed
60	Jax Green Tech, Plot No. 93, KIADB Industrial Area, 4th Phase, Malur, Kolar District.	Small Red	Closure direction issued by the Board on 24.12.2019.	For not adopting SOP compliances
61	Bangalore Enamels Paints & ChemicalsPlot No. 3E, Doddenkundi Indl Area, I Phase, Whiteifld RoadMahadevapura PostBangalore East Taluk	Orange	05.09.2019	Closure order inforce
62	Chamundeshwari Stone CrusherSy. No. 21/3, Bidarahalli Hobli, Mittaganahalli, Bengaluru East Taluk, Bengaluru 562 149	Orange	12.09.2019	revoked closure order on 21.11.2019.

63	CPF India Pvt. Ltd. (Formerly Charoen Pokhand (India) Pvt ltd,. (Food Division))Sy No. 34, mandur Village and post Budigere Road, Bidarahalli Hobli Bangalore East Taluk	Green	04.10.2018	revoked closure order on 02.02.2019
64	Elite Vehicles Pvt LTd Plot No. 2, Dyavasadnra Indl Area, 2nd phase,Bangalore East Taluk	Orange	22.06.2018	revoked closure order on 17.12.2018
65	Barque Hotel Private Limited (Formerly Hotel Formule 1, (A Unit of Mandakini Constructions Pvt Ltd) Plot No. 4, EPIP, Zone, EOIZ Indl Area Phase-II, Whitefield Road Bangalore East Taluk	Orange	04.10.2018 & 11.10.2018 (apc & wpc)	revoked closure order on 15.05.2019
66	Khivraj Motors No. 174/1C and Katha no. 431 Hoodi Village, Whitefield Road Bangalore East Taluk	Orange	27.09.2019	Closed
67	Mallya Steel IndustriesNo. 28/A, Vishweshwariah Indl Area Mahadevapura Bangalore East Taluk	Red	18.09.2019	revoked closure order on 07.01.2020
68	New Whites LaundrySy No. 36/2, Doddagubbi Village, Doddagubbi main road, Bidarahalli Hobli, Bengaluru East Taluk, Bengaluru	Orange	16.11.2018	Closed
69	Shakthi Food And Beverages Services LLPPlot No. 02, Vishveshwaraiah Industrial Area, Mahadevapura Post, K.R Puram Hobli, Bengaluru 560 048	Orange	18.09.2019	revoked closure order on 01.06.2020.
70	Silicon Steel Pvt. Ltd, Plot No. 39, 12th Mile, Old Madras Road, ,Bangalore East Taluk	Orange	23.06.2018	revoked closure order on 07.09.2018
71	Jaskey Exports Pvt. Ltd.No. 91/3, Shed No.1 & 2, Dhruva Industrial Estate Cheemasandra Village, Bidarahalli Hobli, Bengaluru East Taluk.	Green	19.07.2019	revoked closure order on 23.10.2019.
72	Swastik Bright IndustriesPlot No 34, Rampura Village, Bidarahalli Hobli, Bengaluru East Taluk.	Red	03.06.2019	revoked closure order on 24.07.2020

List of Legal Cases

Sl. No.	Name of the industry	PCR No	Court Name	Status
1	Tropical Paradise, Silver County Road, Near Shobha Cinema, Kudlu Village, Bangalore-68	---	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
2	Credez flora, Credence Developers No. 100, 16th Cross, New Mico Layout, Hongasandra, Bangalore-68	14787/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
3	Varun Lotus Apartment, No. 14 Near Singasandra Bus Stop, Hosur Road, Bangalore-68	---	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
4	SLV Kristal Apartment, Sy.No. 36/9, Begur Koppa Road, Ellenhalli, Bangalore-68	14785/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
5	Parijatha Apartment, Adjacent to Shobha Marbel, Bellandur, Greenlen Layout, Bangalore.	14788/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
6	Tirumala Lotus Apartment, Gottigere Village, Bannerghatta Road, Kambattalli Road, Near Water tank, Bangalore-83	14659/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
7	AMG Conclaied Apartment, Yellenalli Village, Akshyanagar, BTM 6th Stage, Begur Hobli, Bengaluru-68	14786/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date

8	Prakasa Pride, No.37/1, Kaubisanahalli, Reddy Layout, Varthur Bangalore.	---	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
9	Anand Enclave Apartment, Sy.No. 373, Royal County Layout, J.P. Nagara 8th Phase, Gottigere-Vil, Bannerghatta Road, Bangalore-83	14593/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
10	Pruthvi Residency, No. 414, MLA Layout, BG Main Road, Kalena Agrahara Village, Near Sapthagiri Castul, Bengaluru-70	---	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
11	Meenakshi Lake View, Near Doddamane Temple, 1st Cross, Sarjapur Junction, Ibblur Village, HSR Layout, Bangalore-560102.	14790/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
12	Thirumala Blossoms Apartment, B1 Layout, Gottigere-Vil, Uttarahalli-hobli, Bannerghatta Road, Bangalore-83	14592/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
13	SLV Builders, by name SLV Spandana, Sy.No. 25/4, Begur Village & Hobli, Bengaluru-68	14791/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
14	Dharani Nakshatra No. 11/10, Akshaya Nagara, Yellenahalli Mn Road, Bangalore-68	---	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date
15	Vardhini and Madku Apartment, Begur Koppa Road, Yelenahalli, Bangalore-68	---	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date

16	DS Max Serene, Near Hulimavu Bus Stop, Bangalore-76	14797/19	ACMM, Bengaluru	As per Board office authorization No. 2934 dated: 07.08.2019 this office has filed cases in ACCMM Court, Waiting for hereing date

ANNEXURE IX

Quality of Lake Water in Dakshina Pinakini Catchement Area				
Sl. No	**Name of the lake**	**2018-19**	**2019-20**	**2020-21**
		Class	**Class**	**Class**
1	Chandapura Lake	E	D	E
2	Rayasandra Lake	D	D	D
3	Kammasandra Lake	E	E	E
4	Bommasandra Lake	E	E	E
5	Hebbagodi Lake	E	E	D
6	Kitaganahalli Lake	E	E	E
7	Lakshmipura Lake	E	D	D
8	Sakalavara Lake	D	D	D
9	Bhujangadasanahalli Lake	D	D	D
10	S.Bingipura Lake	E	D	E
11	Harappanahalli Lake	E	E	D
12	Kallubalu Lake	D	E	C
13	Manchenahalli Lake	D	E	D
14	Konasandra Lake	E	D	D
15	Dyavasandra Lake	D	E	E
16	Rajapura Lake	D	D	D
17	Hennagara Lake	D	E	E
18	Mastenahalli Lake	E	E	E
19	Yarandahalli lake	E	E	E
20	Kondareddy Lake	D	D	E
21	Kyalasanahalli Lake	D	D	D
22	Bandenallasandra Lake	D	D	D
23	Bidirukere Lake	D	D	E
24	Jigani Lake	D	E	D
25	Anekal Doddakere	D	D	D
26	Thubarahalli Lake	E	E	E
27	Varthur Lake	D	D	D
28	Kalkere Lake	E	E	E
29	Benniganahalli Lake	E	D	D
30	Sadaramangala Lake	E	E	E
31	Bhattarahalli Lake	E	E	E
32	Kundalahalli Lake	E	D	D

33	Kowdenahalli Lake	E	E	E
34	Garudacharpalya Lake	E	E	E
35	Devasandra Lake	D	E	E
36	Chinnappanahalli Lake	E	E	E
37	Nallurahalli Lake	D	E	E
38	Pattandur Agrahara Lake	E	E	E
39	Seetharampalya Lake	E	E	E
40	Basavanapura Lake	D	D	D
41	Munnekolalu Lake	E	E	E
42	Hoodi Lake	E	D	E
43	Mahadevapura Lake	E	E	E
44	Sheelavantha Kere	E	E	D
45	Rampura Lake	E	D	E
46	Seegehalli Lake	E	E	E
47	Yallammallppa chetty lake	E	E	D
48	Hoodigiddanakere	E	E	E
49	Thubarahalli Lake	E	E	D
50	Varthur Lake	E	E	D
51	Benniganahalli Lake	E	E	E
52	Bhattarahalli Lake	E	E	D
53	Kundalahalli Lake	E	D	D
54	Kowdenahalli Lake	E	E	D
55	Garudacharpalya Lake	E	D	D
56	Chinnappanahalli Lake	D	E	D
57	Sankey Tank	D	D	D
58	Bellandur Lake,	E	E	E
59	Agara lake,	E	E	E
60	Madiwala lake,	E	E	E
61	Hulimavu Lake,	E	E	E
62	Puttenahalli Lake	D	D	D
63	Yelahanka lake	D	D	E
64	Singapura lake	D	D	D
65	Hebbal lake	D	D	E
66	Nagawara lake	D	D	D
67	Agarahara lake	E	D	D
68	Narasipura lake	D	D	D

69	Thirumenhalli lake	D	D	D
70	Bagalur lake	-	D	E
71	Horamavu lake	D	D	D
72	Bellahalli lake	-	D	E
73	Jakkur lake	D	D	E
74	Amruthahalli	D	E	E
75	Rachenahalli	D	E	D
76	Allalasandra	D	D	D
77	Horamavu agra lake	D	D	E
78	Chokanahalli lake	D	D	D
79	Chekekere lake	D	D	D

Water Quality of the river Dakshina Pinakini near Mugalur Bridge							
Year	**Sampling Location**	**Date Of Sample Collection**	**Classification**				
			A	**B**	**C**	**D**	**E**
2018-19	**Dakshina Pinakini River, Near Mugalur Bridge, Mugalur, Bengaluru**	24.05.2018	-	-	-	**D**	-
		12.06.2018	-	-	-	-	**E**
		26.07.2018	-	-	-	-	**E**
		14.08.2018	-	-	-	-	**E**
		18.09.2018				D	
		26.10.2018	-	-	-	**D**	-
		27.11.2018	-	-	-	**D**	-
		14.12.2018	-	-	-	-	**E**
2019-20		11.04.2019	-	-	-	**D**	-
		18.05.2019	-	-	-	-	E
		03.05.2019	-	-	-	-	E
		14.03.2019	-	-	-	-	E
		05.02.2019	-	-	-	-	E
		16.01.2019	-	-	-	D	-
		14.06.2019	-	-	C	-	
		16.07.2019	-	-	-	D	-
		5.08.2019	-	-	-	-	E
		6.08.2019	-	-	-	-	E
		17.10.2019	-	-	-	D	-
		05.11.2019	-	-	-	-	E
		17.09.2019	-	-	-	D	-
		12.12.2019	-	-	-	-	E
		30.01.2020	-	-	-	D	-
		09.01.2020	-	-	-	-	E
2020-21		22.04.2020	-	-	-	-	E
		27.05.2020	-	-	-	-	E

ಫ್ಯಾಕ್ಸ್/Fax : 080-25586321
ಈಮೇಲ್/E-mail : ho@kspcb.gov.in
ವೆಬ್‌ಸೈಟ್/Website : http://kspcb.gov.in

25581383, 25589112
25588151, 25588270
25588142, 25586520

ANNEXURE XI

ಕರ್ನಾಟಕ ರಾಜ್ಯ ಮಾಲಿನ್ಯ ನಿಯಂತ್ರಣ ಮಂಡಳಿ

Karnataka State Pollution Control Board

"ಪರಿಸರ ಭವನ", 1 ರಿಂದ 5ನೇ ಮಹಡಿಗಳು, ನಂ. 49, ಚರ್ಚ್ ಸ್ಟ್ರೀಟ್, ಬೆಂಗಳೂರು - 560 001, ಕರ್ನಾಟಕ, ಭಾರತ
"Parisara Bhavana", 1st to 5th Floor, # 49, Church Street, Bengaluru - 560 001, Karnataka, INDIA

SHRI VIJAYAKUMAR GOGI, IFS,
Principal Secretary to the Government,
Ecology & Environment Department &
Chairman,
Karnataka State Pollution Control Board.

DO No. PCB/NON-EIA/BNG/1245/2020-21/ 203 Dated: 20 OCT 2020

Dear .....,

Sub: Pollution of Vrishabhavathi Valley and Byramangala Lake water due to discharge of sewage and industrial effluent – reg.

****

I would like to draw your attention to the number of complaints on the pollution of Vrishabhavathi valley and Byramangala Lake water due to discharge of sewage and industrial effluent. As you are aware Vrishabhavathi valley is tributary to Arkavathi river having confluence near Ganalu village, Kanakapura Taluk. The Arkavathi river is the tributary to Cauvery river with confluence at Sangama in Kanakapura Taluk before entry into Tamil Nadu. The Vrishabhavathi valley catchment comprises of western and south-western parts of Bangalore and parts of Ramanagara Districts. There are large number of industries, apartments and commercial establishments located in the catchment area of the said valley. The water quality of the valley is monitored by the Board. It is important to maintain the quality of water in the valley as its supports aquatic life, agriculture & irrigation and it cater to the need of ground water recharge right from origin to confluence with Arkavathi river. The Karnataka State Pollution Control Board is regulating the discharge of sewage and industrial effluents in the catchment area through consent mechanism. Industries have been mandated to either establish in-house treatment or to handover the effluents to the common effluent treatment plant. In order to identify polluting industries in the catchment, the Board during October, November 2018 carried out drive and filed criminal cases against 76 defaulting industries, issued closure directions to 309 industries. It is observed that, many of the defaulting industries especially the dying industries after issue

of closure directions relocate their industries in other parts of the valley without obtaining prior consent of the Board. However, it is noticed that, such activities are having the trade licence issued by Bruhat Bengaluru Mahanagara Palike in respect of Bangalore or the Grama Panchayath licence for other than Bangalore area.

In order to regulate the discharge of effluents into valley without treatment and without the consent of the Board, it is suggested that, wherever trade licence requirements are there for activities such as dying, washing, electroplating, etc. before issue of trade licence, it is essential to mandatorily insist for KSPCB consent so that the Board can examine the activity from the water pollution angle and decide whether such activity can be permitted or otherwise. Thereafter, the trade licence can be issued by the authorities. Since, the Board is having limited resources and infrastructure to identify such activities, it would be appropriate for the Bruhat Bengaluru Mahanagara Palike which has ward wise structure to identify and regulate such activities and inform the Board about existence of such activities so that, the Board can take appropriate action to mitigate pollution. For the existing activities where the trade licence have been issued without consent of the Board, action needs to be taken to cancel the trade licence and inform the Board accordingly to initiate further action. If such of the activities neither have consent of the Board nor have trade license from respective local bodies, it required to curb such activities by closure. If any assistance is required KSPCB happy to extend such support in closure.

Further, your attention is drawn specially to the orders at Para 6 of Hon'ble Karnataka Lokayukta, Bengaluru No.Compt/LOK/BCD-2616/ 2019/ARE-1, dated 13.11.2019 in respect of illegal dying units located in K R Pura area and in catchment area of Rampur, Yellamallappa chetty Lake and Maragondanahalli Lake which is reproduced as under;

> *..... However, it is necessary to point out when a dying unit or any other unit which is likely to emanate polluted substances, the BESCOM authorities and the jurisdictional grama panchayath and BWSSB authorities are required to direct the applicant before starting of the unit to secure 'no objection certificate' from the KSPCB. Whenever an application for 'no objection' is sought from the KSPCB, it is needless to point out the KSPCB is required to examine the adverse effect that may have on the members of the public keeping in mind the appropriate regulation governing grant of 'no objection certificate'. It is needless to point out that all the concerned authorities are also required to objectively examine the request made for grant of appropriate permission.....*

Therefore, for water polluting activities such as dying, washing, electroplating, etc., the authorities such as the BBMP, Grama Panchayath (RDPR), BESCOM & BWSSB authorities are to insist for KSPCB consent prior to grant of their services. It is also requested to identify all polluting industries having trade license or otherwise bring it to the notice of KSPCB along with names & address which will help the Board in initiating closure of such units.

With regards,

Your's sincerely,
Sd/-
(VIJAYAKUMAR GOGI, IFS)
Principal Secretary, DEE &
Chairman, KSPCB.

To.

Shri. Rakesh Singh, IAS
Additional Chief Secretary to Government,
Urban Development Department,
Room No.436, Vikasa Soudha, Bengaluru.

Sri. Mahendra Jain, IAS,
Additional Chief Secretary to Government,
Energy Department,
Room No. 236, 2nd Floor, Vikasa Soudha,
Dr. B.R Ambedkar Street, Bengaluru- 560 001.

Dr. J. Ravi Shankar, IAS
Principal Secretary to Government,
M&UDA, Urban Development Department,
Room No.434, Vikasa Soudha, Bengaluru.

Sri. L.K.Atheeq, IAS,
Principal Secretary to Government,
RPDR Department,
3rd Floor, 3rd Gate, M.S. Building,
Bengaluru-560001.

Sri. N Jayaram, IAS,
Chairman,
BWSSB,
Cauvery Bhavan, K.G Road,
Bengaluru- 560009.

Sri. N.Manjunath Prasad, IAS,
Commissioner,
Bruhat Bengaluru Mahanagara Palike,
Head Office, Hudson Circle,
Bengaluru- 560002.

Sri M.B.Rajesh Gowda, IAS,
Managing Director,
BESCOM,
Ambedkar Veedhi, K R Circle,
Bengaluru– 560001.

Copy to:

1. The Technical Officer to Hon'ble Chairman for information.
2. The Technical Officer to Member Secretary for information.
3. The Regional Senior Environmental Office - B'lore North, City & South for information and necessary action.
4. The Regional office - B'lore City South, B'lore City West, Peenya, Dasarahalli, Bommanhalli, R.R.Nagar & Ramanagar for information and submit the called details to the respctive Regional SEO/Regional SEO-B'lore City.
5. Case file.

CHIEF ENVIRONMENTAL OFFICER-2

17/10

LIST OF APARTMENT /COMMERCIAL ESTABLISHMENT FOR WHICH ENVIRONMENTAL COMPENSATION HAS BEEN IMPOSED ANNEXURE XII

Sl. No.	Name and Address of the Apartment/ Commerical Complex/ layout	ECC amount in Lakhs	Date of EC leveid
1	Brigade Metropolis Arcade, No. 73/1, 73/2, 74, 75(Part), 76/1(Part), 76/2, 77/1, 78, 79, 80/1 & 81/2, Garudacharpalya, Mahadevapura, K.R. Puram, Bangalore East Taluk	**5.0**	04.12.2019
2	Brigade Metropolis Summit, No. 73/1, 73/2, 74, 75(Part), 76/1(Part), 76/2, 77/1, 78, 79, 80/1 & 81/2, Garudacharpalya, Mahadevapura, K.R. Puram, Bangalore East Taluk	**0.0**	04.12.2019
3	Brigade Metropolis Apartment, No. 73/1, 73/2, 74, 75(Part), 76/1(Part), 76/2, 77/1, 78, 79, 80/1 & 81/2, Garudacharpalya, Mahadevapura, K.R. Puram, Bangalore East Taluk	**5.0**	04.12.2019
4	Purva Park Ridge apartment, Sy No. 33/2B, 33/3, 34/2, 35/3, 38/1 & 38/3 , Goshala Road, Garudacharpalya, Mahadevapura Post, Bengaluru-560 048	**5.0**	04.12.2019
5	Metro Cash & carry, Sy. No. 69/1 & 69/2, Mahadevapura Village, K.R. Puram Hobli, Bangalore East Taluk, Bengaluru 560 048	**5.0**	04.12.2019
6	Amrutha Sparkling Nest, Sy. No. 83/2 Mahadevapura Post, Whitefield Bangalore East Taluk	**5.0**	04.12.2019
7	India Biludcon Pvt. Ltd. Sigma Soft Tach Park, Delta & Gama Block, Sy.No.7,8 & 9, Ramagondanahalli Varthur Hobli, White Field Road Bangalore East Taluk	**5.0**	04.12.2019
8	Virginia Develoopers Pvt. Ltd, Katha No. 984/639/10/11/12/1, Sy.No.10, 11&12, Ramagondanahalli Village, Varthur Hobli Bangalore East Taluk	**5.0**	04.12.2019
9	Adarsha Palm Meadows,Sy. No. 7/1, 7/2, 7/3, 8/1, 8/2, 8/3 & 491, R. Narayanapura village, Mahadevapura, Bengaluru	**5.0**	04.12.2019

10	Brigade Harmony Apartment, Sy. No. 250, Ramagondanahalli, Whitefield Road, Varthur Hobli, Bangalore East Taluk	**5.0**	04.12.2019
11	DNR Corporation pvt. Ltd., Sy. No. 1/1 of R. Narayanapura, Sy No. 4/1 of Ramagondanahalli Village Varthur Hobli Bangalore East Taluk	**5.0**	04.12.2019
12	Keerthi Flora Apartment, Sy.No.135, Kundanahalli Village, K.R.Puram Hobli, Bengaluru	**5.0**	04.12.2019
13	Akme Projects Pvt. Ltd (AKME Encore), Sy No. 16/2, 134/2, Kundalahalli Main RoadK.R. Puram HobliBangalore East Taluk	**5.0**	04.12.2019
14	Sterling Brookside apartment, ITPL Main road, Kundalahalli Village, Whitefield Road, Bengaluru	**5.0**	04.12.2019
15	Sumadhura Sawan MTB Apartment, Sy. No. 18, Hoodi village, K.R. Puram Hobli, Bengaluru	**5.0**	04.12.2019
16	Sterling shalom apartment, Sy No. 9/2, kundalahalli VillageK.R. Puram Hobli Bangalore East Taluk	**5.0**	04.12.2019
17	Rennaisance Rainbow apartment, Sy No.127/2b, 127/2c And 127/2d Kundanahalli Village, K.R.Puram Hobli, Bangalore East Taluk	**5.0**	04.12.2019
18	Knight Bridge Apartment, Kundalahalli Village, K.R. Puram Hobli, Bengaluru	**5.0**	04.12.2019
19	Vijetha Lapis Luzuli Foundations & Constructions Pvt. Ltd, Sy No. 111, Khatha No. 180, (SAS) Near Brookfield, Kundalahalli Village, Mahadevapura CMCBangalore East Taluk	**5.0**	04.12.2019
20	Sri Krishna Sai Enclave, Hoodi Circle, ITPL Main road, Bengaluru 560 048	**5.0**	04.12.2019
21	Prime Developers, (Prime Blue Forest), Sy No.194/5 & 194/6, Hoodi Village, K.R.Puram Hobli, Bangalore East Taluk	**5.0**	04.12.2019
22	SMR Builders Pvt. Ltd "SMR Vinay Galaxy, Sy No. 4/2A, 4/2B, 6/1A & 6/1B, Hoodi Hobli, K.R. Puram, Whitefield Road, Bangalore East Taluk	**5.0**	04.12.2019

23	Satko constructions pvt. Ltd., Satko Palm Trees , Sy. NO. 137, Munnekolalu Village, Marathahalli Village, Bengaluru	**5.0**	04.12.2019
24	Raghavendra Constructions, Paramount Raghavedra Arista, Sy No.46/2, Munnekollalu Village, Mahadevapura Cmc, Varthur Hobi, Bengaluru	**5.0**	04.12.2019
25	MVP Mukunda Vivek Paradise, Sy. No. 17/2, Munnekolalu village, Varthur Hobli, Bengaluru 560 037	**5.0**	04.12.2019
26	Mangalya Survodaya (Himalaya Containers & Cartons Pvt Ltd, No.17/2, Munnekolala Village Mararathahalli -Varthur Road Bangalore East Taluk	**5.0**	04.12.2019
27	Aisshwarya Serenity apartment, Munnekolalu Village, Near Marathahalli, Varthur Hobli, Bengalur 560037	**5.0**	04.12.2019
28	GCN White Palms Apartment, Sy. No. 10/2, 7th cross, Ramagondanahalli Village, R. Narayanapura, Whitefield, Bengaluru	**5.0**	04.12.2019
29	Sraddha Splendor apartment, Ramagondanahalli Village, Varthur Road, Bengaluru	**5.0**	04.12.2019
30	Skylark Green Apartment, Ramagondanahalli Village, Varthur Road, Bengaluru	**5.0**	04.12.2019
31	Renaissance Jagruthi - 2, Sy.No 5/ 2 A, Ramagondanahalli Village, Varthur Hobli, Bangalore East Taluk	**5.0**	04.12.2019
32	Water wood apartment,Sy.No. 36/2, 36/3 & 37/2, Ramagondanahalli, Bangalore East Taluk	**5.0**	04.12.2019
33	Biodivercity conservation (India) Ltd, T Zed Residential Apartment, Sy.No.12/2, P, 12/3, 12/4, 12/5, 20/1, 20/2, 21/1, 21/2, 22/2, 22/3,22/4 & 22/5, R. Narayanapura village, K.R.Puram Hobli, Bangalore East Taluk	**5.0**	04.12.2019
34	Rohan Builders, Rohan Vasantham, Sy.No. 22,23,24 & 28(part) munnekalalu Village, Varthur Hobli Bangalore East Taluk	**5.0**	04.12.2019

35	Purva Riveria Apartment, Sy. No. 23/1 & 23/2, Marathahalli Bridge,Bengaluru	**5.0**	04.12.2019
36	Purva Fountain Square, Sy.No.22(P), 23(P), 24(P), Munnekollalu village, Varthur Hobli, Marathahalli,Bangalore East Taluk	**5.0**	04.12.2019
37	Sai Paragon Meadows, Sy. N. 64, 65, BEML Layout, Kundalahalli Village, Bengaluru 560 066	**5.0**	04.12.2019
38	DSR Elite apartment, Sy.No. 52/2, Mahadevpura Village, K.R.Puram Hobli Bangalore East Taluk	**5.0**	04.12.2019
39	Akruthi Homes, Mageshwari Amman Temple Road, Chennappa Layout, Mahadevapura, Bengaluru 560 048	**5.0**	04.12.2019
40	Dhruvika Mogra, No. 333, Mahadevapura, Whitefield Main Road, Bengaluru	**5.0**	04.12.2019
41	Pioneer Fortune Square, Sy. No. 36, Hoodi Village, K.R. Puram Hobli, Whitefield, Bengaluru	**5.0**	04.12.2019
42	Sugama Vanijya Holding Private Limited., Plot No. 11B, Sy No. 40/9, Dyavasandra Industrial Area, 2nd Phase, K.R. Puram Hobli, Bengaluru East Taluk. Bengaluru	**5.0**	04.12.2019
43	Zonasha Estates and Projects, Zonasha Paradiso, Sy. No. 47/1A, 47/1A5 & 47/1B & 17/3, Katha No. 2875, 2874, & 3038 at Doddanekundi Village, K.R. Puram Hobli, Bengaluru	**5.0**	04.12.2019
44	Alpine Housing Develolpment corporation Ltd " Alipne Eco", Sy.No.13, Doddanekundi Village K.R.Puram hobli Bangalore East Taluk	**5.0**	04.12.2019
45	Oasis Construcions, Oasis Breeze, Sy. No. 37/1, 37/2 & 37/3, Munnenakolalu village, Varthur Hobli,Bangalore East Taluk	**5.0**	04.12.2019
46	New Heaven Apartment, Karthik Nagar, Doddanekundi Village, Bengaluru 560 048	**5.0**	04.12.2019

47	Adithya Elixir apartment, Sy. No. 17/1, Karthik Nagar, Alpine Eco Road, Beside Big Basket ware house, Doddanekundi village, Bengaluru 560 048	**5.0**	04.12.2019
48	VRR Lake View, Karthik Nagar, Doddanekundi village, Bengaluru 560 037	**5.0**	04.12.2019
49	Sherwood Residence Association (Tata Housing Sherwood), Basavanagar Main RoadMarathalli Bangalore East Taluk	**5.0**	04.12.2019
50	Innovative aqua font, Sy. No. 180, Basavanagar, Bengaluru 560 037	**5.0**	04.12.2019
51	Sobha Sunflower, Sy. No. 173, Vibhuthipura Village, Bengaluru	**5.0**	04.12.2019
52	Krishna Icon Apartment, 14/15, New Annasandra palya main road, Vinayaka nagar, Vimanapura, Bengaluru 560 017	**5.0**	04.12.2019
53	Homtech Suhanbhav by Homtech Shelters, 3rd main, 10th cross, LBS Nagar, Annasandra palya Road, Bengaluru 560 017	**5.0**	04.12.2019
54	Adithya Soigne Apartment, Phase-I, Sy.No.135/1A Shasthri Nagar, Shivananda Nagar, New Thippasandra Post, Vibhuthi Pura, Varthur Hobli, Bengaluru	**5.0**	04.12.2019
55	Ittina Abby Apartment, Sy. No. 151/2A, LB Shastri Nagar, Vibhuthipura village, Varthur Hobli, Bengaluru	**5.0**	04.12.2019
56	Adarsha Developers, Adarsha vista, Katha No. 34, Vibhuthipura Village, KR Puram hobli, Bengaluru	**5.0**	04.12.2019
57	Mahaveer sanctum, 7th cross, 1st main, LB Shastri Nagar, HAL Post, Bengaluru 560 037	**5.0**	04.12.2019
58	Nester Harmony Apartment, Sy. No. 150-153, Marathahalli village, K.R Puram outer ring road,Opposite More Mega store, Mahadevapura, Bengaluru 560 048	**5.0**	04.12.2019
59	Nagarjuna Maple Heights Apartment, Sy. No. 182 & 185, B.Narayanapura, Marathahalli Ring road, Bengaluru 560 016	**5.0**	04.12.2019

60	NCC Ivory Heights, Sy. No. 183/2, 184/1, 184/2& 185, Mahadevapura Village, K.R. Puram Hobli, Bengaluru 560 016	**5.0**	04.12.2019
61	Dhaaruni Residency by Saakra Associates, Katha No. 5/210, Sy. No. 10, HAL sub division, Mahadaevapura, Bengaluru	**5.0**	04.12.2019
62	Advika Nester Raga Apartment, Sy. No. 152 & 153, Mahadevapura outer ring road, K R. Puram Hobli, Bengalur 560 048	**5.0**	04.12.2019
63	Durga Rainbow apartment, No. 8/9, 9/1, 9/2 & 9/3, Mahadevapura outer ring road, Bengaluru 560 048	**5.0**	04.12.2019
64	Elil Abode Apartment, Subbanna compound, Near Nester Raga apartment, Opposite more mega store, Mahadevapura, Bengaluru 560 048	**5.0**	04.12.2019
65	Shilphita Annex Apartment, Sy. No. 151/1 & 151/4, Chinnappa Layout, Mahadeavapura Village, K.R. Puram Hobli, Bengaluru 560 048	**5.0**	04.12.2019
66	Shilphita Splendour apartment, Sy. No. 119, 149 & 150, Mahadeavapura Village, K.R. Puram Hobli, Bengaluru 560 048	**5.0**	04.12.2019
67	Devagiri Pearls, Sy. No. 4/2, Site No. 83/81/24/2, Nallurahalli Village, Whitefield, Bengaluru 560 066	**5.0**	04.12.2019
68	Neeladri Deobliss aparment, Sy. No. 4/1, Site No. 83/81/24/2, Nallurahalli Village, Whitefield, Bengaluru 560 066	**5.0**	04.12.2019
69	Silicon pride aparment, Sy. No. 4/2, Siddapura village, Nallurahalli, Bengaluru 560 066	**5.0**	04.12.2019
70	DNA Eden View Apartment, Borewell Road, Nallurahalli Village, Whitefield, Bengaluru	**5.0**	04.12.2019
71	Gopalan Habitat Splendour apartment. Sy. 16& 45, Chinnappanahalli Village, K.R. Puram Hobli, Bengaluru	**5.0**	04.12.2019

72	SMR Galaxy, Sy. No. 16, Chinappanahalli,Near AECS layout Off Marathahalli OuterRing Road, Bangalore-48	**5.0**	04.12.2019
73	Innovative petal, Sy. No. 30, Doddanekundi village, K.R. Puram village, Bengaluru 560 037	**5.0**	04.12.2019
74	VRR Heritage, Doddanekundi Village, BMA College road, K.R. Puram Hobli, Bengaluru 560 037	**5.0**	04.12.2019
75	Akme Balet Apartment by Akme Projects Limited, Sy No.28, 34 & 36, Doddanakundi Village, K R Puram Hobli, Mahadevapura Post,Bangalore East Taluk , Bangalore 560 037	**5.0**	04.12.2019
76	Bhagini Icon Hotel, #43, Kundanahalli gate, Near Shankara Eye Hospital, Marathalli, Bangalore	**5.0**	04.12.2019
77	Anish stone yard apartment by MC builders, 1st main road,LB Shastri Nagar, HAL Post, Old Airport Road, Bengalruu 560 017	**5.0**	14.01.2020
78	Parimala Sun ridge apartment, Sy. No. 12/2B, 11/6, 10, Siddapura Village, Varthur Main road, Whitefield, Bengaluru 560 066	**5.0**	14.01.2020
79	Ramanna Mid Town Rhythm Apartment, 1st Main, 7th cross, Ramagondanahalli, Whitefield, Bengaluru 560 066	**5.0**	14.01.2020
80	Adithya Soigne Apartment, Phase-II, Sy.No.135/1A Shasthri Nagar, Shivananda Nagar, New Thippasandra Post, Vibhuthi Pura, Varthur Hobli, Bengaluru	**5.0**	14.01.2020
81	Arvind Expansia, Sy. No. 55, Puttappa Industrial estate, Mahadevapura, Bengaluru	**5.0**	14.01.2020
82	Rohan Housing Pvt. Ltd., Rohan Mihira Apartment, Sy No. 8/1, 2, 9, 10/2 of Chinnappanahalli VillageK.R. Puram Hobli,Bangalore East Taluk	**5.0**	14.01.2020
83	**Shikaram, Munnekolalu Village, Varthur Hobli, Bengaluru 560 037	**300.0**	04.12.2019

84	**BM Marvel Apartment, Borewell Road, Nallurahalli Village, Beside DNA Infrastructure Apartment, Bengaluru 66	**290.0**	04.12.2019
85	Prestige Exora Business Park-II, Kadubisanahalli, Bangalore	**5.0**	04.12.2019
86	Krishvi Gavakshi, Kadubisanahalli, Pannatthur Road,Bangalore-103.	**5.0**	04.12.2019
87	Skanda Sky and Skanda Skruthi Apartment, kadubisanahalli, Doddakanahalli, Bangalore	**5.0**	04.12.2019
88	Kethana Eternal Blossoms, Scisko backgate, Pannatthur Main Road, Kadubisanahalli,Bangalore-103	**5.0**	04.12.2019
89	Shradda Polimre, Kadubisanahalli,Scisco Backgate,Bangalore-103	**5.0**	04.12.2019
90	Pranava's BSR Gitaar, Sy No.92/3, Beside Croma Building Road, Panatthur, Bangalore.	**5.0**	04.12.2019
91	Parimala Trinity,Sy.No.69,Boganahalli Road,Panatthur,Bangalore-103	**5.0**	04.12.2019
92	SLS Sapphire, Panatthur Main Road, Bangalore	**5.0**	04.12.2019
93	SLS Sunrise Apartment, Boganahalli, Panatthur Road,Bangalore-87	**5.0**	13.02.2020
94	Gopalan Urban Wood, Sy. No. 7A, 7B & 8, Doddanekundi Industrial area, Mahadevapura, Bengaluru 560 048	**300.0**	04.12.2019
95	Habitat Aster **Commercial complex**, No. 28/1, Kaveri Nagar, Opposite Brigade Metropolis, Mahadevapura post, Bengaluru	**300.0**	04.12.2019
96	Habitat Aster **Apartment**, No. 28/1, Kaveri Nagar, Opposite Brigade Metropolis, Mahadevapura post, Bengaluru	**300.0**	04.12.2019
97	CBR Akruthi Apartment, No. 112/5/6/7, Hoodi Garden, Thigalarapalya, Hoodi, Bangalore 560 048.	**300.0**	04.12.2019
98	Sraddha Silver spring apartment, Sy. No. 1/15, BEML Layout, Kundalahalli Village, Bengaluru 560 066	**290.0**	04.12.2019

99	Royal palms aparment by Gopalan Enterprises, 2nd cross, LB Shastri Nagar, HAL Post, Old Airport Road, Bengalruu 560 017	**290.0**	04.12.2019
100	Manjunath Homes, 4th main, Abbaireddy layout, Kagadavapura, Bengaluru 560 093	**290.0**	04.12.2019
101	Sai Krupa Garden, Muni reddy Layout, Gangamma Temple Road, Mahadevapura, Bengaluru 560 048	**290.0**	04.12.2019
102	Garuda star field apartment, Outer ring road, Mahadevapura, Bengaluru 560 048	**290.0**	04.12.2019
103	Nandi Sunrise, Sy. No. 29/1, Doddanekundi village, Off outer ring road, Marathahalli, Bengaluru 560 037	**280.0**	04.12.2019
104	Adhunik Serenity Apartment, Sy. No. 28/1, BEML layout, 17th cross road, Thubarahalli, Varthur hobli, Bengaluru	**290.0**	04.12.2019
105	Govinda Meghana Homes, Munnekolalu Village, Varthur Hobli, Bengaluru 560 037	**270.0**	04.12.2019
106	Charitha Blossom, Sy. No. 15/2, 15th cross, 8th main, BEML Layout, Kundalahalli Village, Bengaluru	**290.0**	04.12.2019
107	Sai Krupa Harmony, Mageshwari Amman Temple Road, Near MTP School,Mahadevapura, Bengaluru	**290.0**	04.12.2019
108	Ferns Saroj Apartment, 7th cross, LB Shastri Nagar, HAL Post, Old Airport Road, Bengalruu 560 017	**290.0**	04.12.2019
109	Samhita Square apartment, Basavanagar, Marathahalli, Bengaluru	**290.0**	04.12.2019
110	Srinidhi Residency, No. 364/2, Basavanagar Main road,Marathahalli Post, Bengaluru 560 037	**290.0**	04.12.2019
111	Fortune White wings, 1st Main road, Talacauvery layout, Vibhuthipura Village, Bengaluru 560 037	**290.0**	04.12.2019
112	United Daffodil, Sy. No. 30, Doddenakundi VillageMahadevapura Post, Outer Ring Road,Bangalore East Taluk	**280.0**	04.12.2019

113	Vidya Heritage Plaza, Sy. No. 29/3 & 30, Doddenakundi VillageMahadevapura Post, Outer Ring Road,Bangalore East Taluk	**280.0**	04.12.2019
114	Indus Innova Apartment, Mahadevapura Main Road, HP India software backyard, Bengaluru 560 048	**290.0**	04.12.2019
115	Apoorva Lake Side, Sy. No. 155, Opposite Tata Shear Wood apartment, Basavangar, Marathahalli, Bengaluru 560 037	**290.0**	04.12.2019
116	Sanjeevini Pebbles, Victoria View Layout, Borewell Road, Near DNA Iris Apartment, Nallurahalli Village, Whitefield, Bengaluru	**290.0**	04.12.2019
117	GM Heritage apartment, Victoria View Layout, Borewell Road, Near DNA Iris Apartment, Nallurahalli Village, Whitefield, Bengaluru	**270.0**	04.12.2019
118	BM Rose wood, No. 38/4, Nallurahalli Village, Whitefield, Bengaluru 560 066	**290.0**	04.12.2019
119	Sunshine Builder by Silicon City, Sy. No.68/2, Nallurahalli Village, Bengaluru 560 066	**290.0**	04.12.2019
120	Bangalore In Sy. No. 24/1, Fern city Road, Doddeanekundi, Bangalore-37	**270.0**	04.12.2019
121	Sai Krupa Elite Sy. No. 39/2, Fern City Road, Doddeanekundi, Bangalore-37	**270.0**	04.12.2019
122	Fern Habitat Sy. No. 84, Doddanekundi, Marathahalli post, Bangalore-37	**290.0**	04.12.2019
123	Ravoos Temple Bells Apartment ,2nd Cross Road, Near Sai Baba Temple, Manjunath Layout, Munekolalu, Bangalore North, Marthahalli Colony, Bangalore – 37	**270.0**	04.12.2019
124	Chaitanya Techno School, 9th Main, 27th cross, HSR Layout. Bangalore-560102	300	04.12.2019
125	Raj Alkaa Park, Kalenaagrahara, Bannerughatta Road	170	04.12.2019
126	Damdens Zephyr Apartments, No. 62/1/2/3, Gottigere-vil, Kamakshy Layout, Banneraghatta road, Bangalore-83	300	
127	Gunia Felisa, Bohra Layout, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	300	04.12.2019

128	Malnad Siri Apartment, Avalahalli-vil, Anjanapura-Po, J.P.Nagar 9th Phase, Near Gurukula School, Bangalore-83	300	04.12.2019
129	Real Houses Apartment, Sy No. 66/13, 62/3, Anjanapura, Uttarahalli-hobli, Bangalore south-Tq, Bangalore-62.	300	04.12.2019
130	CITI Lights Liberty, Opp to Eco space Bellandur ,Marathahalli,Outer ring road,Bangalore	300	04.12.2019
131	Golden Residency,Bellandur,Outer Ring road,Bangalore-103	300	04.12.2019
132	Prabhavathi Devine,Avani Sringeri Nagar,Nayanappanahalli, Bangalore	300	04.12.2019
133	Isiri Stone Creek,Yellenahalli Road,Akshayanagara ,Bangalore-76	300	04.12.2019
134	Vakil Marina Layout,Kodichikkanahalli, Bilekahalli, Bangalore-76	300	04.12.2019
135	M/s.Prabhavathi Plasma Appartment, No.25/2&3, Ramaiah layout, Garvebhapalya, Hongasandra, B'lore	300	04.12.2019
136	M/s.Prabhavathi Bliss-01 appartment, No.75, 16th main, moco layout, Hongasandra, b'lore-68	300	04.12.2019
137	M/s.Prabhavathi Meghna Appartment, No.105/3, Hongansandra village, Begur hobli, Blore-68	300	04.12.2019
138	M/s Indwin galaxy, no.17/3, kudlu village, harlur main road, singasandra, bangalore-68	300	04.12.2019
139	M/s Sai balaji residency, harlur, near old pepsi go-down parappana agrahara, bangalore-68	210	04.12.2019
140	Geetham Pride, No. 48/6, Kudlu Main Road, Bangalore-68	300	04.12.2019
141	Vivantha Maagan, Daya M K Developers,Tejaswini Nagar, Phase-1, Doddakammanahalli, Bangalore-76	300	04.12.2019
142	Santara Magan Palace, - 2, Daya M K Developer, near Maruthi Dental College, Off Kammanahalli, Bannerghatta Road, Bangalore - 76	300	04.12.2019
143	Balaji Serinity, Serinity Layout, Sarjapura Road, Kaikondarahalli, Bangalore-35	300	04.12.2019
144	Trinity Meadows Annexe, Sy.No.76, Bellandur Main Road, Bengaluru-103	300	04.12.2019
145	Kristal Campus-II Owners Association, by name "Brookite/Halite", Sy.No.79/6, Ambalipura VillageBengaluru East -103	300	04.12.2019
146	"Golden Corner"Bellandur Gate, Sarjapur Road, Bengaluru-37.Bellandur Gate, Sarjapur Road, Bengaluru-103	300	04.12.2019
147	CASA Granade, No.337, Yamalur Road,Beside PrestigeTech Park, Kadubisanahalli, Bangalore-87	300	04.12.2019

148	Sunray Hotel,Kadubisanhalli,Panatthur Road,Bangalore	300	04.12.2019
149	DSR Daffodil,Sy No.18, 1B, Bellandur Village,Varthur Hobli,Bangalore	300	04.12.2019
150	BVS Pinackle,Boganahalli,Panatthur Road,Bangalore-87	300	04.12.2019
151	Krystal Jade,Sy No.80/2,ORR,Bellandur Village,Varthur Hobli,Bangalore	300	04.12.2019
152	Trinity complex-Trinity Acres and Woods, Sy No.25/2,Amblipuravillage,Sarjapura Main Road,Bangalore	290	04.12.2019
153	Prashanth Regency Apartment, Sy.No.23/1, yellenahalli Village, Begur Hobli,Bengaluru -68	300	04.12.2019
154	Elegent Archid Apartment, Sy.No.56/28, 9th Cross, Akshyay Nagar, Bengaluru -68	300	04.12.2019
155	RM Sneha Resedincy, Sy.No.28/7, Basapura Main Road, Basapura Village, E-City, Bengaluru-100	300	04.12.2019
156	Lavendar Apartment, 6th Main, 5th Cross, Akashyanagar,Near Off B G Road, Bengaluru	300	04.12.2019
157	Shravanthi Woods Apartment, No-14, Kalenaagrahara Village, Virgo Nagar, BG Road, Bengaluru-70	300	04.12.2019
158	SLV Niceview Apartment, Hosa Road, Pragathi Nagar, Chikkatogur Road, Bengaluru -100	300	04.12.2019
159	Sanjana Supreme Apartment, Deo height layot,7th Cross, Begur, Bengaluru -68	300	04.12.2019
160	JanaJeeva Silver palm,Amalipura Residential Harluru Road, Bellanduru yard, Bangalore-35	290	04.12.2019
161	Silicon City Academy, Chunchaghatta Main road, New Bank Colony, Konanakunte, Bangalore-62	300	04.12.2019
162	M/s Tropical Paradise, Silver County Road, Near Shobha Cinema, Kudlu village, Bangalore-68	300	04.12.2019
163	M/s Credez flora, Credence Developers No.100, 16th cross, New Mico Layout, Hongasandra, Bangalore-68	300	04.12.2019
164	M/s. Varun Lotus Appartments, No.14 Near Singasandra Bus Stop, Hosur Road, B'lore-68	300	04.12.2019
165	SLV Kristal Apartment, Sy.No.36/9, Begur Koppa Road, Ellenhalli, Bengaluru -68	300	04.12.2019
166	Parijatha Apartment, Adjacent to Shobha Marbel, Bellandur, Greenlen Layout, Bangalore	300	04.12.2019
167	Tirumala Lotus Apartment, Gottigere Village, Banneraghatta road, Kambattalli Road, Near water tank, Bangalore-83	300	04.12.2019

168	AMG Conclaied Apartment, Yellenalli Village, Akshyanagar, BTM 6th Stage, Begur Hobli, Bengaluru -68	300	04.12.2019
169	Prakasa Pride, No.37/1,Kaubisanahalli, Reddy Layout,Varthur Bangalore.	300	04.12.2019
170	Anand Enclave Apartment, Sy. No. 373, Royal county layout, J.P. Nagara 8th Phase, Gottigere-vil, Banneraghatta road, Bangalore-83	300	04.12.2019
171	Pruthvi Residency, No.414, MLA Layout, BG Main Road, Kalena Agrahara Village, Near Sapthagiri Castul, Bengaluru- 70	300	04.12.2019
172	Meenakshi Lake View, Near Doddamane Temple, Ist Cross, Sarjapur Junction, Ibblur Village, HSR Layout. Bangalore-560102.	300	04.12.2019
173	Thirumala Blossoms Apartment, B1 layout, Gottigere-vil, Uttarahalli-hobli, Banneraghatta road, Bangalore-83.	300	04.12.2019
174	SLV Builders, by name SLV Spandana, Sy.No.25/4, Begur Village & Hobli, Bengaluru -68	300	04.12.2019
175	Dharani Nakshatra No 11/10,Akshaya Nagara,yellenahalli Mn Road,Bangalore -68	300	04.12.2019
176	Vardhini and Madku Apartment Begur Koppa Road,Yelenahalli, Bangalore-68	300	04.12.2019
177	Kristal Olivine Residents Welfare Association, by name "Kristal Olivine", Sy. No: 89/1 & 89/2, Bellandur Village, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	300	04.12.2019
178	Sumukha Serenity Apartment. No.192, Nyanappana Halli, Devarachikkanahalli, Chamundeshwari Nagar, Bengaluru-76	300	04.12.2019
179	(Savithri Aashirvad Build tech) Balaji Ashirwad Elite Apartment, Sy.No.75/1, Kammanahalli Village, Begur Road, Gottigere, Bengaluru -83	300	04.12.2019
180	Sindhu Amazon Apartment Owners Welfare Association, Sy.No.79/8, Bellandur Village Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	700	04.12.2019
181	DS Max serene, Near Hulimavu Bus Stop, B'lore-76	300	04.12.2019
182	Genesis Apartment, clube house, Ibblur Village, Bangalore-560102.	5	04.12.2019
183	Hinduja Global Solution Ltd,No 115, Hosur Road, Garebhavipalya, Bangalore-68	5	04.12.2019
184	SVR Flora Apartment , No. 133, 2nd Sector, Haralur Road, HSR Layout, Banglaroe-560103.	5	04.12.2019
185	Sumo Sonnet Apartment, 48/6, Kudle Main Road, Near Corp Bank, Bangalore-560068.	5	04.12.2019

186	Bren Palms Apartment, 48/1, Kudlu Main Road, Hosa Palay, Bangalore-560068.	5	04.12.2019
187	Salarpuriya Cadenza Apartment, Near Kuddlu Gate, Bommanahalli, Bangalore-	5	04.12.2019
188	GV Properties Pvt Ltd, Embassy Point, Challagatta Village , Inner Ring Road, Bangalore.	5	04.12.2019
189	Vithola Residential Apartment No.46/1,46/2, Kalenaagrahara off Bannerghatta Road, Bangalore76	5	04.12.2019
190	Sri Sai Supreme, Sy. No. 41/4, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
191	Nydhile Residency, No. 3794/1, Gottigere-vil, Jypthi Nagar, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
192	Nandi Park Apartment, Sy. No. 41/3, Gottigere-vil, Kamakshy layout, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	10	04.12.2019
193	SMR Vinaya Meenakshi, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
194	krystal Beryl Apartment, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
195	Himagiri Meadows, No. 31, 32/1,2, 33-37, 42/12, 48/4, 41/1-2, 130, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
196	Radiant White Orchid, Kalena Agrahara bus stop, Gottigere-vil, beside Decathlon sports, Banneraghatta road, Bangalore-83	5	04.12.2019
197	Skyline Bagmane Champagne Hills Apartment, Sy. No. 10/4, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Bangalore-83	5	04.12.2019
198	Suprabhats Hill Ridge Residency, Near south Avenue layout, Jambo Savari Dinne road, Gottigere-vil, Uttarahalli-hobli, Bangalore-83	5	04.12.2019
199	Arya Hamsa Apartment, Sy. No. 28/1, Kothnur-vil, J.P. Nagara 8th Phase, Uttarahalli-hobli, Bangalore-83	5	04.12.2019
200	M/s Janhavi Construction Pvt Ltd., Janhavi Enclave, (Dr.K.Jeevan), No.35/3, Kodichikanahalli village, Begur Hobli, Bangalore	5	04.12.2019
201	Eshwari Oak Dhale, Near BK Circle, Kothnur-vil, J.P.Nagar 8th Phase, Bangalore-76	5	04.12.2019

202	H.M. World City, Ragunpalya, opp. Vinayaka theatre, J.P. Nagar 9th Phase, Gottigere main road, Bangalore-108	15	04.12.2019
203	IMG Elite, Ragunpalya, Near Nandi Garden, J.P. Nagar 9th Phase, adjacent to Royal Lake club, Gottigere-Po, Bangalore-108	5	04.12.2019
204	Nandi Garden Apartment, Anjanapura Main Road, J.P.Nagar 9th Phase, Avalahalli, Bangalore-62 (new-108)	5	04.12.2019
205	Vishwothama Apartment, Sy. No. 14/1,2, 15/2, Site No. 5 to 19, Katha No-5, Kothnur-vil, Uttarahalli-hobli, Bangalore south-tq, Bangalore-83	5	04.12.2019
206	Vishwendra Apartment, Royal Lakefront Residency, Kothnur Dinne, J.P. Nagar 8th Phase, NRBK Circle, Bangalore-76	5	04.12.2019
207	Mangalya Prosper, Sy.No. 57/4, Anjanapura-vil, Uttarahalli-hobli, Bangalore south-Tq, JP Nagar 8th Phase, Bangalore-108.	5	04.12.2019
208	JSR the Banyan Apartment, Sy. No. 64/1-4, 65(P), 66/2-9, Adjacent to Royal Park, Residency Layout, Anjanapura-Po, JP Nagar 9th Phase, Bangalore-62 (new 108).	5	04.12.2019
209	DS Max Stone Hills, Sy. No. 60/2, Gollahalli-vil, Anjanapura-Po, JP Nagar 9th Phase, Uttarahalli-hobli, Bangalore south-Tq, Bangalore-62 (new 108).	5	04.12.2019
210	Anand Somu Pristine, Sy No. 25, Katha No. 529, Anjanapura 9th Block, Gollahalli, Uttarahalli-hobli, Bangalore south-Tq, Bangalore-62.	5	04.12.2019
211	Sobha Marvella Apartment Owners Association, Sy. No.87/8, Bellandur (V), Varthur (H), Bangalore	5	04.12.2019
212	Mantri Espana, (Mantri ORR-1) Mantri Developers Pvt. Ltd, Sy.No.51/1 to 50/2, 36/1 to 39/6, Devarabeesanahalli & Kariyammana Agrahara village, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	10	04.12.2019
213	Sobha Lavender Apartment Owners Association, Sy. No.100/4 & 100/6, Bellandur Village, Sarjapura Ring Road, Varthur Hobli, Bengaluru East Taluk , Bengaluru Urban District	5	04.12.2019
214	Soul Space Project Limited,Sy no 78/7/c & 89/6,Bellandur Village ,Outer Ring Road,Varthur (Hobli)Bangalore	10	04.12.2019
215	NOVOTEL and IBIS Hotel,Opp to RMZ Europia Business Park,Marathalli Outer Ring road,Bangalore 5600103	5	04.12.2019

216	Banyan Tree Apartment,154,Kariyammana Agrahara,Varthur(Hobli),Bangalore 5600103	5	04.12.2019
217	Salarapuria Premia,Outer ring road,Opp to New Horizon College,Bangalore	5	04.12.2019
218	MDB Software Technologies Pvt Ltd., Sy. No.53, Deverabeesanahalli Village, Varthur Hobli, Bangalore	5	04.12.2019
219	Prestige Estates Projects Ltd, Prestige Platina, Sy. No.32/1, 32/2, 34/1, Kadubeesanahalli village, Varthur Hobli, Outer Ring Road, bangalore	5	04.12.2019
220	Exora Business Parks pvt ,Amani Bellandur Khawa Village,Varthur ,Bellandur,Bangalore East Taluk	5	04.12.2019
221	ARICENT Technologies,Sy no 18/1,Outer ring road,Panathur (P),Bangalore-87	10	04.12.2019
222	Ajmera Green Acres Owners Welfare Association, Ajmera Green Acres, Sy No 15/4, 15/5, 15/6, 16/7, 16/8,16/9,21/1,21/2, 21/3, 21/4,20/2, kalena Agrahara Village, Begur Hobli, Banerghatta Road, Bangalore 68	5	04.12.2019
223	Purva Panorama Apartment Owners Association, Sy.No.22/1-2-3, 23, 28-1B-29/1, 30/1-2-3-4, Kalena Agrahara Village, Begur Hobli, Bangalore.	5	04.12.2019
224	Prestige Nottinghill, Sy.No.9, Kalena Agrahara Village, Begur Hobli, Opp. Meenakshi Temple, Banglaore.	5	04.12.2019
225	Rose Garden Apartment Owners Association, Sy.No.12/3 & 38/5 (New No.171 to 171/9), Arekere Village, Begur Hobli, Bannerghatta Road, Bangalore.	5	04.12.2019
226	Sapthagiri Splendor apartment,RTO Road,Devarachikknahalli,BTM 4th stage,Bangalore	5	04.12.2019
227	R K Suraksha Properties,RK suraksha landmark, Sy. No. 80/3, Katha No. 1384/80/3, Ward No. 193, Arakere Village, Begur Hobli, Bangalore	5	04.12.2019
228	CVK Meenakshi Elegance,MLA Layout,kalenagrahara,Begur(hobli), Bangalore-76	5	04.12.2019
229	ND GEIPEL Apartments,BG Road,Kalenagrahara,Bangalore-76	5	04.12.2019
230	NEEV Academy, Yamlur main road, Kempapura Road, Bangalore-07	5	04.12.2019
231	Brigade Palms Springs, 24th Main, PNP Parivar, Puttenahalli, Bangalore	5	04.12.2019
232	Mahaveer John Quil, 6/2, Puttenahalli, 7th Phase, JP Nagar, Bangalore-76	5	04.12.2019
233	Mahaveer Wilton, No.16/2, 5th Phase,, 22nd Main, Puttenahalli, JP Nagar, Bangalore	5	04.12.2019

234	Adarsh Rythm, 155/2, 159/2, 159/3, Panduranga Nagar, Arkere, bangalore	5	04.12.2019
235	Kalyani Magnum, 165/2, Doresanipalya, bangalore076	5	04.12.2019
236	Mohan Enterprises, Kalyani Vista infotek park Sy. No. 151/1B, Doresanipalya Bengaluru	5	04.12.2019
237	Krishna Magnum, Sy No 164 & 165, Doresanipalya, Bellekalli, Bannergatta Road Bangalore	5	04.12.2019
238	Epitome Crown,Ranka Colony road, Banneragahtta road, Bilaekahalli, bangalore-76	5	04.12.2019
239	Mahaveer Marvle, No.54, Kodichikkanahalli, Bangalore-76	5	04.12.2019
240	Mahaveer Laureal,2n Cross, Manjushree Layout, Kodichikkanahalli, Bangalore-76	5	04.12.2019
241	Radiant Lotous Apartment, kodichikkanahalli	5	04.12.2019
242	Indian Institute of Management, Banneraghatta Main Road, bangalore-76	10	04.12.2019
243	HSBC Data processing India Pvt. Ltd, B1, 148/1, Futura, BG Road, Bilekahalli, B'lore-76	10	04.12.2019
244	Aahika Apartment, Banneraghatta Road, bangalore-76	5	04.12.2019
245	M/s.Sobha Mayflower, No.96/1, Sarjapura outer ring road, Bellandur, B'ore-03	5	04.12.2019
246	M/s.Sobha Primirose, No.98/1 & 99, Bellandur Village, Varthur hobli, B'lore-03	5	04.12.2019
247	M/s.Wood stock ambience, No.123 & 124, Singasandra Village, Begur hobli, B'lore-100	5	04.12.2019
248	M/s.Parmount Sumadura Sarene, No.117/2, Singasandra Village, B'lore-68	5	04.12.2019
249	M/s. G R Srinivas Appartments, No.155/182, Manipal county raod, singasandra, B'lore-68	5	04.12.2019
250	M/s. Divya Jyothi Royal County, No.11/2, Manipal county road, Singasandra, B'lore-68	5	04.12.2019
251	M/sRoyal Citadel, No.155/A1, Manipal County Road, Begur village, B'lore-68	5	04.12.2019
252	M/s.Esteella Gaacious, No.167/4, Chik begur village, Singasandra, B'lore-68	5	04.12.2019
253	M/s. Uma sree Dream World Appartment, No.49/1 &49/2 Kudlu Jn, Hongasandra, Hosur main road, B'lore	15	04.12.2019
254	M/s. Keys Hotel, No.7, Hosur main road, Singasandra, B'lore	5	04.12.2019
255	M/s.Sri thirumala Sarovor, No.3/1, Kaveri appartment, Hosur main raod, Singasandra, B'lore	5	04.12.2019
256	M/s.Sri thirumala Sarovor, No.3/2,Paravathi appartment, Hosur main raod, Singasandra, B'lore	5	04.12.2019

257	M/s. ibis Hotel, No.26/1, Hongasandra village, Begur Hobli, B'lore-68	5	04.12.2019
258	M/s. Oxford Engineering Institutions, Hosur main road, Hongasandra Bommanahalli, B'lore	5	04.12.2019
259	M/s.Rajarajeshwari Nivas, No.393/28&29, Hosur, BH HTMT, Bommanahalli, B'lore-68	5	04.12.2019
260	M/s. Greenage Grihanirman Pvt ltd, #3,4th Floor, Salapuria Windsor, Ulsoor raod, B'lore-42	5	04.12.2019
261	M/s.AMR Tech Park, IV A/B, No.23,24, Hosur main Road, Bommanhalli, B'lore-68	5	04.12.2019
262	M/s.AMR Tech Park, 2,2B No.23,24, Hosur main Road, Bommanhalli, B'lore-68	5	04.12.2019
263	M/s.AMR Tech Park, 1,1A,2a, No.23,24, Hosur main Road, Bommanhalli, B'lore-68	5	04.12.2019
264	M/s.Mythri Grandeur Appartment, No.129/238/3&2B, Begur village, 1st cross, 16th main, Hongasandra, B'lore-68	5	04.12.2019
265	M/s. Royal Legend, No.60,Kodichikkanahalli main road, Kauvery nagar, B'lore-68	5	04.12.2019
266	M/s.Aishwarya Amaze Appertment, No.33/2, Devara Chikkanahalli main road, Near D-mart, Blore-76	5	04.12.2019
267	M/s ELINA apartment, Devarachikkanahalli, Bommanahalli, bangalore-76	5	04.12.2019
268	M/s Golden rays, no.8, Devarachikkanahallii main road, bommanahalli, bangalore-76	5	04.12.2019
269	M/s Raj lake view apartment, sy.no.62/3 & 62/8, bommanahalli, kodichikkanahalli village, bangalore-68	5	04.12.2019
270	M/s GK Jewel city, kudlu village, harlur main road, singasandra, bangalore-68	5	04.12.2019
271	M/s GK Golden city, kudlu village, harlur main road, parappana agrahara, bangalore-68	5	04.12.2019
272	M/s Sai poorna apartment, kudlu village, harlur main road, parappana agrahara, bangalore-68	5	04.12.2019
273	M/s Fortune Sunnyvale apartment, 5th main, AECS Layout, A block, near ganesha temple, kudlu, singasandra, bangalore-68	5	04.12.2019
274	M/s SLS Summerfields, no.7/2, AECS layout, singasandra, bangalore-68	5	04.12.2019
275	M/s Brindavan Palms apartment, no. 49/2, naganathapura, near central jail, hosa road, banglaore-68	5	04.12.2019
276	M/s Sri Sai Acropolis, 47/2, naganathapura, near central jail, hosa road, banglaore-100	5	04.12.2019
277	M/s Sobha Cinnamon & Saffron, Sy.no.86/2, 8/1, 8/3, 90/2, kudlu village, harlur main road, bangalore-68	10	04.12.2019

278	M/s Keerthi royal palms, Sy.No.7, Basapura, pragathi nagar, bangalore-100	5	04.12.2019
279	M/s Ajantha royal apartment, Sy.no.32/2, Beratana agrahara, lavakushanagar, bangalore-100	5	04.12.2019
280	Puravankara Projects Ltd., "Purva Sky wood", Sy.92, 105, 98/1, 193/1, 95/2, 95/3, Kudlu Village, Sarjapura Hoble,Bangalore-68	5	04.12.2019
281	M/s Klassik Landmark, sy.no.34/9, 10, 11, 12, 13, Junnasandra, varthur hobli, near amrutha college of engg., bangalore-35	10	04.12.2019
282	M/s HM Symphony condominium, sy.no.83, 84, 85 & 86, kasavanahalli village, varthur hobli, bangalore-35	5	04.12.2019
283	M/s Kristal Jasper apartment, kasavanahalli village, varthur hobli, bangalore-35	5	04.12.2019
284	M/s Confident Phoenix apartment, kasavanahalli village, varthur hobli, bangalore-35	5	04.12.2019
285	M/s Ushodaya Luxuria, no.29/11, IAS layout, kasavanahalli village, varthur hobli, bangalore-35	5	04.12.2019
286	Arya Hamsa Grande, Kothnur-vil, J.P. Nagara 8th Phase, Bangalore-83	5	04.12.2019
287	M/s Greenwood residency Phase-1, sy.no.62/1, sarjapura main road, wipro mori, kaikondrahalli, bangalore-35	5	04.12.2019
288	M/s Greenwood residency Phase-2, sy.no.62/2, sarjapura main road, wipro mori, kaikondrahalli, bangalore-35	5	04.12.2019
289	M/s Mantri glades, sy.no.79/5, 82/1, 2, 3, sarjapura main road, varthur hobli, kaikondrahalli, bangalore-35	5	04.12.2019
290	M/s Sunny brooks, next to wipro, sarjapura main road, varthur hobli, Doddakannahalli, bangalore-35	5	04.12.2019
291	Saran Developers & Infrastructure (I) Pvt.Ltd, by name " Mulberry Woods", Sy.No. 19/7 & 19/8, Katha No. 1027/19/7, 19/8Doddakannenahalli Village, Sarjapura Road, Varthur Hobli, Bengaluru East Taluk, Bengaluru Urban District	5	04.12.2019
292	M/s Big banyan routs, no.18/1B, carmelaram road, sarjapura main road, Doddakannahalli, Bangalore-35	5	04.12.2019
293	Corporate Leisure & Property Developments Private Limited, by name " Suncity Gloria", Sy.No 18/3 A 1, 18/3 B, 18/3 C 1, Doddakannelli Village, Varthur Hobli, Bengaluru.	10	04.12.2019

294	Sobha Jasmine M/s. Sobha Jasmine Apartment Owners Welfare Association, Sy.No.32/2, 4, 3, Ibbalur Village, Sarjapapura, ORR, Begur Hobli, Bangalore-103	5	04.12.2019
295	M/s. Relaible Acacia Apartment Owners Association, 5th cross, 7th main, Iblur, Bangalore-103	5	04.12.2019
296	Sobha Daisy Condominium M/s. Sobha Daisy Condominium apartment Owners Association, Sy.No.31/5, Ibbalur Village, (8/1 of Bellandur Village, Varthur Hobi, Bangalore-103	5	04.12.2019
297	Sobha Carnation M/s. Sobha carination apartment Owners Association, No.100/7, Green glen Layout,Sarjapura ORR, Bangalore-103	5	04.12.2019
298	M/s. RR Residency Apartment owners Association, Hospalya Haralukunte, Begur Hobli, Bangalore-78	5	04.12.2019
299	M/s. Manar Elegance owners welfare Association, No. 37/7, 24th Main, Sector-2, HSR Layout, Bangalore-102	5	04.12.2019
300	M/s. Silver Heights Apatment owners Association, Sy. No. 27, 24th Main, Sector-2, HSR Layout, Bangalore-102	5	04.12.2019
301	Fortune Summit, No. 244, Roopena Agrahara, Hosur Main Road, Bangalore-68	5	04.12.2019
302	Mantri Sarovara Apartment Owners Association, Sy.No.137/1/2, Agra Village, Begur Hobli, Bangalore- 560034.	5	04.12.2019
303	Salarpuria Serenity Apartment Owners Assocition, Sy.No.41/A To 41/F, Mangammanapallya, Venkojirao Kahne Village, HSR Layout, Begur Hobli, Bangalore.	5	04.12.2019
304	N.D.Oliva, Sy.No.29/2A, 29/3, Haralakunte Village Begur Hobli, Bangalore.	5	04.12.2019
305	Sobha Daffodil Condominium Resident Welfare Association ,Sy.No.27, 29/5, 29/11, 29/12 & 29/13, Haralakunte Village, Begur Hobli, HSR Layout, Bangalore South Taluk, Bangalore -560102 (24th Main, 2nd Sector, HSR Layout, Bangalore-102)	5	04.12.2019
306	Estrella Terraces, 271/1A, Opp Pride Regalia, Bannerghatta Road, Bangalore - 76	5	04.12.2019
307	SGR Built Tech Pvt. Ltd., (GR Lavender), Sy. No.87/8 (III), Kothanur Village , Uttarahalli Hobli, Banglaore	5	04.12.2019
308	Astha Valmark, 86/2, 178/1, Behind Meenakshi Temple, Kothnur Village, Bangalore-76	5	04.12.2019

309	Windsor Four Seasons, 69/2,Behind Meenakshi Temple, Bannerghatta Road, Bangalore-76	5	04.12.2019
310	Classic Orchards Layout Behind Meenakshi Temple, Bannerghatta Road,Bangalore-76	5	04.12.2019
311	SJR Builders by name SJR Luxuria, Sy.No.100/P/1, 101/1 & 103, Arekere (V), Begur (H), Bangalore.	5	04.12.2019
312	Larsen & Tourbo South- City, Mico Layout, Arekere, Bannerghatta Road, Bangalore - 76	5	04.12.2019
313	Innovative Infra Project, **Aspan Woods**, Sy. No.125/1, Kammanahalli Village, Begur Hobli, Bangalore	5	04.12.2019
314	Vishal India Commerical Developers Pvt Ltd., Royal Meenakshi Mall, No. 424/376, 487, Bannerghatta Road, Bangalore - 76	5	04.12.2019
315	ACAS Cresent Square, 125/2, Doddakammanahalli, Opp Annamma Temple Off Bannerghatta Road, Bangalore - 83.(ACAS Crescent Square Apartment Owners Welfare Association, (Sai Snigdha Construction PVt Ltd,), No.125/2, Doddakammanahalli Main Road, Bannerghatta Road, SOS Post, Bangalore-76.)	5	04.12.2019
316	Nandi Citedal, Sy No 23, 24 of chandrashekarapura Villlage, Sy No 50/2 off Yellanahlli off Banerghatta Road, Bangalore 560 083.	10	04.12.2019
317	Subhodaya Laurals, Off Bannerghatta Road, Tejaswini Nagar, Phase-1, Doddakammanahalli, Bangalore-76	5	04.12.2019
318	Nitesh Housing Developers Pvt Ltd, "Nitesh Hydepark", Sy. No.49, Venugopalnagar, Hulimavu village, Begur Hobli, Bangalore	5	04.12.2019
319	Klassik Benchmark Apartment Owners Association", Sy.No.10/1, 11/1, 11/2, Kalena Agrahara Village, Begur Hobli, Bannerghatta Road, Bangalore.	5	04.12.2019
320	Aikya Apartment Owners Welfare Association, (Mythreyi Promoters & Developers (P) Ltd.), No.12/1, Kalena Agrahara Village, Begur Hobli, Bangalore-76	5	04.12.2019
321	Esteem Enclave, No.38/1B, 39/1, 39/2 & 39/3, Arakere Village, Begur (H), Bangalore South Taluk, Bangalore-76	5	04.12.2019
322	Sri. Nakoda Construction Ltd, Apas Valmark, Sy. No.52, Hulimavu Village, Begur Hobli, Bangalore -76	5	04.12.2019
323	Abhee Lakeview Apartment, Serinity Layout, Sarjapura Road, Kaikondarahalli, Bangalore-35	5	04.12.2019

324	Bren celestia, No.39/2, Kaikondanahalli Village, Sarjapura Road (behind Reliance digital), Bangalore-35	5	04.12.2019
325	Bren Mercury, No.39/2, Kaikondanahalli Village, Sarjapura Road (behind Reliance digital), Bangalore-35	5	04.12.2019
326	Intel Technology Inida Pvt Ltd, SRR-3 Sy.No.23-56p, No. 18/2A, Deavarabisanahalli village Bengaluru-103	5	04.12.2019
327	Oceanus Fressia Enclave Apartment Owners Welfare Association, Sy.No.19/7 & 19/8, Kaikondanahalli Village, Varthur Hobli, Bengaluru off sarjapura Road, Bangalore-35	5	04.12.2019
328	Sri Mitra Builders & Developers, by name " Sri Mitra Spring Valley", Sy.No. 11/2,Kaikondrahalli Village, Varthur Hobli, (opp Fire Station), Sarjapura Road, Bengaluru -35	5	04.12.2019
329	Bhavya Serena, Near Norbert Church, Kasavanahalli, Bangalore-35	5	04.12.2019
330	Vars Builders & Developers, Vars Park Wood, No.90/4, Doddakannalli, Behind ADARSH Palm Retreat, Bangalore-35.	5	04.12.2019
331	Saroj Dynasty, Saroj Builds & Properties Pvt Ltd, Sy. No.94/5, Doddakannelli Village, Varthur Hobli, bangalore-35	5	04.12.2019
332	Akme Harmony Apartment Owners Welfare Association. Sy.No.11 & 12, Amblipura Village, Varthur Hobli Bengaluru-103	5	04.12.2020
333	Ganapa Towers,(Happiest Minds) 51/3, Hosur Main Road,Madiwala, Bangalore-68.	5	04.12.2019
334	Sri Utopia Aprtment,Kadubisanahalli, Yamlur Road, ORR, Bangalore-087	5	04.12.2019
335	Salarpuria Touch Stone, Sy.no. 14P7 & 15/1A, Kadubisanahalli Village, Bengaluru.	5	04.12.2019
336	Salarpuria Halmark, No.15/3 and 16, ORR, Kadubisanahalli, Panatthur Post, Bangalore-103.	5	04.12.2019
337	Prestige Tech park, JPMC Block, Kadubisanahalli,Varthur Hobli,Bangalore.	5	04.12.2019
338	Umbel Properties Pvt Ltd, Hilton Residences, Sy. No. 5/1, Challaghatta Village, Varthur Hboli, Bangalore	10	04.12.2019
339	Golf Links Software Pvt Ltd, Sy. No. 13/2, 10/3, 13/1, 14,15(P), 8/2, 2/1, 2/2, 2/3, 2/4, 4(P), 5/1,6,7,7/1,7/2,7/4,8,8/1, 8/2A, 8/2B, 8/3,8/4 & 10 of Challaghatta Village, Off Intermediate Ring Road, Bangalore	5	04.12.2019
340	Maruthi Infotech Centre, Sy. No. 11/1 & 12/1, Challagatta Village, Amariyothi Layout, Intermediate Ring Road, Domlur, Bangalore	5	04.01.2019

341	Red Coral Properties, by name " Mahaveer Rhyolite" Sy. No.37, Nyanappanahalli village, Begur Hobli, Bangalore	5	04.12.2019
342	Suadela Construction Pvt Ltd, (Hiranandani Projects), Sy.No.321/2B(P), 321/2C, 322/1, 323/1(P),323/3,323/4, 323/5,323/6,323/7,325/1(P),325/2,327,328/1,328/2,328/3,328/4,330,331,332/2 of Begur Village & 19(P) of Hulimavu Begur Hobli, Bangalore	5	04.12.2019
343	Durga Project Inc., by name "Durga Coral" Sy.No.20/5 & 20/6, Kadubeesanahalli, Marathalli Ring Road,Bengaluru East Taluk Bengaluru Urban District	10	04.12.2019
344	Nagarjuna Suits, 19/5,Kadubisanahalli, Panatthur Road,Bangalore-103.	5	04.12.2019
345	Sri Sai Ikon Apartment, Doddakanahalli, Sarjapura Road,(Near ARS School), Bangalore	5	04.12.2019
346	Saroja Builds & Properties Pvt Ltd, (Saroj white sand) Katha No.228/114/4, Sy. No.114/4, Boganahalli Village, Varthur Hobli, bangalore	5	04.12.2019
347	Prestige Propert Management Services, PrestigeSiler Sun and Trinity Center, Kadubisanahalli,-Doddakannahalli,Boganahalli,Bangalore-560004.	5	04.12.2019
348	Aditi Elite, No.128/21,22,23,24, Bhoganahalli Village, Varthur Holi, Bangalore	5	04.12.2019
349	Prestige Estates Projects Ltd, by name " Prestige Sunny Side Elm", Sy. No. 134/1 & 134/2, Boganahalli Village, Varthur Hobli,Bengaluru East Taluk, Bengaluru Urban District	5	04.12.2019
350	Prestige Estates Projects Ltd, by name " Prestige Sunny Side Oak", Sy. No. 134/1 & 135, Boganahalli Village, Varthur Hobli, Bengaluru East Taluk, Bengaluru Urban District	5	04.12.2019
351	Krishvi Dhavala, No.100/7,Doddakannahalli,Near Gear School,Bangalore-71.	5	04.12.2019
352	Cessna Garden Developers (P) Ltd.'Cessna Business Park-Phas4e I & II(Block, 1,2,5,6,7,8 & MLCP) Sy.No.5,6,3/2B, 4(P), 79(P), 8/1,8/2,11(P),12/2(P),12/3(P), 12/4,17/1(P),17/3(P),17/4, 38/2,43,44, 7& 9 of Kadabeesanahalli Village, Marathalli-Sarjapur Outer Ring Road, Varthur Hobli, Bengaluru.	5	04.12.2019
353	Embassy Signet(Symphony),Sy No.12/1 and 13/1,ORR,Kadubisanahalli,Varthur Hobli,Bangalore.	5	04.12.2019

354	Embassy Tech Sqaure, Sy.No.10/1A to 17/3, Kadubeesanahalli Village, Varhthur Hobli, Bengaluru East Taluk, Bengalure Urban DistrictBengaluru East Taluk Bengaluru Urban District	5	04.12.2019
355	Umiya Builders & Developers, " Umiya Business bay Tower-2", (Umiya Holding) Katha.No. 172/3, Sy.No. 10/1A,1B & 11, Kadubisanahalli Village,Varthur Hobli, Outer Ring RoadBengaluru East Taluk Bengaluru Urban District	5	04.12.2019
356	Cessna Garden Developers, Aloft Hotel, Sy.No-3/2B to 7 & 9, Kadubisanahalli Village,Varthur Hobli,Outer Ring Road, Bengaluru	5	04.12.2019
357	I-Life Apartment, Sai shrusti, Devarabisanahalli,Varthur Hobli,Bangalore-037	5	04.12.2019
358	Bhagini Icon Commercial Complex by N.Subba Reddy, Sy.No 57/1A, Devarabisanahalli Village, Outer Ring Road,	5	04.12.2019
359	Samhi JV Business Hotels Pvt Ltd - Fairfield [Formerly Supreme Build Cap Pvt Ltd.,], Sy. No.43,44/1, 44/2, Devarabisanahalli, Varthur Hobli, Bangalore	5	04.12.2019
360	Accenture Services Pvt Ltd., RMZ Ecospace-Campus 2A Block, Sy. No. 17/2 to 17/4, 20 to 25/8, 43/1 to 50, Bellandur Village, Varthur Hobli, Bengaluru.	5	04.12.2019
361	Accenture Services Pvt Ltd., RMZ Ecospace-Campus 2B Block, Sy. No. 17/2 to 17/4, 20 to 25/8, 43/1 to 50, Bellandur Village, Varthur Hobli, Bengaluru.	5	04.12.2019
362	Srinivasa Signature, Off Sarjapura Ring Road, Kaikondanahalli,Bellandur.	5	04.12.2019
363	Suryashakti 80 Trees, 140/2, Beside gear international School,Doddakannahalli,Off Sarjapur Road,Bangalore-35.	5	04.12.2019
364	CANSA Heights, 141/B,Gear School Road, Doddakannahalli,Bangalore-35.	5	04.12.2019
365	Assetz Property & Homes Pvt Ltd, East Point, Sy. No.87, 88/1 & 88/2, Boganahalli Village, Varthur Hobli, Bangalore	5	04.12.2019
366	Rose Wood Regency,Kaikondanahalli,Sarjapura Mainroad,Bangalore-35	5	04.12.2019
367	Srinivasa Classic Apartment,No.25/2C,Kaikondanahalli,Varthur Hobli,Bangalore	5	04.12.2019
368	Purva Sunshine Residents Association, Sy.No.48/1, 48/2, 49/1, 49/2, 49/3, 49/4, 50, 51, Kaikondarahalli, Sarjapur Road,Bengaluru East Taluk Bengaluru Urban District	5	04.12.2019

369	Purvankara projects ltd. By name "Purva Whitehall", Sy.No.10/1 11/1 & 14 Kaikondanahalli village,Sarjapur road, Bengaluru East Taluk Bengaluru Urban District	5	04.12.2019
370	Dhatri Residency, Sy.No. 37/1, Myalasandra Road, Bengaluru-112	5	04.12.2019
371	MDVR Primerose Apartment,. Suy.No. 27/7, Begur Koppa Road, Begur, Bengaluru	5	04.12.2019
372	Splendid Lakeview Apartment, Sy.No. 18/1, Vittasandra Road, Begur Village & Hobli, Bengaluru -68	10	04.12.2019
373	Janhavi Shelter Apartment, Sy.No.30/1, Ellenahalli Village, Akshya Nagar, BTM 6th Stage, Bengaluru	5	04.12.2019
374	DLF Newtown Apartment, Begur Village & Hobli,Bengaluru -68	5	04.12.2019
375	Lake view County Apartment, Sy.No. 157/1 & 157/2 Manipal County Road, Singasandra, Bengaluru	5	04.12.2019
376	Vijaya Spring wood Apartment, No.81, Manipal County Road, Singasandra Main Road, Bengaluru -68	5	04.12.2019
377	Gouthami Comfort, Sy.No.123/39, 22/1 & 22/2, Basapura Village, Basapura Main Road, Begur Hobli,Bengaluru-100	5	04.12.2019
378	Skylark Zenith Apartment, NO-41/1C, Chikkatogur Village, Begur Hobli, Hosa Road Junction, Bengaluru -100	5	04.12.2019
379	SKV Hanging Garden Apartment, No-18/1A, Basapura Main Road, Hosa Main Road Junctiuon, Basapura Cross, Bengaluru -100	5	04.12.2019
380	Thirumala Vintage Apartment, No.26/1, Hosa Road, Basapura Village, Begur -Bengaluru -100	5	04.12.2019
381	Shebang Apartment, Su.No.40/4, Basapura Main Road, Basapura Village , Bengaluru	5	04.12.2019
382	Concorde Midway City Owners Association., Sy.No.20, Basapura Village, 9th Mile, Hosur Road, Begur Hobli, Bangalore.	5	04.12.2019
383	Jahnavi Medows Apartment, No-34/2, Ellenahalli Village, Begur - Koppa road, Begur Hobli, Bengaluru	5	04.12.2019
384	G R Queen Pride Apartment, Begur Koppa Road, Ellenahalli, Bengaluru	5	04.12.2019
385	Balaji Encalve Apartment,Begur Koppa Rad, Ellenahalli, Bengaluru -68	5	04.12.2019
386	Radiant Shine Apartment, Sy. No.53/3, Yelanahalli Village, Begur Hobli, Bangalore	5	04.12.2019
387	Reddy Structure Pvt Ltd., Mahaveer Ridge, Sy.No.53/4, Yellanahalli, Begur Road, Bangalore.	5	04.12.2019

388	Ajantha Meadows Apartment, Aksyanagar Village, Begur Hobli,Bengaluru	5	04.12.2019
389	Opal Akshya Apartment, 9th Cross, Akshya Nagar, Bengaluru -68	5	04.12.2019
390	BSR Sai Palace, No.8/6, Roopenagarahara Main Road, Viratnagar, Bommanahalli, Bengaluru	5	04.12.2019
391	Sai Nandana Gardenia Apartment, No-81/2, Kammanahalli Village, Begur Hobli, Gottigere Post, Bengaluru-83	5	04.12.2019
392	Nandi Deepa Apartment Owners Association, Sy.No.124, Dodda Kammanahalli, Begur Hobli, Bangalore- 560068.	5	04.12.2019
393	Sri Thirumala Symphony Apartment, Chikkatogur Road, Begur Outer Ring Road, E-City, Bengaluru	5	04.12.2019
394	DS Max Apartment, Chikkatogur Main Road & Village, Bengaluru -100	5	04.12.2019
395	Salarpuria Symphony Apartment Owners Association, Sy.No.8/2, Beratana Agrahara Village, Sy.No.44/2 & 44/3, in Chikkathogur Village, Begur, Hosur Main Road, Bangalore.	5	04.12.2019
396	Krishna Enterprises(Hosuing & Infrastructure) India Pvt Ltd., (Krishna Mystiq), Sy. No.134/4 & 134/9 (Old No.134/2 & 133/8) of Doddathogur village, Begur Hobli, Bangalore.	5	04.12.2019
397	Oceanus Vista aPartment, Kasavanahalli Village, Varthur Hobli, Bengaluru East Taluk, Bengaluru Urban District	5	04.12.2019
398	Spring Field Apartment, Sarjapura Main Road, Nera Total Mall, Bangalore-35,Spring Field Welfare Association, Residential Apartment, Sy.No.19 & 20, Ambalipura Village, Varthur Hobli, Sarjapur Road, Bengaluru East Taluk Bengaluru Urban District	5	04.12.2019
399	DSR Ultima, Harluru Road, Off Sarjapura Road, Bangalore-560102,DSR Infrastructure Pvt Ltd., DSR Ultima, Sy.No.102/1 &102/3, Haralur Village, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	5	04.12.2019
400	Sai poorna High End, Harluru main Road, Ooff Sarjapura Road-560102	5	04.12.2019
401	Presitge Ferns Residency, Haruru Road, Next to Shoba Classic, Bangalore-560102,Prestige Estate Projects Ltd, Prestige Ferns Residency, Sy. No.1/1 (P) - 1/4 (P), 10/1(P), 10/2(P), 11, 14/1 - 14/3, Harlur Village, Varthur Hobli, Bangalore	5	04.12.2019

402	Abeeb Princess Apartment,Doddamma Temple Road, Ibblur Village,Begur Hobli,Bangalore-102	5	10.12.2019
403	Nandiwoods Apartment, Yelenhalli, Near Global Residency,Near SOS Post,Bannerghatta Road, Bangalore-76	5	04.12.2019
404	Radiant Structure Pvt LTd, "Radiant Redwood", Sy, No.62/2, Yellanahalli Village, Begur Hobli, Bangalore-68	5	04.12.2019
405	Sobha Aquamarine Apartment Association, Sy. No.83, Bellandur (V0, Varthur Hobli, Bangalore	5	04.12.2019
406	Sobha Hibiscus Condominium, Sy.No.6/1 & 6/2, Ambalipura Village, Varthur Hobli, Bengaluru East Taluk , Bengaluru Urban District	5	04.12.2019
407	Sobha Quartz Owners Association, Sy. No.32 & 83, Ibblur Village, Begur Hobli, Sarjapura Road, Bangalore	5	04.12.2019
408	Somasta Ish Woods, Doddamma Devi Temple Road, Ibblur Village,Begur Hobli,Bangalore	5	04.12.2019
409	Itina anai, Kempapura Main Road, Bangalore	5	04.12.2019
410	Sai purna Luxuria, M/s. Srinivas Developers, Haralur Main Road, HSR Extension, Bangalore-102	5	04.12.2019
411	Thirumala Sunidhi Desire Apartment,No 289/2,289/3,Begur Main Road, Near IOC Petrol Bunk,Bangalore-68	5	04.12.2019
412	DSR Rainbow Height Apartment Owners Welfare Association, BBMP Katha No.691/153/3, 24th Main, Near KEB Sub Station, Sector-2, HSR Layout, Bangalore-102.	5	04.12.2019
413	Parmount Raghavendra Akash Apartments Owners Welfare Association, Sy.No.33/2, Konappana Agrahara, Begur Hobli, Bangalore.	5	04.12.2019
414	SNN Builders Pvt Ltd, Raj Serenity, Sy. No.49/1, 49/2,41 & 42, of Begur Village & Sy. No. 40/1, 40/2, 40/3, 40/4, Yellanahalli Village, Begur Hobli, Bangalore	5	04.12.2019
415	Sumadhura Constructions, Sumadhura Anantham, Katha No.750/113/1/113/3/114/2, Sy. No.113/1, 113/3, 114/2, Singasandra Village, Begur hobli, Bangalore	5	04.12.2019
416	Praja Priya Engineers, by name " Radiant Resham", Sy.No.54/3A,Katha No-2190/234/54/3A, Yellanahalli, Begur Hobli, Bangalore.	5	04.12.2019

417	Vaishnavi Infrastructure Pvt Ltd., by name " Vaishnavi Terrace", Katha No. 419,Sy.No. 179 & 180, JP Nagar 4th Phase, Bilekhalli, Begur Hobli, Bengaluru	10	04.12.2019
418	Sri Venkateshwara Developers, "GOLD HILL SQUARE", No.690, Hosur Main Road, Bommanahalli, Bangalore-560068.	10	04.12.2019
419	Citrus Resorts Pvt Ltd, (R.S. Kalyani Hotels Pvt.Ltd), No.28/29, K.No.838, Sy.No.80/2, Bellandur Village, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	5	04.12.2019
420	Adamas Builders Pvt Ltd, [Formerly Supreme Build Cap Pvt Ltd], Sy. No. 27(P), 28/1(P), 28/2(P), 29/1,29/2,29/3A, 39/3B,32, 33,34/1,34/2,34/2,34/4,35, 36,37/1,37/2,42(P),43,44/4,44/2,46/3 Devarabisanahalli, varthur Hobli, Bangalore-103	5	04.12.2019
421	Commercial Complex by B.P.Venkatswamy Reddy,(Total Mall)Sy.No.12/5, 12/6, 12/7 & 14 (P).Kaikondarahalli, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	5	12.02.2020
422	Rohan Jharoka Apartment Owners Association, (Phase-II), Sy.No.20/1 to 5, 32 & 33/2, Of Kempapura Village, Varthur Hobli, Bangalore	5	12.02.2020
423	Lotus Petals Apartment, No.6/78,Doddakammanahalli, BG Road, Bengaluru -83	5	12.02.2020
424	Brundavan Serinity Apartment, Kasavanahlli Main Road, Bengaluru -35	5	12.02.2020
425	M/s.SJR Prime Corporation Pvt. Ltd, “SJR Water Mark” , Sy.no.68, Kasavanahalli Village, Varthur Hobli, Bengaluru	5	12.02.2020
426	Bhavya Prestine,#235,Panatthur-Doddakanahalli Road, Boganahalli,Bangalor	5	12.02.2020
427	M/s Golden woods, sy.no.12/3, kasavanahalli village, carmelaram, varthur hobli, bangalore-35	5	12.02.2020
428	Janapriya Lake View, Resident Association, JPLV Apartment Phase-I,Sy no. 26/4 Vijayashree Lay Out, Kodichikkanahalli, bangalore-76	5	12.02.2020
429	Janapriya Lake View Welfare Association(Apartment by Engineers Syndicate(I) Pvt. Ltd, SyNo 26/2, Phase 2, Beguru Hobli, Billekahalli	5	12.02.2020

430	M/s. Embassy Property Development Pvt Ltd., Sy. No.53, Deverabeesanahalli Village, Varthur Hobli, Bangalore.	5	12.02.2020
431	M/s Corporate Leisure & Property, Euphoria Apartment, Ibbalur, Outer Ring Road, Bengaluru	5	12.02.2020
432	M/s Golden Gate Properties Ltd. by name Bhuvana Greens, Sy.No. 15/3D, 29/4P, Kasavanahalli village, Varthur Hobli, Bangalore	5	12.02.2020
433	M/s Orchid Lake View Developers,Near Bellandur Mosque,Bellandur Lake Road,Bangalore	5	12.02.2020
434	Ananda Valmark Apartment Owners Association, Sy. No.98/2, 99/2, 100 & 101, Kammanahalli Village, Begur Hobli, Bangalore	5	12.02.2020
435	M/s Vascon venus apartment, sy.no.9, beratena agrahara, electronic city post, bangalore	5	12.02.2020
436	Nandi Retreat Apartment Owner's Welfare Association, Sy.No.92/2 & 92/3, Kammanahalli, Begur Hobli, Bangalore.	5	12.02.2020
437	Raja Housing Ltd in the name of RAJA ARISTOS, No.145/1, (Old No.96/3), Kammanahalli, Begur (H), Bangalore.	5	12.02.2020
438	SRK Towers, Big Bazaar complex, Plot No.448, Bannerghatta Road	5	12.02.2020
439	M/s SNN Grandeur Apartment, Sy.no.62/3 & 5, Bommanahalli village, Kodichikkanahalli main road, bangalore-80	5	12.02.2020
440	Kuteer Bliss Apartment Owners Association, Sy. No.14/A, Kalena agrahara village, Begur Hobli, Bangalore	5	12.02.2020
441	Manoharam,Amani,Bellandur Khane,Croma Building Road,Pannatthur Road,Bangalore	5	12.02.2020
442	Indiqube Alpha, Kadubisanahalli,Pannatthur Road,Bangalore-104	5	12.02.2020
443	Sriven@205,Croma Building Road,Pannatthur Road,Bangalore	5	12.02.2020
444	M/s Pioneer woodwinds, 3rd cross, sbi layout, devarachikkanahalli, bangalore-560076	5	12.02.2020
445	New Horizon Educational & Cultural Trust, Sy.No. 14 (New ,48,48,90) 39, 40, 41 & 42, Kadubeesanahalli Village, Varthur Hobli, Bengaluru East Taluk, Bengaluru Urban District	5	12.02.2020
446	Prestige Property Mangaement Services,, The Falcon House, Kadubisanahalli, Verthur Hobli, Bengaluru	5	12.02.2020

447	M/s Springvillae, Harlur village, kudlu road, bangalore-102	5	12.02.2020
448	M/s Silver county apartment, khatha no. 48/210, sy.no.210, kudlu village, sarjapura hobli, anekal taluk, bangalore-68	5	12.02.2020
449	M/s Silver crown apartment, Beside silver county, kudlu village, sarjapura hobli, anekal taluk, bangalore-68	5	12.02.2020
450	M/s Silver pearl apartment, sy.no.72, kudlu village, choodasandra circle, hosa road, bangalore-100	5	12.02.2020
451	M/s LGCL Ashlar villas, sy.no.55/1, 55/3 & 58/192, choodasandra, sarjapura hobli, bangalore-68	5	12.02.2020
452	M/s Jana jeeva splendour -1, sy.no.1/11, Behind IOC petrol pump, rayasandra circle, naganathapura, hosa road, bangalore-120	5	12.02.2020
453	M/s SLV Sankalpa ventures apartment, no.2, naganathapura, begur hobli, bangalore-120	5	12.02.2020
454	M/s GR Sagar nivas, no.13, rayasandra main road, naganathapura, near central jail, hosa road, banglaore-68	5	12.02.2020
455	Mahaveer Spring Annex, No.4/2, Sarakki Kere,5th Phase, JP Nagar, Bangalore	5	12.02.2020
456	M/s Pariwar Palace, No.67/2, Devarachikkanahalli Village, Begur (H), Bangalore.	5	12.02.2020
457	Prestige Pegasus, Sy.No.14, Sy.No.19, Kaikondanahalli Villag & Ambalipura village, Varthur Hobli, Bengaluru -35	5	12.02.2020
458	Elan Homes Owners Association, "Divya Shree Elan", Sy. No. 15 & 23, Plot No.1, Katha No.87, Kaikondanahalli (V), Varthur (H), Bangalore-35	5	12.02.2020
459	RMZ Ecoworld Infrastructure Pvt.Ltd [Previously Adarsha Prime Projects (P) Ltd,[Building - 1,2,3-A & 3B, 4A,B&C, 5A&B, 6A & B,7 ,8A&B & 9A & B], Sy.No.s 19, 20, 21, 22 & 25 Sy.No.72 Sy.No. 96,97,98,99, 100 and 101, 102/1 2 3, 103, 104/1,2 , 105, 106 Devarabisanahaali, Doddakanahalli and Bogenahalli, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	5	12.02.2020
460	RMZ Ecospace-Campus 1A,1B,1C,3A and 3B Sy. No. 17/2 to 17/4, 20 to 25/8, 43/1 to 50, Bellandur Village, Varthur Hobli, Bengaluru.	5	12.02.2020
461	Adarsh Developer, Palm Retreat, Sy.No.17/2 &17/3, Tower 3 to 7, ORR, Devarabisanahalli, Bangalore-103	5	12.02.2020

462	Bren Corporation, [Formerly B. J. Neethu & Others, SY. No.22/1E & 22/2A, Katha No. 925/1, Kaikondrahalli village, Varthur Hobli, Bangalore	5	12.02.2020
463	Raja Sannidhi Apartment, Begur Koppa Road, Begur Hobli, Kammanahalli Village, Bengaluru	5	12.02.2020
464	Salarpuria Softzone,81/1,81/2, Katha No 799, ORR,Bellandur,Bangalore	5	12.02.2020
465	Pritech Park Trust, C/o RMZ Eco- Space Block- 4B, Sy. No.17, 20-25, 29, 43 & 44, Bellandur Village, Varthur (H), Bengaluru	5	12.02.2020
466	Sriram Spandana Association, Challaghatta, Varthur-hobli, Bangalore-560037	5	12.02.2020
467	M/s ND Passion apartment, no. 86/1, 86/2, kudlu village, harlur main road, bangalore-68	5	04.12.2019
468	Axis Concepts Capstone Pvt Ltd., Sy. No.75/1A, Hulimavu Village, Begur Hobli, Bannerghatta Road, Bangalore	5	04.12.2019
469	Prestige Hi-Tech Projects, Silver crest, SY. No.27, Kariyammana Agrahara Village, Varthur Hobli, Bangalore	5	04.12.2019
470	Vedant Vyum,Begur Koppa main Road, Opposite SNN, Raj Serenity, Yelenahalli Village, off B G Road, Bangalore-68	5	04.12.2019
471	BPL Telecom Ltd., 11th KM, Arakere, B.G.Road, Bangalore.	5	04.12.2019
472	Gangothri Elegants, Sy No. 85/3&4, 4th Cross, Jyothi nagar, Bohra Layout, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
473	RVS Shastri Residency, # 79/1, Hatimi street, Bohra Layout, Gottigere-vil, Uttarahalli-hobli, Bengalore south-tq, Banneraghatta road, Bangalore-83	5	04.12.2019
474	IMG Windfall, Sy. No 6/1,2, 5th Block, Anjanapura, Lalbahaddurshastri layout, Bangalore-62 (new 108).	5	04.12.2019
475	Sumukkha Maple Groove,Akshaya Gardens,Akshaya nagara, Bangalore-76	5	04.12.2019
476	Mathrushree Oreland Homes,Kempaur-Yemlur Main Road	5	04.12.2020
477	Sai Garden Apartment,Kempalapur-Yemlur Main Road	5	04.12.2019
478	M/s. MGR Plateena, Near Kudlu gate, Hongasandra Bommanahalli, B'lore	5	04.12.2019
479	M/s Jsons Felicia apartment, sy.no.10/11,12, 2nd A cross, AECS layout, singasandra, bangalore-68	5	04.12.2019

480	M/s. Purvi Lotus Apartment owners Association, somasandarpalya, Haralukunte, HSR Lyt Extension, Begur Hobli, Bangalore-78 (M/s. B M Developers)	5	04.12.2019
481	N.D. Sepel, N.D. Developers Pvt ltd., Sy No 29/2A, Haralakunte village, Begur Hobli, Bangalore.	5	04.12.2019
482	Parivar Passion, Doddakammanahalli, near East India Tech Office, Bannerghatta Road, Bangalore- 76	5	04.12.2019
483	Century Paradise, 1st Stage,Tejaswini Nagar, Phase-1, Doddakammanahalli, Bangalore-76	5	04.12.2019
484	Mahaveer Glacier, 1st Main, 1st cross, Vijaya Bank Road, Arekere, BG Road, Bangalore-76	5	04.12.2019
485	Pride Regalia Apartment Owners Association, Sy.No.80/3, Hulimavu Village, Begur Hobli, Bangalore.	5	04.12.2020
486	AECS Maruti College of Dental Sciences & Research Centre, 108, Hulimavu tank Bund Road, BTM 6th Stage, 1st Phase. Off. Bannerghatta Road, Kammanahalli, Bangalore	5	04.12.2019
487	GRS Towers, No.18/2A, Ambilapura Village, Bellandur gate, Sarjapura Main Road, Bangalore-102.	5	04.12.2019
488	Elegance Garnet, Outer Ring Road, Intel Service Road, Bellandur, Bangalore-103	5	04.12.2019
489	Balaji Meadows Apartment, No-111, 6th Cross,Akshayanagr,50 Ft Yellenahalli Road, Bengaluru	5	04.12.2019
490	Amoda Valmark Apartment Owner's Welfare Association, Sy No 132/3, Dodda Kammanahalli Village, BG Road, Begur Hobli, Bangalore.	5	04.12.2019
491	Donata Constructions, Plot No.46, Katha No.2820/2633/46, Sy. No.25/2, Kasavanahalli, Varthur Hobli, Bangalore	5	04.12.2019
492	Oceanus Monarda Apartment Owners Association, Sy.No.15/3A & 15/3B, Kasavanahalli Village, Varthur Hobli, Bengaluru East Taluk Bengaluru Urban District	5	04.12.2019
493	KPR Elite, No.201, Amruth College Road, Kasavanahalli, Camel Ram Post, Bangalore-35	5	04.12.2019
494	Silver Ton Apartment,163/1,Manipal County Road, Singasandra,Bangalore-68	5	04.12.2019
495	Mantri Dwellings Pvt Ltd, Mantri DSK Pinnacle, Sy. No.60/1 (P), Hulimavu (V), Begur Hobli, Bannerghatta Road, Bangalore	5	04.12.2020

496	HTMT Global Solutions Ltd., ; No.4,5, & 6, Narendra Arcade, Garvebhavipalya, Hosur Road, B'lore.	5	04.12.2020
Total		**28880.0**	
	Total Rs. - 28880 Lakhs are 288.8 crores		

ANNEXURE XIII

LIST OF APARTMENT /COMMERCIAL ESTABLISHMENTS PAID ENVIRONMENTAL COMPENSATION

Sl.No	Name And Address of the Units	Date	Amount
1	Nandi Gardens Apartment Owners Association, Opp. Promac Industries, Sy. No. 12/23, 24, 25, 9th Phase, J.P. Nagar, Anjanapujra Post, Avalahalli, Bangalore	21.01.2020	5.0
2	SJR Builders by name SJR Luxuria, Sy.No.100/P/1, 101/1 & 103, Arekere (V), Begur (H), Bangalore.	21.01.2020	5.0
3	Maruthi Infotech Centre, Sy. No. 11/1 & 12/1, Challagatta Village, Amariyothi Layout, Intermediate Ring Road, Domlur, bangalore	06.02.2020	5.0
4	Intel Technology India Pvt Ltd Plot No 23 to 56P, Sy No 23/1,23/2P,24,25, 26/P.Devarabeesanahalli, Outer ring road, Varthur hobli, Bellandur post, Bengaluru 560 103	06.02.2020	5.0
5	H.S.B.C. Electronic Data Processing India Pvt Ltd, "FUTURA", No.148/1, Bannerghatta Road, Bilekahalli Village, Bangalore - 560076.	12.02.2020	10.0
6	Samhi JV Business Hotels Pvt Ltd [Formerly Supreme Build Cap Pvt Ltd.,], Sy. No.43,44/1, 44/2, Devarabisanahalli, Varthur Hobli, Bangalore	15.02.2020	5.0
7	Keys Hotel, No.7, Hosur Main Road, Singasandra Village, Bangalore	17.02.2020	5.0
8	Accenture Service Limited, C/o, RMZ Eco Space Campus-2A Block. No.17/2 to 17/4 to 25/B, 43/1 to 50, Bellandur Village, Bengaluru	17.02.2020	5.0
9	Accenture Service Limited, C/o, RMZ Eco Space Campus-2B Block. No.17/2 to 17/4 to 25/B, 43/1 to 50, Bellandur Village, Bengaluru	17.02.2020	5.0
13	AMR Tech Park, 1, 1A, 2A, No.23/24, Hongasandra, Bommanhalli Hosur Main Road, Bangalore-560068	26.02.2020	5.0
14	AMR Tech Park, IV A/B No.23/24, Hongasandra, Bommanhalli Hosur Main Road, Bangalore-560068	26.02.2020	5.0

15	Royal Citadel Apartment Owners Association, No.157/6, 155/1A1, Begur village, Begur Hobli, Bangalore	09.03.2020	5.0
16	Golf Links Software Pvt Ltd, Sy. No. 13/2, 10/3, 13/1, 14,15(P), 8/2, 2/1, 2/2, 2/3, 2/4, 4(P), 5/1,6,7,7/1,7/2,7/4,8,8/1, 8/2A, 8/2B, 8/3,8/4 & 10 of Challaghatta Village, Off Intermediate Ring Road, Bangalore	06.03.2020	5.0
17	GV Properties PVt Ltd, Embassy Point, Sy. No.10/2A & 10/2B, Challaghatta Village, Varthur Hobli, Bangalore	06.03.2020	5.0
18	Mohan Enterprises, Kalyani Magnum, Sy.No. 165/2, Doresanipallya, Bengaluru	12.03.2020	5.0
19	Mohan Enterprises, Kalyani Vista Sy.No. 165/1,165/17, Doresanipallya, Bengaluru	12.03.2020	5.0
20	Mohan Enterprises, Krishna Magnum, Sy.No. 165/3, 165/4, Doresanipallya, Bengaluru	12.03.2020	5.0
21	New Horizon Educational & Cultural Trust, Sy.No. 14 (New ,48,48,90) 39, 40, 41 & 42, Kadubeesanahalli Village, Varthur Hobli, Bengaluru East Taluk, Bengaluru Urban District	05.03.2020	5.0
22	Techpark Hotels Pvt. Ltd.(Novotel & IBIS), Sy.No. 41/1 & 41/2, Devarabisanahalli, Varthur Hobli, Bengaluru.	16.03.2020	5.0
23	Ushodaya Luxuria Owners Association, Sy.No.29/11, IAS Layout, Kasavanahalli, Central jail Road, Bengaluru	23.03.2020	5.0
24	M/s. RMZ Ecoworld Infrastructure Pvt.Ltd, Devarabeesanahalli Village, Varthur Hobli, Bengaluru	11.05.2020	5.0
25	Adamas Builders Pvt Ltd, [Formerly Supreme Build Cap Pvt Ltd], Sy. No. 27(P), 28/1(P), 28/2(P), 29/1,29/2,29/3A, 39/3B,32, 33,34/1,34/2,34/2,34/4,35, 36,37/1,37/2, 42(P),43,44/4,44/2,46/3 Devarabisanahalli, varthur Hobli, Bangalore	29.05.2020	5.0
26	Cessna Garden Developers (P) Ltd.' Cessna Business Park-Phase I & II (Block, 1,2,5,6,7,8 & MLCP) Sy.No.5,6,3/2B, 4(P), 79(P), 8/1,8/2,11(P),12/2(P),12/3(P), 12/4, 17/1(P), 17/3(P),17/4, 38/2,43,44, 7& 9 of Kadabeesanahalli Village, Marathalli-Sarjapur Outer Ring Road, Varthur Hobli, Bengaluru	10.06.2020	5.0
27	RMZ Ecospace-Campus 1A,1B,1C,3A and 3B, Sy. No. 17/2 to 17/4, 20 to 25/8, 43/1 to 50, Bellandur Village, Varthur Hobli, Bengaluru	20.06.2020	5.0

28	Confident Pheonix Apartment Owners Association, Sy.No.85 & 86, Kasavanahalli, Varthur Hobli, Bengaluru	13.08.2020	5.0
29	Suadela Construction Pvt Ltd, (Hiranandani Projects), Sy.No.321/2B(P), 321/2C, 322/1, 323/1(P),323/3,323/4, 323/5,323/6,323/7, 325/1(P),325/2,327,328/1,328/2,328/3,328/4,330,331,332/2 of Begur Village & 19(P) of Hulimavu Begur Hobli, Bangalore	03.09.2020	5.0
30	Sai Smaran Constructions, by name Sai Garden, Sy.No. 18/1, K.No.188, Kempapura Village, Varthur Hobli, Bengaluru East Taluk, Bengaluru	14.10.2020	5.0
31	DSR Spring Beauty Apartment, Sy. No. 124/1, Kundalahalli, ITPL Main Road, Whitefield Road, Bengaluru	04.12.2019	**5.0**
32	Prism Properties, Prism Sovereign apartment, Sy.No.106/1 & 107, Kundalahalli village, K.R.Puram Hobli, Bangalore East Taluk	04.12.2019	**5.0**
33	Island Star Mall Developers Private Limited, No 40/41, Lower ground, Whitefield Main Road, Mahadevapura Post, Bengaluru 560 048.	04.12.2019	**5.0**
34	Chitrakuta Environs, Sy. No. 184, 7th cross, Virabhadra Nagar, Bengaluru 560 037	04.12.2019	**5.0**
35	Sumadhura Silver Ripples, Katha No. 222/183, Sy. No. 25/1A, 25/2 28, 30/2, Nallurahalli Village, Bengaluru 560 066	04.12.2019	**5.0**
36	Gopalan Millenium Towers, Sy. No. 133, Kundalahalli Village, K.R. Puram Hobli, Bengaluru	04.12.2019	**10.0**
37	Soul Space Projects Limited, (Soul Space Arena), Sy No. 36/5, Doddenakundi VillageMahadevapura Post, Outer Ring Road,Bangalore East Taluk	04.12.2019	**5.0**
38	Ferns Builders and Developers Ltd , (Ferns Icon), Sy No. 28, 34/3, 36/2, 36/3, 36/4 & 36/5 of Doddanekundi Village Bangalore East Taluk	04.12.2019	**5.0**
	Grand Total in Rs.		**185**

BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI
ORIGINAL APPLICATION NO. 125 OF 2017

IN THE MATTER OF :-

Court on its own Motion ... Applicant(s)

:: VERSUS ::

State of Karnataka ... Respondent(s)

Compliance report in respect of the directions issued by this Hon'ble Tribunal on 18.12.2019 in Suo Moto Application No.125/2017 and O.A 217/2017 regarding restoration of SlBellandur, Varthur and Agara Lake in respect of BWSSB

In view of the COVID-19, the Hon'ble Government of India has declared Nationwide Lock Down since 23.03.2020 onwards. Hence, there had been no progress of work from 24.03.2020 upto 14.04.2020. Further, vide order No. 15.04.2020 Department of Health and Family welfare, Government of India has classified Bengaluru urban under Red hot zone. Under the circumstances, the restrictions were continued till 03.05.2020 and as such though movement of non essential goods vehicles were permitted still mainly the necessary cement and steel for the constructional activities could not be arranged because of shut down of the manufacturing units.

The type of constructional activities for STP requires skilled labours for centering, shuttering, installation of electromechanical equipments etc. Almost all the skilled labours were engaged by the contractor from the states of Jharkhand, Chhattisgarh, Bihar, West Bengal and Odisha. The Government of India in its directions on 29.04.2020 has allowed in situ activity for constructional purposes with guidelines to maintain social distance and other precautionary measures as per stipulations. Due to this, the contractor has actually started mobilizing the work force to the site and had also placed orders for constructional materials. However, physical activities in the site had been started on 02.05.2020, as the steel and cement reached the site on those days.

In the meanwhile Government of India in its order dated 02.05.2020 permitted the movement of migrant workers who want to go to their residences. Due to which most of the migrant workers from other states have moved out of the site and have gone to their native places. On the other hand Bangalore being in the Red zone no labourers from any other districts is allowed to enter Bangalore.

Even though unlock was announced by the Government from Jun 8th onwards, due to raise in the number of COVID cases in Bangalore, it has become very difficult to strengthen the existing labour force required for carrying out works. Also, as the type of works which are being carried out are mostly associated with sewage, the labours required for such type of works are also not ready to work in these pandemic conditions.This has resulted in acute shortage of labour force. Hence, the timelines fixed for the identified works for Bellandur and Varthur lakes may not be achievable and also uncontrolled of COVID-19, the Hon'ble State Government of Karnataka has declared Lock Down since 14.07.2020 at 8 P.M to 22.07.2020 at 5 A.M.Due to this at present the probable date of completion of all the works cannot be proposed till situation with respect to labourers and materials becomes clear.

Under the circumstances, the exact timeline required for completion of the work can only be estimated after substantial easing out of the situation and also after sufficient labour force movement is allowed. Thus it is humbly requested that the Hon'ble NGT may kindly consider all the above facts in assessing the situation and allow more time for completion of the works.

The detailed work wise progress achieved as on 15.07.2020 comparing the same with the NGT committee report is herewith submitted for kind perusal.

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
1	In para No.28 (i) Dated 18.12.2019 of the NGT order, it is stated that "Timelines for execution of projects for setting up of STPs andlaying of sewerage network may not be extendedbeyond30.09.2020 . If the works remains incomplete eventill30.09.2020,compensation will be liable to be paid @ Rs. 10 lakhper STP per month which may be liable to recovered from theerring officers, apart from adverse entries in their service recordsand	**30.09.2020**	a. 150 MLD Capacity new Sewage Treatment Plant based on activated sludge process with BNR with Power generation Date of completion 30.07.2020	The overall progress as on 15.07.2020 is 79.00 % against the Planned target of 99.00%.	Overall 82.06% is progress is achieved against the planned target of 100%. The lagging of progress is mainly in civil works and installation of plant and machineries. As already explained in the previous month report, in view of the COVID-19, due to improper movement of non essential goods vehicles the necessary cement and steel for the constructional activities could not be arranged because of shut down of the manufacturing units and also due to acute shortage of labour force. AS of now, the labour strength has increased substantially and the tempo of work has been	The detailed overall progress report and Photos is enclosed in Annexure-II. vide page No. 2 to 10, The lagging of progress is mainly civil works and installation of plant and machineries. The progress on the work is closely monitored and the work will be completed and the plant will be ready to treat the sewage by 30.10.2020. However,

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
	other adverse action".				increased and work is started on all fronts. As already committed, the plant will be ready to treat the sewage by 31.12.2020 and the STP in full inclusive of water line and sludge line will be completed by 31.03.2021	the STP in full inclusive of water line and sludge line will be completed by 31.03.2021
			b. Construction of 210 MLD capacity ISPS at Koramangala Sports Complex – including O&M for 7 years: Date of completion 29.01.2020	The ISPS is ready for operation. But the sewage will be pumped after completion of the 150 MLD STP.	The ISPS is commissioned on 10.09.2020. But the sewage will be pumped on completion of the 150 MLD STP and subsequent to completion of laying of Raising Main.	The detailed overall progress report and Photos is enclosed in Annexure-II. vide page No. 11 to 16,.
			c. Laying of 1800 mm dia raising main from 210 MLD ISPS	Laying of pipelines in the storm water drains (SWD) is very difficult as the location	Laying of pipelines in the storm water drains (SWD) is very difficult as the location of the work in this drain isat the end of the valley carrying	This work will be completed before

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
			to 150 MLD STP – S2D(a) of length 5.315 Km Date of completion 07.01.2020	of the work in this drain is at the end of the valley carrying huge quantity of storm water. At present 3972 RMT of pipeline work is completed as against 5315 RMT.	huge quantity of storm water. At present4143RMT of pipeline work is completed as against 5315 RMT. Due to COVID-19 conditions as explained under Item 'a' above there is delay in this work. However, this work will be completed before 31.03.2021 when the STP is commissioned.	31.03.2021 when the STP is commissioned. **Due to loss of time during the summer in view of the Covid-19 situation the work has not progressed much. As the work is to be taken up in the storm water drain and due to monsoons this work can be started only after October 2020. Under the circumstances the timeline for completion of the work will go beyond.** The detailed overall progress report and Photos is enclosed in Annexure-II. vide page No.17to 24,.
			d. Sarakki – 5.0 MLD STP at Sarakki lake	Completed and Commissioned	Completed and commissioned on 08.11.2019.	Presently the treated water is let into Sarakki Lake. Photos is enclosed in Annexure-II. vide page No. 25 to 28,

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
			e. Chikkabeguru – 5.0 MLD STP Date of completion March-2020	The overall progress as on 15.07.2020 is 90.91% against the Planned target of 100.00%. However, as all the infrastructures for treating the sewage is ready the sewage has been augmented to STP from 23.06.2020 and development of MLSS is in progress.	The treatment process is commenced from 14.08.2020	The work will be completed by September-2020 **Inview of the Covid-19 situation the timeline for completion of the work will go beyond.** The detailed overall progress report and Photos is enclosed in Annexure-II. vide page No. 29 to 35,
			f. Hulimavu – 10 MLD STP Date of completion March-2020	Completed and commissioned.	Completed and commissioned.	Presently the treated water is let into Hulimavu Lake. Photos is enclosed in Annexure-II. vide page No. 36to 39,
			g. Augmenting sewage from Iblur side and conveying to BellandurAmanikan e STP (Laying of sewer sub main)	As on 15.07.2020 laying of 1437RMT of pipeline is completed as against 2425 RMT.	As on 30.09.2020 laying of 1925 RMT of pipeline is completed as against 2425 RMT.	Laying of balance 988mtrs of pipeline will be completed after ease out of Covid 19 situation. **Inview of the Covid-19**

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
			Date of completion 30.12.2020			**situation the timeline for completion of the work will be completed by December 2020.** Work Plan is enclosed in Annexure-II. vide page No. 41 to 42,
			h. Agaram – 35 MLD STP Date of completion Dec-2019	Completed and commissioned	Completed and commissioned	Presently the treated water is let into Agaram Lake. Photos is enclosed in Annexure-II. vide page No. 43to 48,
			i. Waste water wet well – 32.5 MLD Capacity near the premises of 90MLD BellandurAmanikhane STP to augment sewage from the adjoining areas of BellandurAmanikhane STP Date of completion 19.02.2021.	Earth work excavation for wet well portion is in progress.	BellandurAmanikhane STP to augment sewage from the adjoining areas of Bellandur Amanikhane STP Hard rock excavation is under progress.	**Inview of the Covid-19 situation the timeline for completion of the work will be 31.03.2021.** Photos is enclosed in Annexure-II. vide page No. 49to 50.

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			Name of the work/activity/others	Status as on 15.07.2020		
			j. A proper mechanism should be developed/placed it identify the blockages in the existing UGDs and to attend them mechanically.	BWSSB has 175 Jetting cum suction machines and 40 de-silting machines to clean the UGD Lateral network.	BWSSB has 165 Jetting cum suction machines and 40 de-silting machines to clean the UGD lateral network. 10 more machines are under procurement and by February 2020, BWSSB will be in a position clear the manholes once in a year. 6 High Pressure desilting machines and one recycler machine are engaged in cleaning of sub-mains and main sewers.	Maintenance of sewer lines is done regularly based on the complaints and extensive, massive desilting of sewer lines will also be taken periodically to ensure proper flow of sewage. Photos is enclosed in Annexure-II. vide page No. 51 to 54
2	In para No.14 Dated 18.12.2019 of the NGT order, it is stated that We also found that timelines fixed by this Tribunal have been unilaterally extended without any valid justification and no action has been taken against the erring officers on a specious plea that it was difficult to fix responsibility. Such approach is hardly compliant with the Rule of Law. We particularly	**30.09.2020**	Proposal for upgradation of all existing STPs with facilities to removal of Biological Nutrient Removal at 248 MLD STP at K&C Valley.	The Hon'ble NGT has clearly stated that 248 MLD capacity STPs at K&C Valley have to be made BNR compliant by 30-09-2020. Based on the concept note developed Professors of IISc and in consultation with the consultants M/s CH2M Hill India Pvt. Ltd., appointed for upgradation of 248 MLD STP at K&C	Based on the concept note developed Professors of IISc and in consultation with the consultants M/s CH2M Hill India Pvt. Ltd., appointed for upgradation of 248 MLD STP at K&C Valley, the estimate prepared for immediate action to achieve Biological Nutrient Removal in 248 MLD STP which mainly includes procurement of Anoxic Mixers for making changes in the process. In this regard, due to non participation in the tenders for the 1st call floated by BWSSB, 2nd call was made on 24.0.7.2020 with 07.09.2020 as the last date	In order to comply for the NGT orders BWSSB is immediately taking up necessary works for achieving BNR by 30.09.2020, which will be part and parcel of the entire upgradation works. The entire upgradation work other than BNR along with Bio-solids

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
	disapprove the timeline for upgradation of STPs with Biological Nutrient Removal (BNR) at 248 MLD STP at K&C Valley. The same must not go beyond 30.09.2020 but preferably be completed before 30.06.2020 although earlier timeline fixed by this Tribunal was 30.06.2019. No substantial work has been done in the last one year on this aspect.			Valley, the estimate prepared for immediate action to achieve Biological Nutrient Removal in 248 MLD STP has been approved by Government of Karnataka including approval to takeup the works from M/s KRIDL under 4G exemption.Proposal is also approved in Board meeting of BWSSB on 27.01.2020. The work orders for consultancy for upgradation of the 248 MLD STP is issued to the consultants M/s CH2M Hill (India) Pvt. Ltd. Also a letter to proceed with the work has been issued to M/s KRIDL for taking up the works. In this regard	for receipt of tenders, however for 2nd call there is no proper response, which is mainly due to non assurance of lead time by the Equipment Vendors, which are presently manufactured in abroad. However, tenders have been floated for 3rd time with 12-10-2020 as the last date for submission of tenders.	handling will be taken up simultaneously by floating tenders. **In view of the covid-19 lockdown almost all the industries manufacturing specialized equipments like blowers, diffusers, screens, DO meters etc are not working. Under the circumstances the tenderers will not be in a position to ascertain the rates of the materials. The tenderers will not be in a position to quote the tenders. However the 2nd call of the tender has been uploaded with 20-05-2020 as the last date for bidding. Under the circumstances the timeline for completion**

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			Name of the work/activity/others	Status as on 15.07.2020		
				M/s.KRIDLhad called tenders for procurement of equipments and instruments on 20-04-2020 with 29-04-2020 as the last date for submission of tenders, the bids were opened on 02-05-2020 and no tenderers have participated in the tender. 2nd call of the tender is uploaded on 11-05-2020. Even for the second extended call, there were no proper responses from the tenderers. Under the circumstances, M/s KRIDL have written a letter to BWSSB to take up the said works from BWSSB side only. This situation is mainly due to prevailing pandemic due to whichthe		**of the work will go beyond.**

Sl. No.	Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019	Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019	Compliance / Status of the works		Observations as per MonitoringCommittee report dated 06.03.2020	Remarks
			Name of the work/activity/others	Status as on 15.07.2020		
				suppliers are asking for a lead time for supply of around 6 months. As such in order to attain the target of time line fixed by NGT as 30.09.2020 for removal of BNR, BWSSB in consultation with the consultants M/s CH2M Hill India Pvt. Ltd. and the team of Professors from Indian Institute of Science has evaluated a concept to achieve removal of Nitrates before 30.09.2020 by making changes in the existing process of treatment and BWSSB has taken action to call tender.		
3	In para No.28 (ii) Dated 18.12.2019 of the NGT order, it is stated that Bangaluru Water Supply and Sewerage Board	**01.02.2020**	Interim remediation.	Further to the discussions in the Monitoring committee meetings, site visits on 04.01.2020 and	The peripheral diversion channels have been constructed by the BDA in both the lakes and sewage water is flowing through this channel. Entry of sewage water into these lakes have been stopped. Further, the	In order to comply with the time line of 01.02.2020 fixed in the orders of the NGT,

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			Name of the work/activity/others	Status as on 15.07.2020		
	(BWSSB) must ensure that no sewage/effluent is discharged into the lakes and till setting up of STPs, interim remediation must be done forthwith. Any default in this regard will result in requirement to pay compensation of Rs. 5 lakh per month per inlet into the lakes from 01.02.2020.			also in the meetings conducted by the Government Authorities at Chief Secretary and Additional Chief Secretary levels, Hon'ble NGT committee has instructed to take up the aeration works in the diversion channels done by BDA at HAL side, Y-Junction of Agara& Koramangala side channels, Iblur and on either sides of Varthur Lake. BWSSB has installed aerating systems in the following 6 locations by 31.01.2020,through M/s KRIDL at the following locations: 1) HAL side &Kempapura inlet,	BWSSB have installed aerating systems and has completed by 28.02.2020 at 1) HAL side and Kempapura inlet, 2) Agaram inlet, 3) Koramangala inlet, 4) Iblur inlet coming under Bellandur Lake, 5) Northern and 6) Sothern side of Varthur lake for inline treatment of sewage. Further, in addition the BWSSB is also installing artificial floating islands. It is submitted that during the rainy season, rain water of the catchment area of KC Valley flows through the Bellandur and Varthur lakes. In the past, flooding in the low laying habitat areas have been reported during the monsoon. The State Government (BDA and BBMP) should take appropriate measures during the de-silting period so that no adverse impact on de-silting as well as flooding in habitat areas take place.	the aerating systems in the 6 locations were installed before 31.01.2020 and same have been observed by the NGT Committee during their inspection of the said location on 21.01.2020. Subsequently, in order to enhance the interim remediation artificial floating islands have also been installed. Same have been observed by the NGT Committee during their inspection on 25.02.2020. NGT committeewhile reporting by mistake have reported the date of completion as 28-02-2020. Same has been brought to the

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			Name of the work/activity/others	Status as on 15.07.2020		
				2) Agaram, 3) Koramangala inlet, 4) Iblur inlet coming under Bellandur lake and 5) Northern & 6) Southern side of Varthur lake. Same have been inspected by the NGT Monitoring Committee during their inspections on 21.01.2020. Also, bio-remedial installations of artificial floating islands have been installed for the inline treatment.		knowledge of the NGT monitoring committee and they have also accepted to correct the mistake.vide their letter dated:13.05.2020. Photos is enclosed in Annexure-II. vide page No. 55 to 66
4	In para No.28 (iii) Dated 18.12.2019 of the NGT order, it is stated that "BWSSB may further ensure that treated water is not discharged into the UGB network. Action may be taken against persons responsible for having		Disconnections to ensure that no treated effluent is discharged into BWSSB UGD network.	As per the Hon'ble NGT order BWSSB may further ensure that treated water is not discharged into the UGD network. Further, the list provided by KSPCB for 496 buildings having STPs	The BWSSB submits that the excess treated water was allowed to be discharged in the UGD network as per the conditions stipulated in the consent for operation issued to private STPs by KSPCB. After the orders of NGT, the BWSSB in consultants with KSPCB, the connections given for letting treated water to UGDs have been disconnected for 109 units (out of 496 units, in 109 units UGD connections are disconnected; there is	BWSSB has disconnected the UGD connections of buildings having STPs who are letting excess treated water into UGD network. Further, BWSSB has

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			Name of the work/activity/others	Status as on 15.07.2020		
	allowed this to be done earlier resulting into loss of Rs. 2 Lakhs per day i.e. Rs. 60 Lakhs per month and more than Rs. 7 Crore per year without any justification what so ever.			has been inspected by BWSSB engineers and out of 496 buildings 109 buildings UGD connections are disconnected, there is no BWSSB UGD network near 378 buildings, 2 buildings are beyond the 110 village limits of BBMP, 5 buildings addresses are repeated in the list, 1 building address is not traceable and 1 building does not have STP. BWSSB is identifying the sources of discharge of sewage and will disconnect water supply and UGD connections of the defaulting establishments and also send a complaint to	no BWSSB UGD network near 378 units; 2 units are beyond the 110 villages limits of BBMP; 5 units addresses are repeated in the list; 1 unit address is not traceable and 1 unit does not have STP). The ACS, UDD, submits that since, treated water was allowed as per the conditions in the order of consent to operate, no action can be taken against the officials of BWSSB in this matter. In response to the above, the Member Secretary, KSPCB, reports that from the list of 109 Residential/Commercial project total quantity of sewage generated is about 11.462 MLD, out of which by utilizing treated sewage for secondary usage viz... toilet flushing, floor washing, vehicle washing and for gardening there is an excess treated sewage of about 4.58 MLD. At present BWSSB is operating 7 sewage treatment plant in Bellandur catchment and 3 more are under stabilization. Total capacity of the 7 operating STP's is 448 MLD and 3 STP's under stabilization is about 50 MLD. It indicates that the volumetric load from discharge of excess treated sewage into BWSSB UGD is 1.03%. This may be considered as small quantity. The Member Secretary submits that their officers/officials are doing regular monitoring and taking actions to prevent the	already written to KSPCB authorities informing them that KSPCB to see that private STPs are functioning as per discharge standards.

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			Name of the work/activity/others	Status as on 15.07.2020		
				KSPCB. If the defaulting establishment is using ground water then the complaint has also to be booked with KSPCB for its action. Further, the treated water was allowed as per the conditions stipulated in the order of the consent issued by KSPCB. Under the circumstances, BWSSB request not to take any action against its officials.	pollution. He has requested that in this background, no action against the officials may be taken. The NGT is requested to take a view in the above facts and circumstances.	

<table>
<tr><th rowspan="2">Sl. No.</th><th rowspan="2">Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019</th><th rowspan="2">Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019</th><th colspan="2">Compliance / Status of the works</th><th rowspan="2">Observations as per MonitoringCommittee report dated 06.03.2020</th><th rowspan="2">Remarks</th></tr>
<tr><th>Name of the work/activity/others</th><th>Status as on 15.07.2020</th></tr>
<tr>
<td>5</td>
<td>In para No.16 Dated 18.12.2019 of the NGT order, it is stated that We are informed that about 256.7 MLD untreated sewage is enteringthe lake from five locations which is nothing but a criminal offencewhich is required to be checked on war footing and violators of lawbrought to justice, erring officer being appropriately dealt with underthe civil, criminal and service law with a view to uphold the Rule ofLaw. There is large scale breach of public duties by concernedAuthorities dealing with the subject and earlier observations of thisTribunal have fallen on deaf ears and blatantly flouted.</td>
<td>30.09.2020</td>
<td>To properly design UGD network so as to feed the existing STPs to their full capacity and also to the STPs under construction treated water should be reused.</td>
<td>Details of valley wise works taken up are:

1. HAL SWD (Challaghatta Valley) – Totally 23 works are to be taken up for augmenting this flow – Out of which 14 works completed and 10 MLD flow is increased. After completing balance 9 works by December-2020.
2. Koramangala and AgaramValley
Totally 48 works are to be taken up for augmenting this flow – Out of which 36 works and the other linking at Mahindra Showroom is</td>
<td>To stop the sewage entering natural drains at 294 locations are identified where sewage is entering into SWD. The work is under progress.
With regards to reuse of the treated water, BWSSB has envisaged the utilization as below:
<table>
<tr><th>Sl. No</th><th>Name of the STP</th><th>Capacity (in MLD)</th><th>Quantity committed to Minor Irrigation Department (in MLD)</th><th>Remarks</th></tr>
<tr><td>A</td><td colspan="4">Existing STPs</td></tr>
<tr><td>1</td><td rowspan="3">K & C Valley</td><td>218</td><td>218</td><td rowspan="3"></td></tr>
<tr><td>2</td><td>30</td><td>30</td></tr>
<tr><td>3</td><td>60</td><td>60</td></tr>
<tr><td>4</td><td>BellandurAmmani khane</td><td>90</td><td>90</td><td></td></tr>
<tr><td>5</td><td>Kadabeesanahalli</td><td>50</td><td>-</td><td>Committed to KIADB.</td></tr>
<tr><td>6</td><td>Sarakki (Recently commissioned)</td><td>5</td><td>4</td><td></td></tr>
<tr><td colspan="2">Total of Existing STPs</td><td>453</td><td>402</td><td></td></tr>
<tr><td>B</td><td colspan="4">Under Construction STPs</td></tr>
<tr><td>7</td><td>Agara</td><td>35</td><td>30</td><td></td></tr>
<tr><td>8</td><td>K & C Valley</td><td>150</td><td>120</td><td></td></tr>
<tr><td>9</td><td>Hulimavu</td><td>10</td><td>9</td><td></td></tr>
<tr><td>10</td><td>Chikkabegur</td><td>5</td><td>4</td><td></td></tr>
<tr><td colspan="2">Total of Under Construction STPs</td><td>200</td><td>163</td><td></td></tr>
<tr><td colspan="2">Total</td><td>653</td><td>565</td><td></td></tr>
</table>
Details of flow after completion of total of 39 works out of</td>
<td>The flow in the SWD's were measured in the month of April-2019 and the details of flow are as follows:

HAL-48.60

Agaram&Koramangala (Y-Junction)-179.50

Total-228.10 MLD

The flow details of STP's at K&C Valley, Bellandur on the day of measurement were,
218 MLD-170 MLD
60 MLD-22 MLD
30 MLD-26MLD
90 MLD-30 MLD
Total-248 MLD
After carrying out major interlinking/new pipeline works on the upstream side, the flow was measured in the 1st week of March-2020, the details are as follows:</td>
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<tr><th rowspan="2">Sl. No.</th><th rowspan="2">Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019</th><th rowspan="2">Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019</th><th colspan="2">Compliance / Status of the works</th><th rowspan="2">Observations as per MonitoringCommittee report dated 06.03.2020</th><th rowspan="2">Remarks</th></tr>
<tr><th>Name of the work/activity/others</th><th>Status as on 15.07.2020</th></tr>
<tr><td></td><td></td><td></td><td></td><td>completed and 72.44 MLD flow has increased. After completing balance 12 works by December-2020, balance sewage can be augmented.
---
3. Iblur Catchment area
As on 15.07.2020 out of 2425 mtrs of pipeline, laying of 1437 RMT of pipeline 900/600/450 mm dia RCC NP3 pipeline along the alignment is</td><td>74 works proposed for linking
<table><tr><th>Location</th><th>Flow Measurements as on April-2019 (in MLD)</th><th>Flow Measurements as on March-2020 (in MLD)</th><th>Difference augmented to STP (in MLD)</th></tr><tr><td>HAL</td><td>48.60</td><td>31.40</td><td>-17.20</td></tr><tr><td>Agaram& Koramangala</td><td>179.50</td><td>114.26</td><td>-65.24</td></tr><tr><td>218 MLD STP</td><td>170</td><td>180</td><td>10</td></tr><tr><td>60 MLD STP</td><td>22</td><td>51</td><td>29</td></tr><tr><td>30 MLD STP</td><td>26</td><td>30</td><td>4</td></tr><tr><td>90 MLD STP</td><td>30</td><td>70</td><td>40</td></tr><tr><td>Total</td><td>476.10</td><td>476.66</td><td></td></tr></table>---
About 950 mtrs out of 2425 mtrs of 900/600/450 mm diaRCC NP3 pipeline along the alignment is laid. Work is under progress. The work is planned to be completed by 30-06-2020.</td><td>HAL-31.4 MLD
Agaram&Koramangala (Y-Junction)-114.26
Total-145.66 MLD

The flow details of STP's at K&C Valley, Bellandur on the day of measurement were,
218 MLD-180 MLD
60 MLD-51 MLD
30 MLD-30 MLD
90 MLD-70 MLD
Total-331 MLD
As can be seen from the above, it is clear that the flow in the SWD to an extent of 82.44 MLD has been reduced and same are being augmented to STP's. Work Plan is enclosed in Annexure-II. vide page No. 67to 74

Laying of balance 988mtrs of pipeline will</td></tr>
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<tr><th>Sl. No.</th><th>Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019</th><th>Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019</th><th colspan="2">Compliance / Status of the works</th><th>Observations as per MonitoringCommittee report dated 06.03.2020</th><th>Remarks</th></tr>
<tr><th></th><th></th><th></th><th>Name of the work/activity/others</th><th>Status as on 15.07.2020</th><th></th><th></th></tr>
<tr><td></td><td></td><td></td><td></td><td>laid, work is in progress.

4. Kempapura Catchment area
BWSSB has taken up work of laying 300 mm dia RCC NP3 sewer line for a length of 1000 RMT to convey the sewage generated in this area BellanduruAmanekhane STP. The work is completed and commissioned in the month of may 2020</td><td></td><td>be completed after ease out of Covid 19 situation.

The work is Completed and Commissioned on May 2020.</td></tr>
<tr><td>6</td><td>In para No.28 (vi) Dated 18.12.2019 of the NGT order, it is stated that "Action against erring officers which has not yet been taken mustbe initiated forthwith as already directed. Failures of officers stillin service should be duly reflected in their ACRs.</td><td></td><td>Action against erring officers</td><td>Officers who have worked in the specified period have been identified and show cause notices have been issued to them.
The replies obtained from these officers have been reviewed and found to be not acceptable.
Hence the formal approval</td><td>The ACS (UDD), of State Government has submitted the list of officers who were found responsible for failure in their duties to maintain the lakes. He submits that notices have been issued for initiating the action against them. The name of officers with departments are listed here under:
2) BWSSB
<table>
<tr><th>Sl. No.</th><th>Name</th><th>Designation</th></tr>
<tr><td>1</td><td>S.M. Basavaraju</td><td>Chief Engineer (14.11.2006 to 08.04.2013)</td></tr>
</table></td><td></td></tr>
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<table>
<tr><th>Sl. No.</th><th>Directions/Recommendations issued by this Hon'ble Tribunal vide Order Dated 18.12.2019</th><th>Time line fixed for execution of the action plan by this Hon'ble Tribunal vide order dated 18.12.2019</th><th colspan="2">Compliance / Status of the works</th><th>Observations as per MonitoringCommittee report dated 06.03.2020</th><th>Remarks</th></tr>
<tr><th></th><th></th><th></th><th>Name of the work/activity/others</th><th>Status as on 15.07.2020</th><th></th><th></th></tr>
<tr><td></td><td></td><td></td><td></td><td>of the Government is sought vide letter dated 26.05.2020 for initiating disciplinary proceedings on all the concerned retired officers of BWSSB (copy of the letter enclosed)</td><td>
<table>
<tr><td></td><td></td><td>& 10.05.2013 to 29.03.2014)</td></tr>
<tr><td>2</td><td>S.M. Ramakrishna</td><td>Chief Engineer (29.03.2014 to 11.06.2013) & as Chief Engineer WWM (I/c) & (11.06.2014 to 31.07.2014) as Chief Engineer WWM</td></tr>
<tr><td>3</td><td>S.R. Roopa Kumar</td><td>Additional Chief Engineer (31.010.2007 to 05.06.2008)</td></tr>
<tr><td>4</td><td>S.P. Rudra Murthy</td><td>Additional Chief Engineer (05.06.2008 to 13.06.2012)</td></tr>
<tr><td>5</td><td>V. Mahesh</td><td>Additional Chief Engineer (27.03.2013 to 10.07.2015)</td></tr>
<tr><td>6</td><td>K.R. Manjunath</td><td>Additional Chief Engineer (10.07.2015 to 28.10.2016)</td></tr>
<tr><td>7</td><td>B.M. Purushotham</td><td>Executive Engineer (29.10.2007 to 23.05.2008)</td></tr>
<tr><td>8</td><td>C. Abdul Nazir</td><td>Executive Engineer (23.05.2008 to 04.01.2012)</td></tr>
<tr><td>9</td><td>B.N. SiddaGangaiah</td><td>Executive Engineer (04.01.2012 to 31.08.2012) & from 31.08.2012 to 15.11.2012</td></tr>
<tr><td>10</td><td>C.C. PuttaMallappa</td><td>Executive Engineer (15.11.2012 to 26.08.2013)</td></tr>
<tr><td>11</td><td>B.S.C. Soma Shekar</td><td>Executive Engineer (26.08.2013 to 07.06.2014)</td></tr>
</table>
</td><td></td></tr>
</table>

ANNEXURE XV

LIST OF INDUSTRIES FOR WHICH ENVIRONMENTAL COMPENSATION HAS BEEN IMPOSED

Sl No	Name and Address of the Industry	Category	Amount in lakhs
1	Saify Industries, Plant 3, Plot No.75, Jigani Industrial Area, Anekal Taluk, Bangalore Urban District	MR	50
2	Rathna Enterprises, Sy No. 577, 85 CI, 1st Phase,Jigani Indsutrial Area, Jigani, Anekal Taluk, Bangalore Urban District	SR	25
3	Sun Clad Coaters, Plot No. 18/A, KSSIDC Industrial Area, Jigani 2nd Phase, Anekal Taluk, Bengaluru Urban District	SR	25
4	Kumar Organic Products Private Limited, ; Plot NO:62, Road NO:3 & 5, Jigani Industrial Area, Anekal Taluk, Bangalore Urban District – 560105	LR	100
5	Kumar Organic Products Limited ; Plot No.60/65, Road No.3, Jigani Industrial Area, Anekal, Bangalore Urban – 562106	LR	100
6	Power Control Equipments. , Unit II, Plot No. 40-A, KIADB Industrial Area, Jigani I Phase, Jigani, Anekal Taluk, Bangalore	MR	50
7	Keshav Industries, Plot No. SPL-1, KSSIDC, 2nd Phase, Jigani Industrial Area, Anekal Taluk, Bengaluru Urban District-560105	SR	25
8	Govardhan Accumulators, Plot No. 81-E , 2nd Phase, Jigani Industrial Area, Anekal Taluk, Bengaluru Urban District	SR	25
9	Arihant Metals and Extruded Pvt. Limited, Plot No. 9-L, Yarandahalli,Bommasandra Industrial Area 1st Phase, Anekal Taluk, Bangalore	MR	50
10	Ravi Industries, No. 206, Sy.No. 239P, Bommasandra Jigani Link Road, Industrial Area, Anekal Taluk, Bangalore	SR	25
11	K. K Industries, Plot No. 162/A, Bommasandra Jigani Link Road, 4th Phase, Bommasandra Industrial Area, Rajapura Village, Jigani Hobli, Anekal Taluk,Bangalore Urban District	SR	25
12	Omax Autos Limited.,Plot No. 06, 4th Phase, Bommasandra Jigani Link Road, Anekal Taluk, Bangalore Urban District	LR	100

13	Stellance Pharma science Private Limited.,(Formerly M/s. Karnataka Chemsyn Limited)., Plot No.456 A & B, Road No. 3, Industrial Area, Jigani, Anekal Taluk, Bangalore.	LR	100
14	Aron Universal Limited., Sy.No. 25/1, 2nd Phase, Jigani Industrial Area, Jigani, Anekal Taluk, Bangalore	LR	100
15	Anand Industries, Shed No.B-87, Bommasandra Industrial Estate, I Stage, Hosur Road, Anekal Tq, Bengaluru Urban District – 560099	SR	25
16	Siera Silk Mills Private Limited, Plot No. 51, Bommasandra - Jigani Link Road Industrial Area, 4th Phase, Anekal Taluk, Bangalore Urban District- 560 099	LR	100
17	Golden Enviro Creators, # 278, Bommasandra - Jigani Link Road, Jigani Hobli, Anekal Taluk, Bangalore	SR (CSTP)	25
18	Hikal Ltd., (Ralchem Limited,,) ; Plot No:82/A, Kiadb, , Jigani Industrial Area, Anekal, Bangalore Urban - 562106,	LR	100
19	Toyota Industries Engine (I) Pvt Limited (Formerly known as Kirloskar Toyota Textile Machinery Private Limited), (TIEI) Plot NO: 9, Jigani Industrial Area, Anekal Taluk, Bangalore Urban District - 562 106	LR	100
20	Taegutec India Private Limited, Plot No. 119 & 120, 4th Phase, Bommasandra Industrial Area, Anekal Taluk, Bangalore Urban District	LR	100
21	Radhamani Textiles Private Limited (Formerly known as Radhamani Exports Limited) , Plot No. 314(P), 315(P), 316- 318 & 319(P), Bommasandra - Jigani Link Road Industrial Area, 4th Phase, Anekal Tq	MO	50
22	Sandhar Automotives (SLD Auto (A Unit of Sandhar Technologies Limited), Plot No. 8, Bommasandra - Jigani Link Road Industrial Area, 4th Phase, Anekal Taluk, Bangalore Urban District- 560 099	LR	100
23	Indo Nissin Foods Private Limited, Plot ; NO:18-A2., Jigani Industrial Area, Anekal Taluk, Bangalore Urban District - 562 106	LO	100
24	Anand Sweets & Savouries, NO.31-A, Road No.2, 1st Phase, Anekal Taluk, Bangalore.	SR	25
25	Resil Chemicals Private Limited, Plot No. 53-57, IV Phase, Bommasandra Industrial Area, Anekal Taluk, Bangalore Urban Dist	LR	100

26	M/s. Adcock ingram Limited Plot No. 49, B C & D Bommasandra Indl Area, 1st Stage, Hosur Road, Attibele Hobli, Anekal Taluk, Bengaluru - 560099	LO	100
27	M/s Anand Industries,Shed No.B-87, Bommasandra Industrial Estate, I Stage, Hosur Road, Anekal Tq,Bengaluru Urban District – 560099	SR	25
28	M/s Switchgear & Control Technics Pvt. Ltd., Plot No. 152, Bommasandra Industrial Area, Hosur Road, Anekal Taluk, Bangalore – 560 099.	LO	100
29	M/s GRG Fine Foods Pvt. Ltd. Plot No.121H, Bommasandra IndustrialArea,Hosur Main Road,Anekal Taluk, Bangalore Urban Dist-560 099	SO	25
30	M/s. Saify Industry, Plant -1, Plot No. 49 A-1, Bommasandra Industrial Area, 5th Cross, Off: Hosur Road, Anekal Taluk, Bengaluru 560 099	MR	50
31	M/s. Sansera Engineering Ltd,(Formley Known as Gearock Forge Private Limited, Plot No. 143-B8, BIA,Hebbagodi Post, Anekal Taluk,Bangalore Urban District.	MO	50
32	M/s Mysore Fruit Products, Sy No.39 to 69, Veerasandra Village, Anekal Taluk, Bangalore Urban District.	LO	100
33	M/s. Ramsons Garment Finishing Equipment Pvt Ltd, (IFB industries Ltd.,) Plot No. 3-B, Bommasandra Industrial Area, I Phase, Anekal Taluk, Bangalore Urban District- 560 099	MR	50
34	M/s. Vinir Engineering Private Limited, Plot No. 102/104, Bommasandra Industrial Area, Anekal Taluk, Bangalore Urban District.	LO	100
35	M/s Ananda MotorsNo. 55, Opp. SKF, Hebbagodi, MBT Compound, Bommasandra Industrial AreaAnekal Taluk, Attibele Hobli, Bengaluru	SO	25
36	Bill forge Pvt. Ltd., Plot No. 9C Bommasandra Indl Area, Hosur Road, Attibele Hobli, Anekal Taluk	LR	100
Total Rs.			**2350**

भारतीय मानक
Indian Standard

IS 4955 : 2020

ANNEXURE XVI

घरेलू धूलाई के लिए अपमार्जक पाउडर — विशिष्टि

(पाँचवां पुनरीक्षण)

Household Laundry Detergent Powders — Specification

(Fifth Revision)

ICS 71.100.40

भारतीय मानक ब्यूरो
BUREAU OF INDIAN STANDARDS
मानक भवन, 9 बहादुरशाह ज़फर मार्ग, नई दिल्ली – 110002
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI-110002
www.bis.gov.in www.standardsbis.in

August 2020

Price Group 7

FOREWORD

This Indian Standard (Fifth Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Soaps and other Surface Active Agents Sectional Committee had been approved by the Chemical Division Council.

Synthetic detergents produced in the country are mainly of the alkyl aryl type, such as sodium salts of alkyl benzene sulphonic acid for which a separate Indian Standard IS 9985 Specification for sodium alkyl benzene sulphoriate, technical is available.

This Indian Standard was originally published in 1968 and it covered primarily the spray dried powders produced by large scale sector. It was revised for the first time in 1978 incorporating another grade of the material produced by dry mixing of the ingredients, such powders have higher bulk density as compared to those produced by spray drying process. Thereafter, the standard was revised in 1982 incorporating two additional grades of the material in accordance with prevailing manufacturing practice and for the third time in 1991. During the third revision the requirement for *p*H had been substituted with 'active alkalinity' as it was felt that this characteristic would more explicitly reflect the effect of alkaline materials used in the formulation of detergents and their skin irritation potential from the physico-chemical angle as compared to the requirement for *p*H. The limits for active detergents and sodium tripolyphosphate (STPP) were modified. In the fourth revision performance based requirements incorporated and Grade 3 had been deleted as distinction of product of Grade 3 and Grade 4 for performance like cleaning and ash built up was not possible. Performance requirements like detergency and ash built up had also been incorporated in fourth revisions it matches the performance defined by the current Grades 1, 2 and 3 formulations of the standard and for the modified Grade 3 limit for active ingredient had been changed.

Presence of phosphorous in excess in water body is known to cause eutrophication leading to algal growth, thereby posing risks to aquatic life. Apart from fertilizer industry, phosphorous based compounds (for example, phosphates, phosphonates etc.) used in detergent products can contribute to the above. Therefore, in pursuit of minimizing the environmental impact, the committee responsible for formulation of this standard has decided to revise it again. Hence, besides amalgamation of all amendments, the maximum limit of phosphate has been restricted in this revision. Further, the use of Zeolite, which is a non-phosphate based builder and use of co-builders enzymes (bio-based actives) for detergent has been recommended as an alternative to phosphate based builder. Tri-sodium citrate has also been incorporated in list of conventional builders and additives since it has the potential to replace phosphates and is more environment friendly than the phosphates.

It is necessary that the raw materials used in the formulation of detergents are such that in the concentration in which they will be present in the finished product, after interaction between them are free from any harmful effects. For determining the suitability of a new formulation or of a new raw material used in formulations for skin safety, necessary tests as prescribed in IS 11601 : 2002 Methods of safety evaluation of synthetic detergents — Tests for skin irritation and sensitization potential of synthetic detergents need to be followed.

A scheme for labelling environment friendly products to be known as ECO Mark has been introduced at the instance of Ministry of environment, Forest and Climate Change (MoEF&CC). The ECO Mark shall be administered by the Bureau of Indian Standards (BIS) under the *BIS Act*, 2016 as per the Resolution No 71 dated 20 February 1991 published in the Gazette of the Government of India. For a product to be eligible for ECO Mark, it shall carry the standard mark of BIS for quality besides meeting additional optional environment friendly (EF) requirements.

This standard covers **6.1** which calls for an agreement between the purchaser and the supplier.

This standard was formulated by CHD 25 technical committee. The list of experts who made significant contribution to the revision of this standard is given at Annex M.

For the purpose of deciding whether a particular requirement of this standard is complied with the final value, observed or calculated, expressing the result of a test or analysis shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

Indian Standard

HOUSEHOLD LAUNDRY DETERGENT POWDERS — SPECIFICATION

(Fifth Revision)

1 SCOPE

This standard prescribes requirements, methods of sampling and tests for laundry detergent powders for household use.

2 REFERENCES

The Indian Standards listed below contain provisions which through reference in this text, constitute provisions of this Indian Standard. At the time of publication, the editions indicated were valid. All standards are subject to revisions, and parties to agreements based on this Indian Standard are encouraged to investigate the possibility of applying the most recent editions of the Indian Standards indicated below:

IS No	*Title*
199:1989	Textiles — Estimation of moisture, total size or finish, ash and fatty matter in grey and finished cotton textile materials (*third revision*)
264 : 2005	Nitric acid — Specification (*third revision*)
265 : 1993	Hydrochloric acid — Specification (*fourth revision*)
1070 : 1992	Reagent grade water — Specification (*third revision*)
4262 : 2002	Sulphuric acid — Code of safety (*first revision*)
4707 (Part 1) : 2017	Classification for cosmetics raw materials and adjuncts: Part 1 Colourants (*third revision*)
(Part 2) : 2017	Classification for cosmetic raw materials and adjuncts: List of raw materials generally not recognized as safe for use in cosmetics (*fourth revision*)
5785 (Part 4) : 1976	Methods of performance tests for surface active agents: Part 4 Relative detergency (*first revision*)
7597 : 2001	Glossary of terms relating to surface active agents (*first revision*)
8401 : 1994	Alkyl benzene sulphonic acid (acid slurry) — Specification (*first revision*)
9458 : 1994	Synthetic detergents for washing woollen and silk fabrics — Specification (*first revision*)
9985 : 1992	Sodium alkyl benzene sulphonate, technical — Specification (*first revision*)
11601 : 2002	Methods of safety evaluation of synthetic detergents — Tests for skin irritation and sensitization potential of synthetic detergents (*first revision*)
12795 : 1989	Linear alkyl benzene — Specification
13933 : 1995	Method of test for ready biodegradability of surface active agents (modified Sturm test)
15267 : 2003	Zeolite detergent grade — Specification

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 7597 shall apply.

4 GRADES

The material shall be of the following three grades:

a) Grade 1,

b) Grade 2, and

c) Grade 3.

5 REQUIREMENTS

5.1 Description

The material shall be in the form of a free flowing powder, free from any unpleasant odour, and shall possess good lathering and cleaning properties. In addition to moisture, it may contain substances, such as colouring matter, preservatives, powder conditioners, opacifiers and optical brightening agents.

5.2 Active Ingredients

The active ingredients used in the formulation of synthetic detergent powders shall comprise one or more of the surface active agents, namely, linear alkyl benzene sulphonate, secondary alcohol sulphate, fatty alcohol sulphate, fatty alcohol ethoxylate, salts of sulphated fatty alcohol ethoxylate, sodium alpha sulpho fatty acid esters, alpha olefin sulphonate, soap, sugar esters and other non-ionic detergents.

5.2.1 If sodium alkyl benzene sulphonate is used as the active ingredient, it shall be manufactured from alkyl benzene sulphonic acid conforming to IS 8401 for which linear alkyl benzene conforming to IS 12795 shall be the starting material.

5.2.2 All other active ingredients shall conform to the relevant Indian Standards, as and when available.

5.3 Formulation

In addition to the active ingredients specified in **5.2** and **5.2.2**, the formulation may contain one or more of conventional builders or additives as given in Annex A.

5.3.1 In case non-ionic active detergent is used, the total active ingredient shall be determined by the method given in Annex B of IS 9458. If soap is present in the detergent formulation, the result as determined above will include non-ionic detergent and soap.

5.3.2 The material shall not contain any plastic microbeads or other synthetic abrasive material.

5.3.3 The material may contain permitted colour as given in IS 4707 (Part 1). The material shall not contain any ingredient above the limit as given in IS 4707 (Part 2).

5.4 The material shall pass the test for skin irritant and sensitization potential when evaluated as per the method prescribed in IS 11601.

NOTE — This requirement has also been identified as specific requirement for ECO Mark.

5.5 The synthetic detergent powders shall not cause any damage to the fabrics during wash.

5.6 The material shall also comply with the requirements given in Table 1.

5.7 Additional Requirements for ECO Mark

5.7.1 *General Requirements*

5.7.1.1 The product shall conform to the requirements for quality safety and performance prescribed under **5.1** to **5.6** except that for phosphate content which shall be substituted with alternate environment friendly builder(s) to maintain similar detergency when tested according to IS 5785 (Part 4).

5.7.1.2 The manufacturers shall produce to BIS environmental consent clearance from the concerned State Pollution Control Board as per the provisions of the *Water (Prevention and Control of Pollution) Act*, 1974 and *Air (Prevention and Control of Pollution)*

Table 1 Requirements for Household Laundry Detergent Powders

(*Clauses* 5.6, 7.2.1 7.2.2, 7.3.1 *and* 8.1)

Sl No.	Characteristics	Requirements for			Method of Test, (Ref to Annex)
		Grade 1	Grade 2	Grade 3	
(1)	(2)	(3)	(4)	(5)	(6)
i)	Active ingredient percent by mass, *Min*	19	16	10	B
ii)	Total phosphates expressed as P_2O_5 content percent by mass, *Max* (*see* Note 1 and 2)	2.5	2.5	2.5	D
iii)	Sodium tripolyphosphate (STPP) percent by mass, *Max* (*see* Note 2)	2.5	2.5	2.5	E
iv)	Active alkalinity (ml of 0 1 N HCI to titrate 50 ml of 1 percent product solution to phenolphthalein end point), *Max*	15	20	30	F
v)	Percent detergency, *Min*	65	55	45	G
vi)	Ash built up percent, *Max*	1	5	10	H

NOTES

1 Total phosphate content including phosphate based builder (as recommended in Annex A) shall not exceed2.5 percent by mass for grade I, grade II and grade III.

2 Use of Zeolite (*see* IS 15267) as an alternative to phosphate based builder is recommended.

Act,1981 along with the authorization, if required under *Environment (Protection) Act*, 1986 while applying for ECO Mark.

5.7.2 *Specific Requirements*

5.7.2.1 The material shall not contain any phosphate when tested as per the method prescribed in Annex D. Any other substitute used shall be environmental friendly but should be in sufficient quantity to ensure similar performance of the product as compared to that of phosphates.

5.7.2.2 The material shall pass the test for skin irritant and sensitization potential when evaluated as per the method prescribed in IS 11601.

5.7.2.3 The surfactants used in the manufacture of household laundry detergent powders shall be readily biodegradable when tested by modified sturm test as prescribed in IS 13933.

6 PACKING AND MARKING

6.1 Packing

6.1.1 The material shall be suitably packed as agreed to between the interested parties. The packing shall be capable to prevent any moisture absorption.

6.1.2 For ECO Mark the product shall be packed in such packages which are made from recyclable/ reusable or biodegradable materials and declared by the manufacturer and may be accompanied with detailed instructions for proper use of product.

6. 2 Marking

6.2.1 Each package shall be securely closed and marked with the following information:

a) Name and grade of the material;

b) Indication of the source of manufacture;

c) Net mass of the material, when packed;

d) Batch number or lot number in code or otherwise;

e) Month and year of manufacture;

f) A cautionary notice: Detergent solutions can be skin irritants. Avoid prolonged contact. Rinse garments and hands thoroughly.

g) The following critical ingredients in descending order of quantity, percent by mass:

1) Active ingredients,

2) Builders,

3) Soda ash,

4) Fillers, and

5) Enzymes, if any.

6.2.2 *BIS Certification Marking*

The product(s) conforming to the requirements of this standard may be certified as per the conformity assessment schemes under the provisions of the *Bureau of Indian Standards Act*, 2016 and the Rules and Regulations framed thereunder, and the products may be marked with the Standard Mark.

6.2.3 The following information shall be marked on the label for ECO Mark:

a) List of identified critical ingredients in descending order of quantity, percent by mass [*see* **6 2.1**(g)]; and

b) The criteria for which the product has been labelled as ECO Mark.

NOTE — Loss in mass, even in packed condition, may occur on account of moisture loss due to environmental conditions.

7 SAMPLING

7.1 General

General precautions for drawing samples, its scale and preparation of test samples shall be as prescribed in Annex J.

7.2 Number of Tests

7.2.1 Tests for the estimation of characteristics prescribed at Sl No. (i), (iii), (v) and (vi) of Table 1 shall be conducted on each of the individual samples separately.

7.2.2 Tests for the estimation of the remaining characteristics prescribed in Table 1 shall be conducted on the composite sample.

7.3 Criteria for Conformity

7.3.1 *For Individual Samples*

For each of the characteristics which has been determined on the individual samples (*see* **7.2.1**) the mean ($\bar{x}$) and the range (R) of the test results shall be calculated as follows:

$$\text{Mean } (\bar{x}) = \frac{\text{Sum of test results}}{\text{Number of test results}}, \text{and}$$

Range (R) = Difference between the maximum and minimum value of the test results.

The lot shall be deemed as conforming to the requirement if the expression ($\bar{x}$ - 0.4 R) is greater than or equal to minimum value given at [Sl No. (i) and (v)] of Table 1 and the expression ($\bar{x}$+0. 4 R) is less than or equal to maximum value given at [Sl No. (vi)] of Table 1.

7.3.2 *For Composite Sample*

For declaring the conformity of the lot to the requirements of the other characteristics determined on the composite sample, the test results for each characteristic shall satisfy the relevant requirement.

8 TESTS

8.1 Tests to evaluate the characteristic prescribed in Table 1 shall be conducted as prescribed in Annexes B to J. Reference to relevant clauses of Annex is given in col 6 of Table 1.

8.2 Quality of Reagents

Unless otherwise specified pure chemicals and distilled water (*see* IS 1070) shall be used in tests.

NOTE — Pure chemicals shall mean chemicals that do not contain impurities which affect the results, of analysis.

ANNEX A

(*Clause* 5.3 *and note under Table* 1)

LIST OF CONVENTIONAL BUILDERS AND ADDITIVES

1 Crystalline sodium aluminosilicate (zeolite)
2 Trisodium phosphate
3 Sodium carbonate
4 Tetra sodium pyrophosphate
5 Sodium tripolyphosphate
6 Sodium hexametaphosphate
7 Sodium carboxymethyl cellulose
8 Sodium silicate
9 Sodium bicarbonate
10 Borax
11 Optical brighteners
12 Lather boosters
13 Sodium sulphate/sodium chloride
14 Perfume
15 Preservatives
16 Chelating agents (sequestering agents)
17 Colours
18 Enzymes
19 Bleach and bleach activators
20 Tri sodium citrate

ANNEX B

[*Clause* 8.1, *and Table* 1, *Sl No.* (i)]

DETERMINATION OF ACTIVE INGREDIENT BY CATION TITRATION

B-1 GENERAL

In this prescribed method, the molecular mass of active matter has been taken as 342. In practice, the molecular mass of sodium alkyl benzene sulphonate varies from 337 to 347 depending on the molecular mass of alkyl benzene used for sulphonation. This method shall therefore, be used for routine analysis. In case of any dispute or doubt, the molecular mass of sodium alkyl benzene sulphonate shall be determined by the method prescribed in Annex C and which then used in calculating the active ingredient content by this method.

B-2 OUTLINE OF THE METHOD

A solution of the anionic detergent is shaken with methylene blue in chloroform, which dissolves the methylene blue salt of the detergent. The mixture is titrated with a cationic active agent which combines with all the free anions of detergent and begins to displace methylene blue from the salt. The end point is taken when sufficient methylene blue has been displaced into the aqueous layer to produce phases of equal colour intensity. As the reaction is not stoichiometric, it is essential to carry out standardization using a known anionic detergent similar in nature to the unknown.

NOTE — Hypochlorites and sulphites interfere with detection of the end point and should be destroyed by the addition of ferrous sulphate and hydrogen peroxide respectively.

B-3 APPARATUS

B-3.1 Volumetric Flasks, 1 000 ml, 500 ml and 250 ml capacity

B-3.2 Stoppered Graduated Cylinder, 100 ml capacity

B-3.3 Graduated Cylinder, 50 ml capacity

B-3.4 Burette, 25 ml capacity

B-3.5 Pipette, 10 ml capacity

B-3.6 Beaker, 250 ml capacity

B-4 REAGENES

B-4.1 Chloroform, chemically pure

B-4.2 Sulphuric Acid, 5 N

Carefully and slowly add 134 ml of sulphuric acid (relative density 1.84) to 300 ml of water with continuous stirring and cool to room temperature and dilute to 1 litre.

CAUTION — Highly corrosive, causes severe burns. Use necessary safety implements (*see* IS 4262).

B-4.3 Standard Sulphuric Acid, 1.0 N

B-4.4 Standard Sodium Hydroxide Solution, 1.0 N

B-4.5 Standard Sodium Lauryl Sulphate Solution, 0.004 M

Check up purity of sodium lauryl sulphate as given in **B-4.5.1** and simultaneously prepare the standard solution.

B-4.5.1 *Determination of Purity of Sodium Lauryl Sulphate*

Weigh 5 ± 0.2 g of sodium lauryl sulphate to the nearest 1 mg into a 250 ml round bottom flask with ground glass neck. Add exactly 25 ml of standard sulphuric acid (*see* **B-4.3**) and reflux under water condenser. During the first 5 to 10 min, the solution will thicken and tend to foam strongly which is controlled by removing the source of heat and swirling the contents of the flask in order to avoid excessive foaming, instead of refluxing. The solution may be left on a boiling water bath for further 10 min. After the foaming ceases and solution clarifies, reflux the solution for further one and half hours. Remove the source of heat, cool the flask and carefully rinse the condenser with 30 ml of ethanol followed by water. Add a few drops of phenolphthalein indicator solution and titrate with standard sodium hydroxide solution. Carry out a blank test by titrating 25 ml of standard sulphuric acid (*see* **B-4.3**) with standard sodium hydroxide solution.

Sodium lauryl sulphate content, percent by mass = $\frac{28.84(V_1 - V_0)N_1}{m_1}$

where,

V_0 = volume of standard sodium hydroxide solution used for the blank, in ml;

V_1 = volume of standard sodium hydroxide solution used for the sample, in ml;

N_1 = normality of standard sodium hydroxide solution; and

m_1 = mass of sodium lauryl sulphate taken for the test, in g.

B-4.5.2 *Procedure*

Weigh 1.14 to 1.16 g of sodium lauryl sulphate to the nearest 1 mg and dissolve in 200 ml of water. Transfer to a ground-glass stoppered one litre volumetric flask and dilute to the mark with water. Calculate the molarity, M_1 of the solution as follows:

$$M_1 = \frac{m_2 \times \text{purity, percentage by mass}}{288.4 \times 100}$$

where,

m_2 = mass of sodium lauryl sulphate taken, in g.

B-4.6 Standard Benzethonium Chloride Solution — 0 .004 M

Weigh 1.75 to 1.85 g of benzethonium chloride to the nearest 1 mg and dissolve in water. Transfer to a ground glass-stoppered 1 litre volumetric flask and dilute to the mark with water.

NOTES

1 In order to prepare a 0 .004 M solution, dry the benzethonium chloride at 105°C. Weigh 1.92 g to the nearest 1 mg, dissolve in water and dilute to 1 litre. While drying care shall be taken that temperature should not exceed beyond 105°C.

2 Other cationic reagents, such as cetyltrimethyl ammonium bromide give results identical to those obtained using benzethonium chloride. However, these tests have not been carried out in sufficient number to make it possible to state that the results will be identical no matter what the product analysed for that reason. If benzethonium chloride is not available, it is permitted to use another reagent and same should be stated in the test report. However in case of any dispute, only benzethonium chloride shall be used.

B-4.7 Phenolphthalein Indicator Solution

Dissolve 1 g of phenolphthalein in 100 ml of 95 percent (*v*/*v*) ethanol.

B-4.8 Methylene Blue Solution (0 .005 Percent)

Dissolve 0.05 g of methylene blue, 50 g of sodium sulphate and 6.8 ml of concentrated sulphuric acid in water and make up the volume to 1 l with water.

B-4.9 Sample Solution

Weigh a suitable quantity of the sample measured quantity of water so that resultant solution contains 100 to 160 mg of anionic active matter per 100 ml. About 0.65-0.70 g of sodium alkyl benzene sulphonate (based on 100 percent purity) or 4.5 g of the sample having around 16 percent anionic active matter content per 500 ml of the solution is suitable.

B-5 PROCEDURE

B-5.1 Standardization of Benzethonium Chloride Solution

B-5.1.1 Pipette 10 ml of standard sodium lauryl sulphate solution (*see* **B-4.5** and **B- 4.5.2**) in a 100 ml graduated cylinder provided with a glass stopper. Add 15 ml of chloroform and 25 ml of methylene blue solution to the cylinder. Shake well. The chloroform layer (lower) will be coloured blue or greenish blue.

B-5.1.2 From the burette, add benzethonium chloride solution slowly, initially in portions of 0.2 ml at a time. After each addition, stopper the cylinder, shake well and allow the phases to separate. Initially the chloroform phase will be coloured blue or greenish blue. Towards the end, thecolour would start migrating to the aqueous layer. Note the reading at which the colour intensity in both the phases is the same when viewed under standard conditions of light, for example, against a white porcelain tile, under normal daylight.

B-5.1.3 Calculate the molarity of benzethonium chloride solution as follows:

Molarity of benzethonium chloride solution, $M_2 = \frac{10 M_1}{V_1}$

where

M_1 = molarity of sodium lauryl sulphate solution (**B-4.5.2**), and

V_1 = volume of benzethonium chloride solution added, in ml.

B-5.2 Determination of Anionic Active Matter

Take 10 ml of the sample solution (**B-4.9**) instead of sodium lauryl sulphate solution and proceed as described in **B-5.1**.

B-5.3 Calculate the anionic active matter as sodium alkyl benzene sulphonate as follows:

Anionic active matter, percent by mass =

$$\frac{342 \times V_2 \times M_2 \times 5}{m_2}$$

where

342 = molecular mass of sodium alkyl benzene sulphonate taken for calculation,

V_2 = volume of benzethonium chloride solution added, in ml,

M_2 = molarity of benzethonium chloride solution (**B-5.1.3**), and

m_2 = mass of the sample, in g.

ANNEX C

(*Clauses* 8.1 *and* B-1)

DETERMINATION OF MOLECULAR MASS OF SODIUM SALT OF ALKYL BENZENE SULPHONIC ACID

C-1 APPARATUS

C-1.1 Beakers, 150 and 1 000 ml capacity.

C-1.2 Buchner Flask, 500 ml capacity, fitted with a sintered glass filter funnel (porosity 4).

C-1.3 Separating Funnels, 1 000 ml capacity.

C-1. 4 Wide-Mouthed Flat-Bottom Flask, 200 ml capacity.

C-1.5 Air-Oven, preferably electrically heated with temperature control and display device.

C- 1.6 Steam Bath

C-2 REAGENTS

C-2.1 Caustic Soda Solution, 10 percent (*m/v*)

C-2.2 Ethyl Alcohol, 30 percent, 96 percent and absolute (*v/v*).

C-2. 3 Diethyl Ether

C-2.4 Acetone

C-2.5Phenolphthalein Indicator, 1 percent solution in 95 percent (*m/v*) ethyl alcohol.

C-2.6 Methyl Orange Indicator, 0.1 percent (*m/v*).

C-2.7 Ferric Ammonium Sulphate Indicator, saturated solution.

C-2.8 Standard Sulphuric Acid, approximately 0.1 N.

C-2.9 Standard Sliver Nitrate Solution, approximately 0.1 N.

C-2.10 Standard Ammonium Thiocyanate Solution, Approximately 0.1 N.

C-2.11 Nitric Acid, Concentrated, relative density 1.42.

C-2.12 Nitrobenzene

C-3 PROCEDURE

C-3.1 Weigh about 3 g of the material into a 150 ml beaker. Dissolve in minimum quantity of water and neutralize with caustic soda solution, if required. Evaporate on a steam bath to almost complete dryness. Digest with 50 ml of 96 percent ethyl alcohol by heating on a steam bath for about 2 min. Stir and break up any hard lumps with a glass rod flattened at one end. Allow the solid matter to settle and decant the hot alcoholic solution through a sintered glass filter funnel fitted to a Buchner flask to which suction is applied. Repeat the alcoholic digestion in a similar manner with 5 further consecutive 30 ml portions of boiling ethyl alcohol. Filter each extract in turn through the same sintered glass funnel and finally, wash the residue five times with hot ethyl alcohol to remove all the alcohol soluble. Evaporate the combined filtrate to approximate 50 ml in an evaporating dish and transfer it to a separating funnel. Rinse the evaporating dish once with 50 ml of 96 percent ethyl alcohol and then four times with 50 ml portions of water. Add each wash in turn to the separating funnel. Add 150 ml of diethyl ether,

swirl gently to ensure adequate mixing, and allow the two phases to separate. Run off the aqueous alcoholic layer into a second separating funnel, and extract twice with 75 ml portions of diethyl ether. Transfer the aqueous alcoholic phase into a beaker, and combine the three ether extracts.

C-3.2 Take the combined ether extracts in a clean separating funnel. Wash three times successively with 50 ml portions of 30 percent ethyl alcohol and then successively with 50 ml portions of water until the ether phase is free from alcohol, usually 7 to 10 water washes are necessary. Combine all the alcoholic and aqueous extracts, neutralize to phenolphthalein and evaporate on a steam bath until the volume is reduced to about 25 ml. Add an equal volume of absolute alcohol and evaporate to dryness. The solution should remain pink to phenolphthalein throughout evaporation. To ensure that the residue is completely anhydrous, add 30 ml of hot absolute alcohol and again evaporate to dryness. Extract the residue with 30 ml of hot 96 percent ethyl alcohol, stirring and breaking up the solid matter in the dish with a glass rod. Allow the solid matter to settle and decant the hot alcoholic solution through a sintered glass filter funnel fitted to a Buchner flask to which suction is applied. Extract the residue in the dish with further six consecutive 30 ml portions of hot 96 percent alcohol. Pass each extract in turn through the sintered glass filter. Finally, wash the residue in the sintered glass filter three times with about 20 ml of hot 96 percent ethyl alcohol from the jet of a wash bottle.

C-3.3 Transfer the filtrate and washing in the Buchner flask to a wide-mouthed flat-bottom flask, evaporate nearly to dryness on a water-bath, and drive off the remaining solvent by directing a gentle stream of dry air into the flask whilst continuously rotating the latter on the water bath, a thin film of active matter, easy to dry, is thereby obtained. Add 10 ml of acetone, evaporate and remove the last traces of solvent as prescribed above, cool in a desiccator and weigh. Heat the flask for not more than 5 min in an air oven at a temperature of 100 ± 1°C, gently blow out with a current of air, cool and re-weigh. Repeat this drying process until the difference between two successive weighing does not exceed 3 mg.

C-3.4 The extract obtained contains active matter, some sodium chloride and possible traces of alkali carbonates which may have passed through the filter in the presence of the detergent. Find the percentage of sodium carbonate and sodium chloride in the extract by using a portion of the extract as prescribed in **C-3.4.1** and **C-3.4.2** respectively.

C-3.4.1 *Determination of Alkali Carbonates*

Weigh accurately about 1 g of the extract. Dissolve it in cold water, add a few drops of methyl orange indicator and titrate with standard sulphuric acid to methyl orange end point.

C-3.4.1.1 *Calculation*

$$\text{Mass of the sodium carbonate, in g} = \frac{0.053 \times V_1 \times N_1 \times m_1}{m_2}$$

where

V_1 = volume of standard sulphuric acid solution used, in ml;

N_1 = normality of the standard sulphuric acid solution;

m_1 = mass in g, of the total extract; and

m_2 = mass in g, of the extract taken for analysis.

C-3.4.1.2 Preserve the solution for the estimation of chlorides.

C-3.4.2 *Determination of Chlorides*

To the solution remaining after the estimation of alkali carbonate (*see* **C-3.4.1.2**) add 2 ml of concentrated nitric acid and 20 ml of standard silver nitrate solution. Add 3 ml of nitrobenzene and shake vigorously. Titrate with standard ammonium thiocyanate solution using ferric ammonium sulphate as indicator.

C-3.4.2.1 *Calculation*

Mass in g of sodium chloride =

$$\frac{0.058\,5 \times (20N_3 - V_2N_2) \times m_1}{m_2}$$

where

N_3 = normality of standard silver nitrate solution;

V_2 = volume of standard ammonium thiocyanate solution used, in ml;

N_2 = normality of standard ammonium thiocyanate solution;

m_1 = mass of the total extract (*see* **C-3.3**), in g; and

m_2 = mass of the extract taken for analysis in **C-3 4.1.1**, in g.

C-3.5 Weigh accurately about 0.65-0.70 g of the extract (*see* **C- 3.4**). Dissolve in water and make up to 500 ml. Follow the titration procedure given in **B-5.1** taking 10 ml of the solution for titration.

C-4 CALCULATION

Molecular mass of sodium salt of sulphonic acid =

$$\frac{100 \times m}{5 \times V_1 \times M_1}$$

where

m = mass of the extract taken after correcting for sodium carbonate and sodium chloride, in g;

V_1 = volume of benzethonium chloride solution added, in ml and

M_1 = molarity of benzethonium chloride solution.

ANNEX D

[*Clause* 8.1, *and Table* 1, *Sl No.* (ii)]

DETERMINATION OF TOTAL PHOSPHATES

D-1 GENERAL

The sample is oxidized by gently heating with sodium nitrate. Silica is removed and the condensed phosphates are hydrolysed and precipitates are heteropoly acid and not their salt. Heteropoly acid react with alkali to form individual salt of each constituent acid of heteropoly acids and precipitated as phosphomolybdate by addition of ammonium molybdate in acidic condition. Precipitate is washed with dilute potassium nitrate solution and phosphorus is determined by titration of precipitated phosphomolybdate with standard sodium hydroxide using phenolphthalein as indicator.

D-2 APPARATUS

D-2.1 Silica Dish, 7 cm diameter

D-2.2 Beaker, 250 ml capacity

D-2.3 Buchner Flask, 500 ml capacity with a sintered glass filter funnel

D-2.4 Volumetric Flask, 500 ml capacity.

D-2.5 Funnel, 7.5 cm diameter.

D-2.6 Wide-Mouthed Flat Bottom Flask, 500 ml capacity.

D-3 REAGENTS

D-3.1 Sodium Nitrate

D-3.2 Hydrochloric Acid concentrated (*see* IS 265)

D-3.2.1 *Dilute Hydrochloric Acid*

D-3.3 Nitric Acid (*see* IS 264)

D-3.4 Ammonium Molybdate Reagent

Dissolve 90 g of ammonium molybdate in hot water. Add 240 g of ammonium nitrate and stir to dissolve. Cool and add 30 ml of concentrated ammonia (0.9 relative density). Dilute to 1 litre.

D-3.5 Potassium Nitrate, 1.25 percent solution in water

D-3.6 Standard Sodium Hydroxide Solution, 1 N

D-3.7 Standard Sulphuric Acid, 1 N

D-3.8 Phenolphthalein Solution, 1 percent solution (m/v) in ethyl alcohol.

D-3.9 Potassium Hydroxide Solution, 0.1 N

D- 3.10 Sodium Carbonate

D-4 PROCEDURE

D-4.1 Weigh accurately about 1.5 g of the sample in a silica dish and mixed with about twice sample weight of equal parts of sodium carbonate and sodium nitrate mixture and heat gently over a bunsen burner until the sample is completely oxidized. Cool the mixture and add 15 ml of concentrated hydrochloric acid to dissolve the mass and evaporate to dryness. Add further 15 ml of concentrated hydrochloric acid and repeat the evaporation procedure. Finally extract the residue in 25 ml of 1:1 hydrochloric acid solution and filter the residue on filter paper through Whatman 40 filter paper. Wash 4 times with 50 ml of water. Collect the filtrate and washings and make up to 250 ml in a volumetric flask.

D-4.2 Pipette out 50 ml aliquot of solution in a 250 ml beaker. Add 10 ml of nitric acid and boil for 15 min. Cool and add 100 ml of water and adjust the temperature of the solution to 40 to 45°C. Add 50 ml of ammonium molybdate solution (previously heated to 40°C) slowly with constant stirring. Allow to stand for 30 min. Filter the precipitate through a quantitative filter paper and wash with 1.25 percent potassium nitrate solution till 5 ml of the filtrate with one drop of phenolphthalein does not require more than 3 to 4 drops of 0.1 normal caustic potash solution to produce pink colour. Transfer the filter along with precipitate to a 500 ml wide mouth flat-bottom flask and add 100 ml water. Heat over a water-bath for 15 min, cool and titrate with 1 N sodium hydroxide solution using 1 ml of phenolphthalein till the pink colour just appears, add 2 ml excess of sodium hydroxide solution. Shake well, heat to 60°C in a water-bath. Cool the solution and back titrate against 1 N sulphuric acid till the pink colour just disappears. Find the volume of normal sodium hydroxide solution required to react with the precipitate.

D-5 CALCULATION

Total phosphates as P_2O_5, percent by mass =

$$\frac{V \times N \times 0.001\ 349 \times 250 \times 100 \times 140}{m \times 5062}$$

where

V = volume of sodium hydroxide solution required to react with the precipitate, in ml;

N = normality of sodium hydroxide solution, and

m = mass of sample taken for test in g.

ANNEX E

[*Clause* 8.1, *and Table* 1, *Sl No* (iii)]

DETERMINATION OF SODIUM TRIPOLYPHOSPHATE (STPP) CONTENT

E-1 GENERAL

The procedure based on ion-exchange and paper chromatography for determination of sodium tripolyphosphate (STPP) are time consuming and lengthy. The gravimetric method prescribed here is simple, quick and does not require any special facilities.

E-2 OUTLINE OF THE METHOD

It is based on the quantitative precipitation of STPP by tris (ethylenediamine) cobalt (III) chloride as Co $(en)_3$-$H_2P_3O_{10}.2H_2O$ at 3.5 *p*H after removing the active detergent, by dissolution in alcohol, and water insoluble silica/silicates.

E-3 REAGENTS

E-3.1 *p*-Nitrophenol Indicator Solution, dissolve 0.1 g of p-nitrophenol in 100 ml of water.

E-3.2 Dilute Hydrochloric Acid, 0.5 N approximately.

E-3.3 Acetate Buffer Solution *p*H 3.5, dissolve 52.6 ml of glacial acetic acid and 6.16 g anhydrous sodium acetate in water and dilute to 500 ml.

E-3.4 Sodium Tripolyphosphate Hexahydrate ($Na_5P_3O_{10}.6H_2O$), crystallize from commercially available STPP as STPP Hexahydrate as per method prescribed in **E-3.4.1** and **E-3.4 2.**

E-3.4.1 *Procedure*

Weigh 150 g of commercial sodium tripolyphosphate, using material of low metaphosphate content. Dissolve in 1 200 ml of water, and filler to remove any suspended material. Add 300 ml of denatured spirit slowly, continuously stir, over a period of 2 h. Separate the crystals of hexahydrate by filtration using a Buchner tunnel fitted with a glass disc of medium porosity. Wash the crystals successively with 100 ml each of 25 percent, 50 percent, 75 percent and 90 percent (*v*/*v*) solutions of denatured spirit in water.

E-3.4.2 Dissolve the crystals of hexahydrate (*see* **E-3.4.1**) in 900 ml of water and salt out with 225 ml of denatured spirit using the same procedure as described above and again perform filtering and washing the crystals with the same volumes of dilute denatured spirit. Repeat the recrystallization using 675 ml of water and 170 ml of denatured spirit. Recrystallize once more using 500 ml of water and 150 ml of denatured spirit. After filtering and washing, air dry the crystals of hexahydrate for several days.

E-3.5 Tris (Ethylenediamine) Cobalt (III) Chloride

Prepare as per method explained in **E-3.5.2.1** to **E-3 5.2.4**. Use 15 to 20 percent solution of the reagent.

E-3.5.1 *Reagents*

a) Diaminoethane hydrate (ethylene diamine);
b) Concentrated hydrochloric acid (*see* IS 265);
c) Cobalt chloride ($COCl_2.6H_2O$); and
d) Denatured spirit.

E-3.5.2 *Procedure*

E-3.5.2.1 Weigh 261 g of diaminoethane hydrate into a 1 000 ml beaker. Partly neutralize with 85 ml of concentrated hydrochloric acid in 535 ml of water. Pour the mixture into a solution of 250 g of cobalt chloride in 750 ml of water in a conical flask with constant agitation/stirring. Pass a vigorous stream of air into the solution through a gas distribution tube for 8 h.

E-3.5.2.2 Transfer the solution to a 2 000 ml beaker and evaporate on a steam-bath under a stream of air until crystals form on the surface of the solution. Cool the solution and add 150 ml of concentrated hydrochloric acid under constant stirring. Warm until the crystals re-dissolve. Salt out the trisdiaminoethane cobalt(III) chloride by slowly adding of 300 ml of denatured spirit over a period of 1 h with constant stirring of solution. Cool and filter through a Buchner funnel and suction. Discontinue suction and add 150 ml of denatured spirit to the funnel and stir to wash the crystals. Re-apply suction and filter. Repeat the washings three more times. Suck dry, spread out the crystals in an evaporating dish and allow the denatured spirit to evaporate.

E-3.5.2.3 Dissolve the crystals obtained in **E-3.5.2.2** above in 200 ml of boiling water in 1 000 ml beaker with constant stirring. If the crystals do not dissolve in this volume of water, add 20 ml portion of water, reheating to boiling after each addition, until complete solution is obtained. Remove from the source of heat and salt out with 300 ml of the denatured spirit as explained above. Filter and wash as before. If four washings do not give a colourless filtrate, continue washing until the filtrate is colourless.

E-3.5.2.4 Spread out the crystals in a thin layer in large evaporating dishes and allow to air-dry overnight and then dry in an oven at 100°C overnight.

NOTE — These crystals are hygroscopic and should be freshly dried each time before weighed to prepare fresh solution. An yield of about 300 g of the dried crystals is obtainable.

E-4 PROCEDURE

E-4.1 Determination of STPP in Recrystallized Sodium Tripolyphosphate Hexahydrate ($Na_5P_3O_{10}.6H_2O$)

To the solution containing 0.2 to 0.4 g of STPP (accurately weighed) in 75 ml water, add 2 to 3 drops of p nitrophenol indicator. Add dilute hydrochloric acid dropwise with constant stirring till the indicator changes to colourless. Add 10 ml of the buffer solution to get the desired *p*H of about 3.5. Add 20 ml of isopropanol. Warm the solution at 40°C in a water bath for 15 min. Add 10 ml of cobalt reagent in portions ; first 4 ml, stir vigorously for 1 min, another 4 ml, stir again for 1 min and finally add the remaining 2 ml and stir for 2 min. Allow the precipitate to stand at 40°C for 15 min. Filter through a dry and weighed sintered glass crucible. Wash with water till the washings are free of chloride ions. Dry the crucible in an oven at 110°C for 45 min. Cool in a desiccator and weigh till constant mass is obtained.

E-4.1.1 *Calculation*

Purity of recrystallized STPP, percent by mass =

$$\frac{M_2 \times 0.649\ 5 \times 100}{M_1}$$

Where

M_2 = mass of the cobalt tripolyphosphate precipitate obtained, in g, and

M_1 = mass of recrystallized sample of STPP taken in the test, in g.

E-4.2 Determination of Tripolyphosphate Content in Detergent Powder

E-4.2.1 *Separation of Active Detergent*

Treat an accurately weighed quantity (about 3 g) of detergent powder with 10 ml of water in a 500 ml beaker. Add 75 ml of denatured spirit and stir for 10 min. Filter through a fluted filter paper (Whatman No 41 or equivalent) by decantation. Treat the residue left in the beaker with three more portions of 75 ml denatured spirit, followed by stirring and filtration by decantation after each addition. Discard the filtrate.

E-4.2.2 *Preparation of STPP Sample Solution*

Wash down the residue on the filter paper into the beaker containing most of the inorganic material using a jet from a wash bottle. Also wash down the material sticking to the sides of the beaker with water, using in all about 75 ml of water. Stir and keep aside for 15 min with occasional stirring. Filter through filter paper (Whatman No. 4 or equivalent) transferring all solids into the filter paper with help of minimum water. Wash the residue with 25 ml of water and collect the washings and the filtrate in a 500 ml beaker for STPP determination. Add a known amount of the recrystallized STPP (0.150 to 0.25 g), (*see* Note) and stir to dissolve. Add 3 to 4 drops of *p*-nitrophenol indicator. Green colour will appear. Add dilute hydrochloric acid drop wise with stirring till the indicator colour disappears. Add 10 ml of acetic acid buffer to get 3.5 *p*H. Add 15 ml of isopropanol and place the beaker in a warm waterbath (40°C) for 15 min.

NOTE — In place of adding STPP, preweighed crystals of tris (ethylenediamine) cobalt tripotyphosphate obtained from previous analysis if any, may be added before adding the cobalt reagent and finally subtracted from the mass of the precipitate for the purpose of calculation.

E-4.2.3 *Precipitation of STPP by the Cobalt Reagent*

Add 10 ml of cobalt reagent solution in portions in three instalments, first add 4 ml and stir vigorously for 2 min, then add 4 ml and again stir vigorously for 2 min and finally add 2 ml and stir for 1 min. Place the beaker containing the precipitate on water-bath (40°C) for 10 min. Add 0.15 to 0.25 g of filter aid and stir. Filter through a weighed sintered glass crucible. Wash the precipitate with water till washings are free of chloride ions. Dry the precipitate at 110°C for 1 h. Weigh till constant mass (M_4) is obtained.

E-5 CALCULATION

E-5.1 STPP in detergent powder, percent by mass =

$$\frac{[(M_4 - M_3) \times 0.694\ 5] - M_2}{M_1} \times 100$$

where

M_4 = mass of the filter-aid and precipitate obtained, in g;

M_3 = mass of filter-aid added, in g;

M_2 = mass of STPP or $[Co(en)]Cl_3$ added (calculated as anhydrous STPP), in g; and

M_1 = mass of sample of powder taken in **E-4.2.1**, in g.

ANNEX F

[*Clause* 8.1, *and Table* 1, *Sl No* (iv)]

DETERMINATION OF ACTIVE (RESERVE) ALKALINITY

F-1 APPARATUS

F-1.1 *p*H Meter

F-1. 2 Beaker, 100 ml capacity

F-1.3 Magnetic Stirrer

F-1.4 Burette

F-2 REAGENTS

F-2.1 Hydrochloric Acid, 0. 1 N

F-3 PROCEDURE

Weigh 10.0 g sample in 500 ml water and make up the volume to 1000 ml with water. Shake well and pipette out 50 ml of solution in a beaker. Place the beaker on amagnetic stirrer and mix the contents thoroughly. Note down the *p*H of the solution using a *p*H meter. With the electrode of the *p*H meter dipping in the solution and keeping the *p*H meter 'ON', add drop by drop 0.1 N hydrochloric acid from a burette till the *p*H of the solution drops to 8. While adding hydrochloric acid stir the solution continuously. Note the amount of 0.1 N hydrochloric acid required to bring down the *p*H of the solution to 8 which is a measure of the active alkalinity of the test sample.

Mean of 2 replicate measurements will give active (reserve) alkalinity expressed as amount in ml of 0.1 N hydrochloric acid.

ANNEX G

[*Clause* 8.1, *and Table* 1, *Sl No* (v)]

PROCEDURE FOR DETERGENCY TEST (POWDERS)

G-1 OUTLINE OF THE METHOD

The method prescribed here is based on the use of Terg-O-tometer. Cloth is artificially soiled and the soil is removed by washing the soiled swatches of cloth with a solution of the detergent powder to be evaluated under standard conditions. A control detergent powder (*see* below for details) is also run simultaneously. The reflectance of the unsoiled, soiled and washed swatches is measured instrumentally using a standard photoelectric reflection meter. The detergency is expressed as percentage of soil removal.

G-2 APPARATUS

G-2.1 Photoelectric Reflection Meter

With built-in galvanometer and tungsten lamp as an illuminant.

G-2.2 Terg-O-tometer

With a battery of four or six agitator washers in 2 l stainless steel beakers. The angle through which the agitators oscillated is 350°. The speed of rotation is adjustable and set at 100 strokes per minute, each back and forth movement representing one stroke. The beakers are fully immersed in an electrically controlled water-bath. The agitators and beakers are removable.

G-2.3 Cloth Soiling Machine

Electrically operated mangle with variable pressure arrangements which can be recorded and variable speed drive with attached air-drying chamber fitted with exhaust.

G-3 PREPARATION OF STANDARD SOILED CLOTH TEST SPECIMENS

Prepare soiled cloth swatches as per **6** of IS 5785 (Part 4).

G-4 CONTROL POWDER FORMULATION

AD	19
STPP	05
Zeolite	10
Co-builder-Enzyme	0.4
Soda	10
Alk silicate	10
SCMC	1
Na_2SO_4	40
Moisture	4.6
	= 100

G-5 WASHING PROCEDURE

G-5. 1 The ratio of cloth (in g) to the volume of solution (in ml) shall be 1:100.

G-5.2 Prepare 1 l solution of 0.5 percent in 300 ppm water considering the basis of product concentration used in washing. Introduce 5 soiled swatches into beakers and agitate. Wash the specimens for exactly 10 min at 27 ± 2°C.

G-5.3 Remove the beaker from the water-bath and decant the solution and rinse 3 limes with 300 ppm water.

G-5.4 Repeat with 5 more wash loads of 5 swatches each, for each formulation and control powder. Total of six replicate washings is given so that at the end, all the formulations are washed in all beakers.

G-5.5 Air dry washed swatches and measure their reflectance.

G-6 EVALUATION OF SOIL REMOVAL

Fold the desired unsoiled cloth, soiled swatches and washed swatches into four folds so as to minimize the effect of colour of background and take reflectance measurements. Operate the reflectometer in accordance with the instruction supplied with the instrument.

G-7 CALCULATION AND REPORTING

The detergency value expressed as percentage soil removed is calculated from the following equation.

$$\text{Percentage of soil removal} = \frac{W_o}{S_o} \times 100$$

where,

$$W_o = \frac{(100 - R_w)^2}{200R_w} - \frac{(100 - R_3)^2}{200R_3},$$

$$S_o = \frac{(100 - R_c)^2}{200R_c} - \frac{(100 - R_3)^2}{200R_3}, \text{ and}$$

R_c, R_w and R_3 are reflectances of clean, washed and soiled fabric pieces respectively.

Analysis of variance to be used for the handling of data and obtaining significant differences.

G-8 TREATMENT OF DATA AND REPORTING

Assign a value of 70 percent detergency to control powder. Normalise the detergency values of products by applying a correction factor, that is, 70 percent detergency value for control powders and report the normalised detergency value.

ANNEX H

[*Clause* 8.1, and *Table* 1, *Sl No* (vi)]

DETERMINATION OF ASH BUILT UP ON FABRICS

H-1 GENERAL

This test determines the built-up of ash on a fabric under the condition of test.

H-2 REAGENTS

H-2.1 Sodium Hexametaphosphate

H-2.2 Hard Water, of 300 ppm (as $CaCO_3$), made by adding 2.96 g of $MgSO_4.7H_2O$ and 2.64 g of $CaCl_2.2H_2O$ to 10 l of water.

H-2.3 Bleached Cotton Long Cloth (125 ± 25 g/m²)

H-3 EQUIPMENT

H-3.1 Washing Appliance, like standard Terg-Otometer.

H-3.2 Air Oven, with arrangements for drying of washed swatches by hanging.

H-4 PROCEDURE

H-4.1 Cut the cotton cloth into swatches of 10 cm× 10 cm size. 10 swatches are required for each set.

H-4.2 Number the raw swatches and wash them 2 times in a Terg-O-tometer with sodium hexametaphosphate solution (3 g/l) to remove the original salts present in the swatches. Rinse the swatches thoroughly with distilled water. Dry the swatches in an air oven at 105°C.

H-4.3 Stir 10 prewashed swatches (*see* **H- 4.2**) in 1 litre solution of 0.2 percent concentration of the test detergent product prepared in 300 ppm hard water at 27 ± 2°C for 20 min in a Terg-O-tometer. Rinse the swatches in 1 litre hard water of hardness 300 ppm by stirring in the Terg-O-tometer for 10 min at 27 ± 2°C.

H-4.4 Dry the swatches at 50°C in an air oven. Repeat the washing, rinsing and drying operations 25 times. After 25 washes, dry the swatches in an air oven at 105°C. Determine the ash content of both prewashed (*see* **H-4.2**) and after washed fabric with detergent sample as explained above at 800°C as per IS 199.

ANNEX J

(*Clauses* 7.1 *and* 8.1)

SAMPLING PROCEDURE FOR SYNTHETIC DETERGENTS

J-1 GENERAL REQUIREMENTS

J-1.1 Following precautions shall be taken in drawing, preparing, storing and handling samples:

J-1.1.1 Samples shall be taken in a protected place which should not exposed to atmospheric air.

J-1.1.2 The sampling instruments shall be clean and dry.

J-1.1.3 Samples, material being sampled, the sampling instruments and the containers for such samples shall be protected from adventitious contamination.

J-1.1.4 The sample shall be placed in clean and dry glass containers. The sample containers shall be of such a size that they are almost completely filled by the sample.

J-1.1.5 Each container shall be sealed air-tight after filling, and marked with full details of sampling, date of sampling batch or code number, name of manufacturer, and other important particulars of the consignment.

J-1.1.6 The samples shall be stored in such a manner that the temperature of the material does not vary markedly from ambient temperature. Samples should be protected from light.

J-2 SCALE OF SAMPLING

J-2.1 Lot

In a single consignment, all the packages containing material of the same grade and drawn from the same batch of manufacturer, shall constitute a lot. If the consignment consists of packages containing material of different grades or batch of manufacture, then the packages containing detergent of the same grade and batch of the manufacture shall be grouped together and each such group shall constitute a separate lot.

J-2.2 For ascertaining the conformity of the lot to the requirements prescribed in this standard, tests shall be carried out on each lot separately. The number (n) of packages to be selected for drawing samples shall depend upon the size (N) of the lot and shall be in accordance with Table 2.

J-2.3 The packages shall be selected at random. In order to ensure the randomness of selection, a random number table shall be used. For guidance and use of random number tables, IS 4905 may be used. In the absence of a random number table, the following procedure may be adopted:

'Starting from any package in the lot, count them in one order as 1, 2, 3 up to r and so on where r is the integral part of N/n (N being the lot size and n the number of packages to be selected). Every r^{th} package thus counted shall be withdrawn to given the required sample size.

Table 2 Scale of Sampling

(*Clause* J-2.2)

Sl No.	No or Packages in the Lot (N)	No of Packages to he Selected (n)
(1)	(2)	(3)
i)	4 to 15	3
ii)	16 to 40	4
iii)	41 to 65	5
iv)	66 to 110	7
v)	111 and above	10

NOTE — When the size of the lot is 3 packages or less, the number of packages to be selected and the criteria for judging the conformity of the lot to the specification shall be as agreed between the interested parties.

J-3 PREPARATION OF GROSS SAMPLES, TEST SAMPLES AND REFEREE SAMPLES

J-3.1 Gross Samples

J-3.1.1.1 From each one of the packages as selected in **J-2** draw one or more containers randomly. The material in the containers so chosen shall be nearly thrice the quantity required for the test as indicated in **7.2.**

J-3.1.1.2 The material from the containers as selected in **J-3.1.1** shall be mixed thoroughly to give the gross sample for the package.

J-3.2 Test Samples

J-3.2.1 Segregate carefully the gross samples (*see* **I-3.1.1.1**) of powders. From the gross sample, take a small but equal quantity of material and mix it thoroughly into a composite sample which should be of a size sufficient to carry out triplicate testing for all the characteristics specified under **7.2.** The composite sample shall be divided into three equal parts; one for the purchaser, another for the supplier, and the third for the referee.

J-3.2.2 The remaining portion of the material in each one of gross samples shall divided into three equal parts, each forming an individual sample. One set of individual samples representing the 'n' selected packages shall be for the purchaser, another for the supplier, and the third for the referee.

J-3.2.3 All the composite and individual samples shall be transferred to separate containers. These containers shall be air-tightly sealed with stoppers, and labelled with full particulars of identification given in **J-1.1.5.**

J-3.3 Referee Samples

J-3.3.1 The referee samples shall consist of a composite sample and a set of 'n' individual samples. All the containers shall bear the seals of interested parties and shall be kept at a place agreed to between the two parties.

J-3.3.2 Referee samples shall be used in case of any dispute between the purchaser and the supplier.

ANNEX M

(*Foreword*)

COMMITTEE COMPOSITION

EXPERTS WHO MADE SIGNIFICANT CONTRIBUTION TO THE DEVELOPMENT OF THIS STANDARD

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