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**Report of the Joint Committee constituted by the Hon'ble NGT (SZ), Chennai in respect of
Suo Motu Case O. A. No. 163 of 2020 regarding Kalingarayan Canal Water Pollution**

I. Back Ground of the Case:

Hon'ble National Green Tribunal (SZ), Chennai has taken up a Suo Motu O. A. No. 163/2020 based on the News published in Dinamalar Daily Newspaper Dated: 21.08.2020 Chennai Supplementary under the Caption "Halfwits dumped Aluminium waste in Canal" regarding Kalingarayan Canal Water Pollution. The Chief Secretary to Government of Tamil Nadu, the Secretary to Government of Tamilnadu, Additional Chief Secretary to Government of Tamilnadu, Municipal Administration and Water Supply Department, the Principal Secretary to Government, Public Works Department, the Principal Secretary to Government of Tamilnadu, the Chairman, Tamilnadu Pollution Control Board, the District Collector, Erode and the Commissioner, Erode City Municipal Corporation are the respondents in this case.

The Hon'ble NGT (SZ), Chennai has constituted a Joint Committee comprising the District Collector, Erode, a Senior officer or Scientist deputed by the Chairman, Tamilnadu Pollution Control Board, the Municipal Commissioner, Erode City Municipal Corporation, the Superintending Engineer, Public Works Department (PWD) and Water Resources Organisation to inspect the units which are situated near Kalingarayan Canal area in Erode District and submit a factual as well as action taken report on the violation if any committed by any of the industries. Also, the Committee was directed to collect water samples from the Kalingarayan Canal to ascertain the water quality and to submit a report within a period of two months i.e., on or before 09.11.2020. The Public Works Department has been nominated as Nodal Agency for co-ordination and for providing all necessary logistics for the case.

The District Collector, Erode and Joint Committee members have inspected Kalingarayan Canal Stretch and the industries located in the close vicinity of Kalingarayan Canal on 21.09.2020, 22.09.2020 & 16.10.2020. The Report of the Joint Committee is submitted as below.

II. A brief introduction of Kalingarayan Canal in Erode District:

River Bhavani originates from Western Ghats in Nilgiris District and flows through Coimbatore District, then enters into Erode District at Bhavanisagar Dam. It flows through Bhavanisagar Town Panchayat, Sathyamangalam Municipality, Gobichettipalayam Taluk, Bhavani Taluk and finally reaches Kalingarayan Anaicut at Bhavani. From the Kalingarayan Anaicut, Kalingarayan Canal is branched out from the River Bhavani and it flows through Erode District for about 92 Km. The remaining part of River Bhavani confluences with River Cauvery at Kooduthurai, Bhavani near Sangameshwarar Temple.

Kalingarayan Canal is a major irrigation canal. There is no drinking water intake well in the canal. The Kalingarayan Canal is lined with RCC upto Konavaikkal (20 Km). Due to concrete lining of Kalingarayan Canal, access of industrial effluent into canal is prevented. Baby Canal is constructed along the right side of the Canal to prevent the entry of sewage, sullage and industrial effluents into canal. Kalingarayan Canal water quality is monitored by TNPCB by analysing water samples collected from the Canal at R. N. Pudur and Vairapalayam in Erode Taluk.

III. Action taken on the disposal of Aluminium Waste in Kalingarayan Canal

Based on the news telecasted in Polimer News Channel and news published in the Dinamalar and Kaalaikathir daily newspapers on 21.08.2020, the said location was inspected by the Engineers of O/o. District Environmental Engineer, TNPCB, Erode on 22.08.2020 and the TDS level at the Kalingarayan Canal was found to be 110 mg/l. There is no discharge of trade effluent from industries situated near the canal. During investigation, it was reported by the nearby public that an unknown vehicle has dumped the waste Aluminium Powder in Kalingarayan Canal. This waste aluminium powder has given an external coating to the waste materials floating in the canal. However, the waste material floating in the canal was removed by the PWD, Erode on the same day (20.08.2020). There is no Aluminium based industries located in the vicinity of Kalingarayan Canal. Immediately after the removal of the floating waste coated with Aluminium powder, the canal water retained its normalcy,

IV. a. Details of Trade Effluent generating industries located and in operation at 0 to 5 Km from Kalingarayan Canal:

In Erode in the vicinity of Kalingarayan Canal, industries such as Textile Dyeing - 104 Nos., Bleaching - 225 Nos., Tannery - 30 Nos. are under operation. All these industries have obtained consent of Tamilnadu Pollution Control Board. No unauthorized dyeing/bleaching/tannery industries are under operation in Erode. All these industries have provided individual effluent treatment plants for the treatment of waste water generated. Recovered water is reused in the process. Sludge generated is transported to cement industries for co-processing.

b. Kalingarayan Canal Water Quality Assessment done by TNPCB from January 2019 to September 2020

The consolidated report of analysis of the Kalingarayan canal water for the period 2019 - 2020 (through MINARS) is enclosed as **Annexure - I**. The range value of the Kalingarayan canal water quality parameters collected and assessed by TNPCB between January 2019 to December 2019 and from January 2020 to September 2020 is submitted as below.

Kalingarayan Canal Water Quality Range Values:

Sl. No.	Parameters	Point of Sample Collection / Values (January 2019 – December 2019)		Point of Sample Collection / Values (January 2020 – September 2020)	
		Kalingarayan Canal U/s at R. N. Pudur	Kalingarayan Canal D/s at Vairapalayam	Kalingarayan Canal U/s at R. N. Pudur	Kalingarayan Canal D/s at Vairapalayam
1.	Temperature (°c)	28 - 40	28 - 40	25 - 32	28 - 32.6
2.	pH	6.88 - 8.18	7.11 - 8.15	7.02 - 8.39	7.28 - 8.39
3.	TSS (mg/l)	8 - 40	8 - 48	4 - 28	8 - 28
4.	TDS (mg/l)	190 - 372	184 - 408	252 - 348	248 - 364
5.	COD (mg/l)	16	8 - 16	16	16
6.	Conductivity (µmhos/cm)	224 - 525	221 - 622	337 - 640	346 - 506
7.	Dissolved Oxygen (mg/l)	6.1 - 7.9	6 - 8.6	5.6 - 6.8	5.7 - 6.9
8.	Bio Chemical Oxygen Demand (mg/l)	0.4 - 2.2	0.4 - 2.2	0.3 - 5	0.1 - 1.4
9.	Nitrates - N (mg/l)	0.017 - 0.39	0.028 - 0.42	0.15 - 0.236	0.164 - 0.268
10.	Nitrite - N (mg/l)	0.004 - 0.029	0.001 - 0.03	0.006 - 0.049	0.007 - 0.11
11.	Total Coliform MPN/100 ml	94 - 790	84 - 840	70 - 210	94 - 220
12.	Fecal Coliform MPN/100 ml	26 - 330	25 - 330	21 - 63	22 - 70

Water Samples have been collected from Kalingarayan Canal at the following locations during joint committee inspection and the ROA is submitted as below:

Sl. No.	Sampling Locations at Kalingarayan Canal
1.	Kalingarayan Canal at NTADCL Water Intake Point (NGT/KC – 1)
2.	Kalingarayan Canal near M/s. India Dyeing Mills Pvt. Ltd., (NGT/KC – 2)
3.	Kalingarayan Canal Opposite to Christhu Jothi Matric. Hr. Sec. School (NGT/KC – 3)
4.	Kalingarayan Canal at Vendipalayam (NGT/KC – 4)

Report of Analysis of the samples collected at the above locations in Kalingarayan Canal

Sl. No.	Parameters	Kalingarayan Canal at NTADCL Water Intake Point (NGT/KC-1)	Kalingarayan Canal near M/s. India Dyeing Mills Pvt. Ltd., (NGT/KC-2)	Kalingarayan Canal Opposite to Christhu Jothi Matric. Hr. Sec. School (NGT/KC-3)	Kalingarayan Canal at Vendipalayam (NGT/KC-4)
1	Turbidity NTU	4.1	2.8	1.4	1.1
2	Colour ml	< 5	< 5	< 5	< 5
3	Conductivity at 25°C μ mhos/cm	502	472	498	520
4	pH at 25°C	7.94	7.94	7.96	7.85
5	Total Suspended Solids at 103°C - 105°C mg/l	20	12	4	8
6	TDS at 180°C mg/l	328	308	328	344
7	Chloride as CL mg/l	37	37	37	43
8	Sulphate as SO ₄ mg/l	27	29	27	35
9	Oil & Grease mg/l	< 4	< 4	< 4	<4
10	BOD (at 27°C for 3 days) mg/l	< 2	< 2	< 2	<2
11	COD mg/l	16	16	16	16
12	Ammonical Nitrogen as NH ₃ - N mg/l	< 2	< 2	< 2	<2
13	Total Kjeldhal Nitrogen mg/l	2.24	2.8	2.8	2.8
14	Fluoride as F mg/l	0.086	0.075	0.115	0.150
15	Total Hardness as CaCO ₃ mg/l	206	194	192	200
16	% Sodium	23	23	24	25
17	Iron Total as Fe mg/l	0.204	0.167	0.223	0.241
18	Total Residual Chlorine* mg/l	<1	<1	<1	<1
19	Total Chromium mg/l	< 0.05	< 0.05	< 0.05	< 0.05
20	Alkalinity as CaCO ₃ mg/l	208	204	200	204
21	Ph.Compounds mg/l	< 0.05	< 0.05	< 0.05	< 0.05
22	Nitrate Nitrogen as NO ₃ mg/l	0.142	0.164	0.235	0.264
23	Nitrite Nitrogen as NO ₂ mg/l	0.035	0.038	0.025	0.063
24	Sulphide * mg/l	<1	<1	<1	<1
25	Total Phosphorus mg/l	0.879	1.111	1.064	0.833
26	Phosphate as PO ₄ mg/l	0.361	0.328	0.3	0.495
27	Cyanide mg/l	< 0.05	< 0.05	< 0.05	< 0.05

28	Hexavalent Chromium mg/l	< 0.05	< 0.05	< 0.05	< 0.05
29	Copper * mg/l	< 0.0015	< 0.0015	< 0.0015	< 0.0015
30	Zinc* mg/l	< 0.0015	< 0.0015	< 0.0015	< 0.0015
31	Lead* mg/l	< 0.015	< 0.015	< 0.015	< 0.015
32	Cadmium* mg/l	< 0.0008	< 0.0008	< 0.0008	< 0.0008
33	Nickel* mg/l	< 0.006	< 0.006	< 0.006	< 0.006
34	Arsenic* mg/l	< 0.01	< 0.01	< 0.01	< 0.01
35	Mercury* mg/l	< 0.003	< 0.003	< 0.003	< 0.003
36	Aluminium* mg/l	< 0.006	< 0.006	< 0.006	< 0.006
37	Dissolved Oxygen mg/l	6.7	6.7	6.6	6.2
38	Faecal Coliform MPN/100 ml	27	46	9.3	17
39	Total Coliform MPN/100 ml	79	170	34	48

Note: The presence of Faecal Coliform and Total Coliform indicates the discharge of sewage into Kalingarayan Canal at one location (20 Km)

1. The Report of Analysis of the samples collected reveals the presence of Faecal Coliform and Total Coliform indicates the discharge of sewage into Kalingarayan Canal. The comparison of Kalingaryan canal water quality prior to the disposal of Aluminium waste and after the disposal of Aluminium waste remains the same which reveals that the quality of canal water due to the disposal of Aluminium waste is not altered.
2. Konavaikkal is a small water stream joining with Kalingarayan Canal. Residential, Railway junction and industrial areas are located along this stream stretch.
3. Random inspections were carried out in the dyeing and tannery industries located at the Kalingarayan Canal stretch at Erode as below

Sl. No.	Name of the industry & location	Type of Industry	Observations
1.	M/s. India Dyeing Mills Pvt. Ltd., Erode	Dyeing	The unit was found operating ZLD System satisfactorily.
2.	M/s. Sri Ranga Tannery, Erode	Tannery	The unit was found operating ZLD System satisfactorily.
3.	M/s. Pioneer Processing India, Erode	Dyeing	The unit was found operating ZLD System satisfactorily.
4.	M/s. Armstrong Process, Erode	Dyeing	The unit was found operating ZLD System satisfactorily.
5.	M/s. Pushpam Tex, Erode	Dyeing	The unit was found operating ZLD System satisfactorily.

4. On the instruction of TNPCB, the textile association have proposed Five Common Effluent Treatment Plants (CETPs) at Erode for the existing processing industries having individual effluent treatment plants (IETPs) for the effective implementation of Zero Liquid Discharge. The Association of All Textile Processors at Erode has purchased 27 Acres of land and has obtained Consent for Establishment (CTE) from TNPCB for establishing CETPs during 13.02.2020 & 10.03.2020.

V. Status of Sewage Treatment Plant (STP) in Erode City Municipal Corporation limit:

Erode City Municipal Corporation has 60 Wards and has the population of 4,98,121 (based on 2011 Census), having 1.00 lakhs households. 33.75 MLD of sewage is generated from Erode City Municipal Corporation limit. The Corporation has installed a sewage treatment plant of capacity 50.55 MLD at Peelamedu Village, Vendipalayam. At present, 15000 Households are connected to sewage treatment plant through UGDSS. 6.00 MLD of Sewage generated from these 15000 Household is conveyed to Sewage Treatment Plant (STP). The treated sewage after meeting the standards is discharged into Perumpallam Odai which finally joins with River Cauvery. The Corporation has reported that the UGDSS for another 75000 households will be completed before May 2022.

TNPCB has issued directions among the other directions to the Commissioner, Commissionerate of Municipal Administration, Chennai to instruct Commissioner, Erode Corporation as below vide Board's Proc. Dt. 01.08.2018.

"The local authorities of villages, towns and cities along the river Cauvery shall ensure proper channelization and proper treatment of domestic sewage generated from the villages/towns along the bank of River Cauvery and Kalingarayan Canal through sewage treatment plants and shall ensure to comply with the sewage discharge norms notified under the Environmental (Protection) Act, 1986".

Most of the houses in UGDSS uncovered area have provided septic tanks for the treatment and disposal of sewage generated. Hence, after the implementation of UGDSS for the remaining areas, the disposal of sewage through a stream namely Konavaikkal to Kalingarayan Canal will be prevented.

VI. Solid Waste Management by Erode City Municipal Corporation:

Status of Solid Waste Management at Vairapalayam MSW Dump Site:

On the right bank of River Cauvery at Vairapalayam, the erstwhile Municipal Solid waste dump site of Erode City Municipal Corporation is located. Earlier, the Corporation had dumped about 80,850 m³ of Municipal Solid Waste (MSW) in that site and the leachate generated from this site was mixed with river Cauvery.

Based on the directions issued by TNPCB to the Commissioner, Erode Corporation to stop dumping of municipal solid waste on the banks of River Cauvery at Vairapalayam, Erode and to comply with the Solid Waste Management Rules, 2016 vide Board's Proc. Dt. 01/08/2018, the Erode City Municipal Corporation has cleared and processed the entire MSW dumped at Vairapalayam MSW dump site. At present, no MSW is available at the Vairapalayam MSW dump site. This will prevent the flow of MSW leachate into River and carryover of municipal solid waste in river water during rainy seasons and flood.

Status of Solid Waste Management at Vendipalayam MSW Dump Site:

On the right bank of Kalingarayan Canal at Vendipalayam, the erstwhile Municipal Solid Waste Dump Site of Erode City Municipal Corporation is located. The Corporation had dumped around 6,00,000 m³ of Municipal Solid Waste (MSW). The Erode City Municipal Corporation has commissioned biomining of legacy waste in that dump site through M/s Zigma Global Environ Solutions Pvt. Ltd., Erode and has processed 1,59,612 m³ of legacy waste so far.

Hon'ble National Green Tribunal (SZ), Chennai in its Order Dated: 09.10.2020 in O. A. No. 52 of 2020 (SZ) and O. A. No. 67 of 2020 has directed the Erode City Municipal Corporation, Erode to furnish the time bound action plan for the implementation of Solid Waste Management Rules, 2016. In this connection, Commissioner, Erode City Municipal Corporation has furnished a time bound action plan vide **Annexure – II**. As per this action plan, the Erode City Municipal Corporation will complete the biomining of remaining Municipal solid legacy waste at vendipalayam dump site before December 2021.

TNPCB is assessing suitable Environmental Compensation to be imposed to Erode City Municipal Corporation for non compliance of the directions issued by the Principal Bench of Hon'ble National Green Tribunal, New Delhi in O.A. No. 606/2018. Environmental Compensation will be imposed accordingly.

VII. Details of action taken by TNPCB and District Co-ordination Committee against the violating industries:

The details of action taken by O/o. District Environmental Engineer, TNPCB, Erode against the violating industries through TNPCB and DCC are submitted as below.

Formation of the District Co-ordination Committee at Erode:

Based on the Hon'ble High Court of Madras in its Order Dated: 04.07.2007 & 09.08.2007 in W. P. Nos. 5494/1998 & 30153/2003, District Co-ordination Committee (DCC) has been constituted in Erode District during the year 2009. Subsequently, it is reconstituted as per the G. O. Ms. No. 23, Dated: 01.03.2018 and is functioning till date.

The year wise details of action taken by TNPC Board against the violating industries through the District Co-ordination Committee, Erode is submitted as below,

Year	No. of industries issued with orders for disconnection of power supply			
	Dyeing	Bleaching & Printing	Tannery	Total
2016 – 2017	20	55	12	87
2017 – 2018	30	33	6	69
2018 – 2019	9	31	2	42
2019 – 2020	14	31	-	45
April 2020 – October 2020	9	15	1	25

VIII. Details of action taken by TNPCB against the violating industries after recommencement of industries during COVID-19 Lock down period and after Hon'ble NGT(SZ), Chennai filed Suo Moto Case O. A. No. 52 & 67 of 2020

After the National Lock down in the COVID-19 pandemic period, the industries were permitted to recommence their operation in phased manner. The following table shows the details of action taken against the violating industries during this period.

Sl. No.	Jurisdiction	No. of industries issued with disconnection of power supply through DCC (between March 2020 and October 2020)			
		Dyeing	Bleaching & Printing	Tannery	Total
1.	O/o. DEE, TNPCB, Erode	9	15	1	25

IX. Environmental Compensation collected:

Based on the Orders of Hon'ble NGT in O. A. No. 1038/2018 Dated: 10.07.2019 and in O. A. No. 593/2017 Dated: 19.02.2019 and 28.08.2019, Environmental Compensation from 77 violating industries has been collected by TNPCB and District Co-ordination Committee as detailed below:

S. No.	TNPCB District Office	Environmental Compensation Collected by TNPCB & DCC (in Rs.)	Total (in Rs.)
1.	O/o. DEE, TNPCB, Erode	45,05,000 /- + 1,27,87,335 /-	1,72,92,335 /-

XI. Formation of Textile CETPs in Erode District:

To further improve the quality of water bodies and to strengthen the monitoring mechanism to prevent illegal disposal of effluent by individual industries, on the instruction of TNPCB, the textile association has proposed five textile CETPs in Erode District. After commissioning of the CETPs, the individual effluent treatment plants provided by the existing units will be closed and effluent generated from these industries will be conveyed to CETPs for treatment.

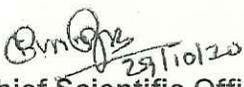
S. No.	No. of CETPs proposed	GFA (Rs. in Lakhs)	Plant Capacity (MLD)	No. of member units	Consent status	Land available (acres)
1.	5* CETPs in Erode District	91085.8	22.2	249	CTE Issued	27

Note: * - 4 CETPs for the treatment of entire quantity of trade effluent generated from the existing textile member units and 1 CRMS is for the treatment of final reject generated from its member units.

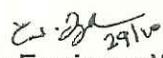
Tamilnadu Pollution Control Board, Erode, Environmental Engineer (Flying Squad), Erode and District Administration, Erode are monitoring the industries operated in Erode District and is monitoring Kalingarayan canal as detailed above. Surprise and Night inspections are also being carried out. Violating industries found discharging effluent / not operating ETP are issued with orders for closure and disconnection of power supply immediately. Environmental Compensation is collected by TNPCB and District Co-ordination Committee.

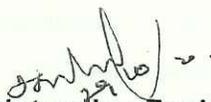
Recommendations:

1. To construct baby Canal for the remaining stretch up to the distance of human settlements and industrial activities and to expedite the lining of Kalingarayan Canal for the remaining stretch up to the distance of human settlements.
2. The Erode City Municipal Corporation shall complete the UGDSS for the remaining areas on or before May 2022 as committed in the time bound action plan
3. The Erode City Municipal Corporation shall comply with the directions mentioned in the various Orders of the Hon'ble Principal Bench of National Green Tribunal, New Delhi in O. A. No. 606/2018 regarding implementation of the Solid Waste Management Rules, 2016 as committed. Erode City Municipal Corporation shall dispose the entire accumulated quantity of legacy waste at Vendipalayam dump site as per the time bound action plan.
4. As per G. O. Ms No. 23, E & F Department Dated: 01.03.2018, TNPCB and the District Co-ordination Committee shall collect hefty Environmental Compensation from the repeated violating industries found discharging untreated effluent into water streams/ land and shall be prosecuted.
5. The TNPCB shall have close monitoring of the industries. In case of any unauthorised units causing pollution to the environment, it shall be brought to the notice of either DCC / TNPCB Board office and action shall be taken for the disconnection of power supply, disconnection of water supply, seizure of materials, sealing of unit's premises/ machinery and eviction. Criminal case shall be filed against the land owner and environmental compensation shall be imposed on the land owners and occupier of the unit has already instructed by the TNPCB vide Circular Dated: 22.09.2020.
6. Online Continuous Monitoring system shall be provided in the Kalingarayan Canal for the effective monitoring of the quality of water at 2 to 3 locations using Environmental Compensation collected.
7. Environmental Compensation will be utilized for the green belt, awareness programmes as decided by the DCC.

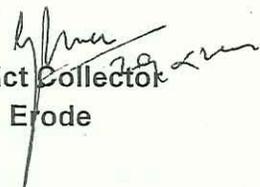

Deputy Chief Scientific Officer
District Environmental Laboratory
TNPCB, Perundurai


Commissioner
Erode City Municipal Corporation
Erode


Executive Engineer WRD
LBB Division, Erode


Superintending Engineer WRD
Bhavani Basin Circle


District Environmental Engineer (a/c)
TNPCB, Erode


District Collector
Erode

CONSOLIDATED REPORT OF ANALYSIS OF THE KALINGARAYAN CANAL WATER FOR THE PERIOD 2019 (THROUGH MINARS)

ANNEXURE - I

B.KALINGARAYAN CANAL

Sl. No	Para meters	Jan-19		Feb-19		Mar-19		Apr-19		May-19		Jun-19		Jul-19		Aug-19		Sep-19		Oct-19		Nov-19		Dec-19	
		(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S			
Core Para meters:																									
1	Temperature	28	28	30	30	33	33	40	40	30	30	30	30	No flow, hence sample not collected											
2	pH Values	8.18	8.15	7.97	8.00	7.97	8.01	7.97	8.07	7.91	7.91	8.03	8.03	No flow, hence sample not collected											
3	Conductivity (umhos/cm)	440	446	517	507	422	410	410	399	464	464	459	459	No flow, hence sample not collected											
4	Dissolved Oxygen mg/L	7.4	7.1	6.6	6.5	7.9	8.6	6.7	6.5	6.4	6.4	6.4	6.4	No flow, hence sample not collected											
5	Bio Chemical Oxygen Demand mg/L	0.3	0.4	1.0	1.2	1.3	0.8	0.4	1.6	2.2	2.2	2.2	2.2	No flow, hence sample not collected											
6	Nitrate - N mg/L	0.389	0.418	0.328	0.346	0.149	0.143	0.209	0.090	0.017	0.017	0.028	0.028	No flow, hence sample not collected											
7	Nitrite - N mg/L	-	-	-	-	-	-	-	-	-	-	-	-	No flow, hence sample not collected											
8	Ammonia - N mg/L	2.24	2.8	1.68	1.68	1.12	1.12	1.12	1.68	1.68	1.68	1.68	1.68	No flow, hence sample not collected											
9	Fecal Coliform MPN/100 mL	210	260	310	330	330	210	170	150	130	130	130	130	No flow, hence sample not collected											

	630	700	700	840	790	630	350	340	320	330			94	84	110	94	140	120	110	170	
10	Total Coliform MPN/100 mL	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-	-	
11	Instantaneous Discharge m3	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.060 ₈	<0.000	-	-	-	-	
12	Velocity of Flow m3	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0163 ₅	<0.001	-	-	-	-	
Micro_Pollutants (Summer/Metals)																					
1	Arsenic ug/l	-	-	-	-	-	<1	<1	-	-	-	-	-	-	-	<0.01	<0.01	-	-	-	
2	Cadmium ug/l	-	-	-	-	-	<0.8	<0.8	-	-	-	-	-	-	-	<0.060 ₈	<0.000	-	-	-	
3	Copper ug/l	-	-	-	-	-	48	46	-	-	-	-	-	-	-	0.0163 ₅	<0.001	-	-	-	
4	Lead ug/l	-	-	-	-	-	<15	<15	-	-	-	-	-	-	-	<0.015	<0.015	-	-	-	
5	Chromium ug/l	-	-	-	-	-	<50	<50	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	
6	Nickel ug/l	-	-	-	-	-	6	8	-	-	-	-	-	-	-	<0.006	<0.006	-	-	-	
7	Zinc ug/l	-	-	-	-	-	60	46	-	-	-	-	-	-	-	<0.001 ₅	<0.001	-	-	-	
8	Mercury ug/l	-	-	-	-	-	<3	<3	-	-	-	-	-	-	-	<0.002	<0.003	-	-	-	
9	Iron ug/l	-	-	-	-	-	76	70	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	
10	Magnese (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-	-	
11	Cyanide (mg/L)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-	-	
General Parameters:																					
1	Turbidity	8	14	13.4	12.9	9.4	11.2	5	5	6.5	11.0	No flow, hence sample not collected.	39	39	8	10	22	24	5	4	
2	Phenolphthalein Alkalinity as	8	4	8	12	8	8	4	4	8	20	No flow, hence sample not collected.	<1	<1	<1	<1	4	6	12	16	
3	Total Alkalinity as	152	144	164	156	156	160	148	148	180	176	No flow, hence sample not collected.	104	104	124	120	122	130	176	196	
4	Chloride mg/L	42	58	44	54	44	46	38	32	54	52	No flow, hence sample not collected.	22	24	23	24	30	29	52	70	
5	Chemical Oxygen	16	16	16	16	16	16	15	16	16	16	No flow, hence sample not collected.	16	8	16	16	16	16	16	16	
6	Total Kjeldhal Nitrogen mg/L	4.48	4.48	3.36	3.36	2.24	2.8	2.74	3.36	3.36	3.36	No flow, hence sample not collected.	1.68	2.8	2.24	2.8	2.8	2.24	3.36	2.8	
7	Ammonia-N Mg/L	-	-	-	-	-	-	-	-	-	-	No flow, hence sample not collected.	0.56	1.12	0.56	1.12	1.12	1.12	1.12	1.12	
8	Total Hardness as	208	192	196	184	192	200	168	168	148	172	No flow, hence sample not collected.	105	103	80	78	124	112	200	200	
9	Calcium as Cl mg/L	43	40	42	45	50	43	40	40	34	30	No flow, hence sample not collected.	63	63	48	54	64	60	116	108	

CONSOLIDATED REPORT OF ANALYSIS OF THE KALINGARAYAN CANAL WATER FOR THE PERIOD 2020 (THROUGH MINARS)

B. KALINGARAYAN CANAL

Sl. No	Para meters	Jan-20		Feb-20		Mar-20		Apr-20		May-20		Jun-20		Jul-20		Aug-20		Sep-20	
		(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S	(3020) Kalingarayan Canal U/S BS	B10(3021) Kalingarayan Canal D/S
1	Water Temperature (°C)	28	28	29	29	32	326	30	28	30	31	29	29	30	30	29	25	33	
2	Dissolved Oxygen mg/L	6.5	6.5	6.7	6.6	6	6.1	6.4	6.3	6.1	6.3	5.6	5.7	6.8	6.9	6.4	6.3	6.4	
3	pH Values	8.14	8.29	8.18	8.16	8.39	8.39	7.71	8.09	7.02	7.98	7.28	8.15	7.76	7.58	7.29	7.30	7.64	
4	Conductivity (umhos/cm)	453	439	384	385	465	456	400	412	379	379	640	506	337	346	357	356	483	
5	Bio Chemical Oxygen Demand mg/L	0.3	0.1	<2	<2	<2	<2	1.0	1.4	0.6	0.6	2.5	0.8	0.5	0.8	<2	<2	<2	
6	Nitrate - N mg/L	0.186	0.214	0.214	0.193	0.172	0.164	0.236	0.268	0.15	0.186	0.186	0.200	0.200	0.214	0.171	0.192	0.178	
7	Nitrite - N mg/L	0.007	0.01	0.006	0.012	0.049	0.04	0.008	0.016	0.007	0.11	0.006	0.007	0.009	0.011	0.012	0.014	0.012	
8	Total Coliform MPN/100 mL	110	150	140	120	210	220	110	120	120	140	170	210	140	170	84	94	70	

Micro Pollutants (Summer/Metals)																
1	Arsenic ug/l	-	-	-	-	-	-	-	-	<0.01	<0.01	-	-			
2	Cadmium ug/l	-	-	-	-	-	-	-	-	<0.0008	<0.0008	-	-			
3	Copper ug/l	-	-	-	-	-	-	-	-	<0.0015	<0.0015	-	-			
4	Lead ug/l	-	-	-	-	-	-	-	-	<0.015	<0.015	-	-			
5	Chromium ug/l	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-			
6	Nickel ug/l	-	-	-	-	-	-	-	-	<0.006	<0.006	-	-			
7	Zinc ug/l	-	-	-	-	-	-	-	-	<0.0015	<0.0015	-	-			
8	Mercury ug/l	-	-	-	-	-	-	-	-	<0.003	<0.003	-	-			
9	Iron ug/l	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-			
10	Magnese (mg/L)	-	-	-	-	-	-	-	-	<0.1	<0.1	-	-			
11	Cyanide (mg/L)	-	-	-	-	-	-	-	-	<0.05	<0.05	-	-			
General Parameters:																
1	Turbidity (NTU)	18	4.1	7	7	8.9	5.6	7.2	21.1	20.6	5.9	14.2	2.2	5.1	4.8	4.2
2	Phenolphthalein Alkalinity as CaCO3 mg/L	4	16	<1	<1	<1	8	16	<1	<1	<1	<1	<1	16	<1	8
3	Total Alkalinity as CaCO3 mg/L	148	172	152	140	176	196	176	208	224	144	136	140	140	176	180
4	Chloride mg/L	40	40	38	37	44	42	36	96	52	32	34	40	35	41	40
5	Chemical Oxygen Demand mg/L	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
6	Total Kjeldhal. Nitrogen mg/L	1.68	1.12	3.36	3.92	2.24	2.24	2.24	3.36	2.8	2.8	3.36	1.12	1.68	1.12	1.68
7	Ammonia-N mg/L	0.56	0.56	1.68	2.24	1.12	1.12	1.12	1.12	1.12	1.12	1.12	0.56	0.84	0.56	0.84
8	Total Hardness as CaCO3 mg/L	210	180	148	142	140	156	136	124	192	124	140	116	116	186	198
9	Calcium as CaCO3 mg/L	10	90	66	60	84	84	72	88	116	84	80	72	64	110	102
10	Magnesium as CaCO3 (mg/L)	200	90	82	82	56	72	64	36	76	40	60	54	44	76	96
11	Sulphate as SO4 mg/L	23	23	32	30	32.7	32	14	30	16	26	27	20	16	29	31
12	Sodium s Na mg/L	31	29.4	26	23	28.6	28.4	29	72.3	37.6	21.3	21.9	29	29.1	17	31

13	Total Dissolved Solids mg/L	312	332	296	296	296	348	336	272	280	260	296	448	364	252	268	272	248	312	328
14	Total Fixed Solids mg/L	288	312	276	272	328	320	236	262	262	236	69	428	344	236	248	252	228	292	304
15	Total Suspended Solids mg/L	24	16	16	20	16	8	16	16	20	16	16	28	28	8	16	4	8	4	8
16	Total Phosphate as PO ₄ mg/L	0.032	0.042	0.528	0.042	0.21	0.298	0.588	0.588	0.116	0.078	0.12	0.046	0.069	0.064	0.362	0.041	0.046	0.055	0.064
17	Ortho Phosphate (mg/L)	0.009	0.023	0.435	0.009	0.175	0.195	0.392	0.392	0.064	0.056	0.083	0.009	0.032	0.041	0.05	0.009	0.004	0.009	0.037
18	Boron as B mg/L	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
19	Potassium mg/L	4.2	4.2	4	4	3.7	3.7	4.6	4.6	3.6	2.5	2.4	8.1	4.5	5.6	5.7	3.7	3.7	2.9	4.9
20	Fluoride mg/L	0.589	0.560	0.623	0.571	0.48	0.47	0.712	0.596	1.148	0.755	0.755	0.396	0.542	0.346	0.496	0.380	0.530	0.346	0.542
21	Percent Sodium (meq/L)	24	26	27	26	30	28	31	30	24	24	22	54	29	26	25	34	35	17	25
22	SAR (meq/L)	0.9	1	0.92	0.83	1.1	1	0.92	1	0.7	0.7	0.7	2.8	1.2	0.8	0.6	1.2	1.2	0.6	0.9


 District Environmental Engineer (a/c)
 TNPC Board, Erode

Time bound action plan for the implementation of Solid waste Management rules 2016, as per the orders of Hon'ble NGT(SZ) in

O.A No.52 & 67 of 2020 dated 19.10.2020

Erode city municipal corporation is having a population of 5.63 lakhs spread over an area of 109.52 sq.km consisting of 60 wards. There are 1.30 lakhs houses and 17000 commercial establishments. The Solid Waste Management Activities are being carried out as below.

The generation of garbage is 165 MT/day out of which 75MT is bio degradable wet waste, 6MT is saleable dry waste, 72MT is non-saleable dry waste, 0.50 MT of e-waste and 1MT of domestic hazardous waste, 2MT of C&D Waste and remaining are inerts.

The Processing of wet waste is being done through following methods:-

Micro Compost Centre:

24 Nos of micro compost centre constructed under Smart City Mission with the capacity of 72 (TPD). Around 58 MT of wet waste is being processed in above Micro Compost Centre and converted in to Manure. Till date 1750 MT of manure has been generated from above Micro Compost Centre and given to farmers at free of cost. The Manure is tested in Agricultural University and found as good quality organic manure.

Bio methanisation Plant:

Around 5MT of wet waste is being processed in bio methanition plant located at vendipalayam.compost yard. The electrical energy produced by above plant is used for lighting the compost yard.

Bulk Waste Generators:

65 Nos of bulk waste generators are identified in the city limit. As per SWM Rules 2016, 7MT of wet waste from the bulk waste generators are taken in to farms, Compost pits and converted into manure and used for agriculture.

Home Composting:-

3MT of wet waste generated in 6350 households are processed by themselves in their own agricultural lands and in their own places.

Disposal of Dry Waste:-

Saleable dry waste:-

Paper, plastic, metals are sold to local vendors by sanitary workers themselves (Daily 6 MT is sold out). Around 680 MT of saleable waste is sold out for Rs.26.40lakhs till date.

E waste:-

E Waste is collected and stored in vendipalayam and vairapalayam Resource Recovery Centers separately. E waste is handed over to TNPCB authorized vendors.

C&D waste:-

A separate location at solar (TS number 11/1,2,3) with an extent of 10 Acre is earmarked for storage of C&D waste. The C&D wastes are used by themselves for filling low lying area.

Non saleable:-

Non saleable dry waste will be processed through incineration. 2 Nos. of incinerator with a capacity of 35 TPD is under construction under smart city mission. The construction of 35 TPD incinerators will be completed before December 2020. It is proposed to construct another incinerator with the capacity of 25TPD before December 2021.

All efforts are being taken from source segregation till processing and disposal of solid waste. Around 550 numbers of street bins were removed and most of the streets made bin less in residential areas. In Commercial areas and public places litter bins are placed and they are cleared on daily basis.

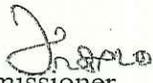
Bio – mining:-

The existing legacy waste in the river bank of Cauvery at Vairapalayam is entirely cleared through bio mining technology. As of now no solid waste and legacy waste polluting the river Cauvery. The existing legacy waste in vendipalayam dumping yard is being processed. Around 6 lakh cubic meter of legacy waste will be processed and the entire dumpsite will be cleared by December 2021.

As explained above we have taken all efforts to handle solid waste as per the orders and SWM rules 2016 and these by complied the order of NGT.

Management of Liquid Waste:-

Erode City Municipal Corporation has 60 wards and has the population of 5.63 (based on 2011 census) having 1.30 lakhs households. 33.75 MLD of sewage is generated from Erode City Municipal Corporation limit. The Corporation has installed a sewage treatment plant of capacity 50.55 MLD at peelamedu Village, Vendipalayam. At present, 15000 Households are connected to sewage treatment plant through UGDSS. 6.00 MLD of sewage generated from these 15000 households is conveyed to sewage Treatment Plant (STP). The treated sewage after meeting the standards is discharged into perumpallam odai which finally joins with River Cauvery. The UGSS for another 75000 Households will be completed before May 2022. The Sewage generated from 10000 Households is treated through septic tank. The seepage Collected from this septic tank will be treated in STP so that no sullage is mixed in River Cauvery in future.


Commissioner,

Erode City Municipal Corporation.

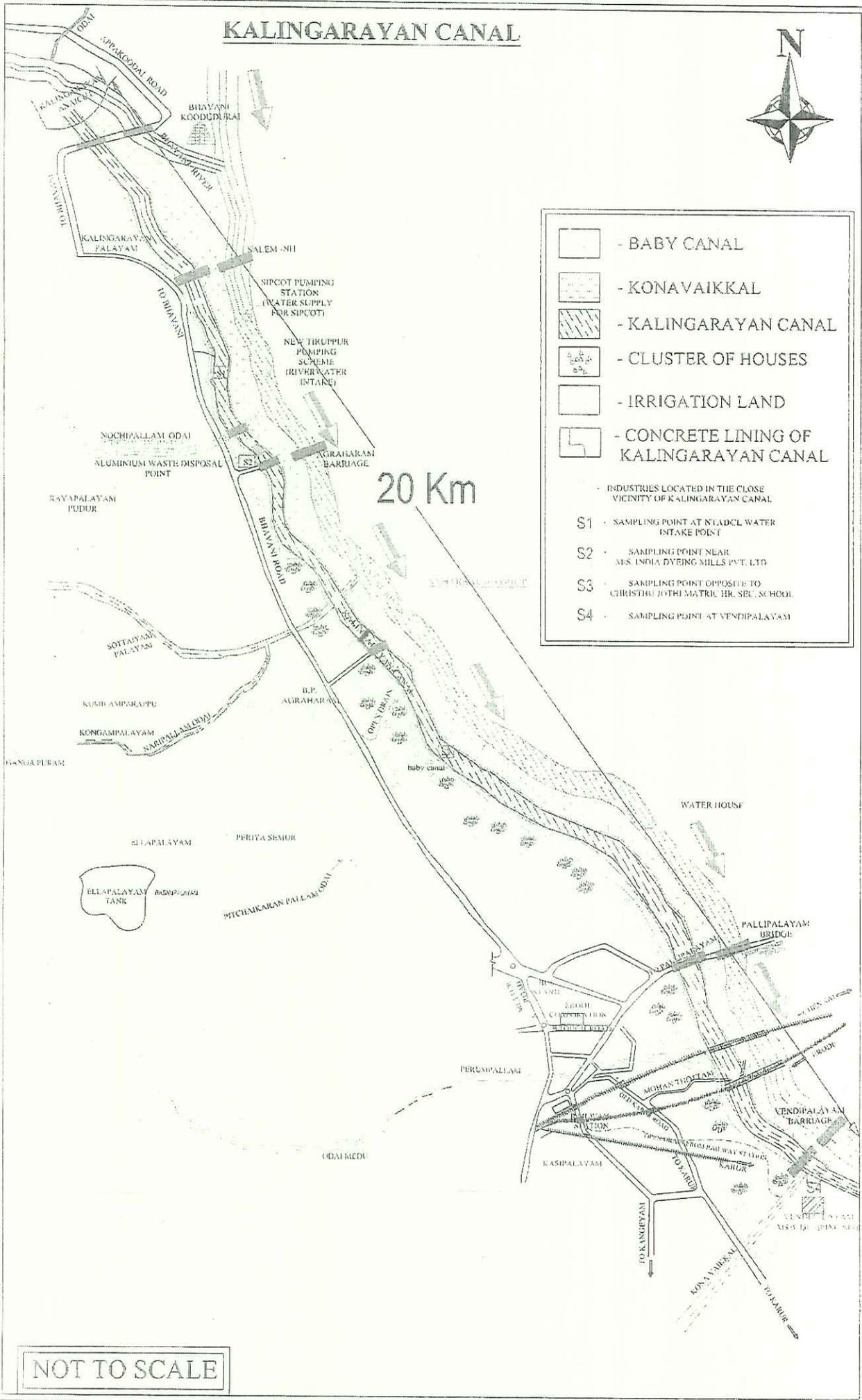
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1. Commissioner of Municipal Administration, Chennai - 600 028

TIME FRAME FOR IMPLEMENTING SOLID WASTE MANAGEMENT RULES 2016

S.No	ACTION PLAN	TIMELINE
1	100% Door to Door collection	Achieved
2	100% source segregation	Achieved
3	Implementation of Solid waste management Rule 2016	Enforced
4	Implementation of plastic waste management Rule 2016	Enforced
5	100% Processing and Disposal of wet waste	Achieved
6	100% Processing and Disposal of saleable dry waste	Achieved
7	100% Processing and Disposal of C& D Waste	Achieved
8	100% Disposal of E-Waste	Achieved
9	100% Processing and Disposal Non – Saleable dry Waste	31-12-2021
10	Bio-mining in Varapalayam dumping Yard	Completed
11	Bio-mining in Vendipalayam dumping Yard	31-12-2021
12	Bin free city in residential areas	Achieved
13	Formation of SWM monitoring committee at municipal corporation level	Already Formed
14	Communicating the Reduce Reuse Recycle Concept to the community	Continuous process

KALINGARAYAN CANAL



	- BABY CANAL
	- KONA VAIKKAL
	- KALINGARAYAN CANAL
	- CLUSTER OF HOUSES
	- IRRIGATION LAND
	- CONCRETE LINING OF KALINGARAYAN CANAL
- INDUSTRIES LOCATED IN THE CLOSE VICINITY OF KALINGARAYAN CANAL	
S1	- SAMPLING POINT AT STADCL WATER INTAKE POINT
S2	- SAMPLING POINT NEAR M/S. INDIA DYEING MILLS PVT. LTD.
S3	- SAMPLING POINT OPPOSITE TO CHRISTHU JOTHI MATRIC HR. SEC. SCHOOL
S4	- SAMPLING POINT AT VENDIPALAYAM

NOT TO SCALE

