

**BEFORE THE NATIONAL GREEN
TRIBUNAL SOUTHERN BENCH, CHENNAI
Original Application No. 14 of 2021**

In the matter of:

In Re: **"Water Pollution: will Vizag be another Eluru"**.

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DATED-22-07-2021


Joint Chief Environmental Engineer
A.P.POLLUTION CONTROL BOARD
ZONAL OFFICE
VISA KHAPATNAM

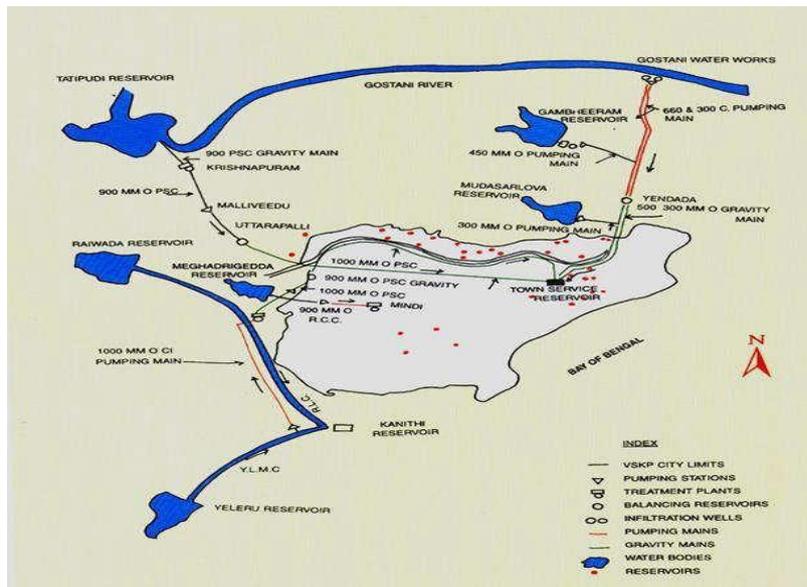
**Report of Andhra Pradesh Pollution Control Board in O.A No 14 of 2021
as Suo Motu based on E - magazine, BBC, 21st December 2020 on “Water
Pollution: will Vizag be another Eluru”.**

1. The above application O.A No 14 of 2021 was suo motu registered by the Tribunal on the basis of reports published in E - magazine, BBC, 21st December 2020 on “Water Pollution: will Vizag be another Eluru” on the allegations that water pollution in Meghadrigedda is causing concern to the people of Visakhapatnam, water supplied by GVMC is contaminated in many places.
2. The main sources of water for the people of Visakhapatnam are from Meghadri Gedda Reservoir, Mudasarlova Reservoir, Raiwada Reservoir, Tatipudi reservoir and Gambhiramedda reservoir.
3. The details of the reservoirs and water supply capacity and water Sources Map for GVMC Area is submitted below:

Name of the Reservoir	Water drawl from Reservoir in MLD
Raiwada Reservoir: The Raiwada Reservoir was constructed across River Sarada in Devarapalli Village and Mandal of Visakhapatnam District. This Reservoir was designed to irrigate an ayacut of 21,344 Acres. The Project irrigates an ayacut of 15,344 Acres of 44 Villages in Devarapalli, K.Kotapadu, Chodavaram Mandals of Visakhapatnam District and being supplying water to GVMC for the civic needs of Visakhapatnam.	65.0
Thatipudi Reservoir (Vizianagaram): The Thatipudi	26.05

<p>Reservoir is located across Gosthani River Near, Thatipudi Village of Gantyada Mandal in Vizianagaram District. The Reservoir envisages stabilizing the existing ayacut of 13,861 Acres (5611.7 Hect) and providing drinking water supply to Visakhapatnam Municipal Corporation.</p>	
<p>Meghadrigedda Reservoir: The Meghadrigedda reservoir catchment that occupies 374 Sq.mtr falls under Visakhapatnam District and a small upper catchment comes under the jurisdiction of Vizianagaram District, Andhra Pradesh. The topography of the reservoir catchment is characterized by hills, valleys and plains.</p>	41.0
<p>Gambhiramedda reservoir: Gambhiramedda Reservoir Project was constructed across Gambheeram gedda at Boyapalem (V) in Anandapuram (M) Visakhapatnam District is having 640Acres of Ayacut. Water is being supplied to G.V.M.C from 1st March to 30th June of every year. Even though Major portion of the ayacut is urbanized, still about 250 acres of Ayacut is being irrigated under 4 Nos of groynes through open-head channel system.</p>	8.18
<p>Mudasarlova Reservoir: The catchment area of the Mudasarlova reservoir basin is 16.4 sq km and this catchment is located between Kailasagiri, Kambala Konda and Simhachalam hill.</p>	1.82

Water Sources Map for GVMC Area



4. The matter was heard on 26.04.2021 and the Hon'ble Tribunal had considered the report filed by AP Pollution Control Board dated 19.02.2021.
5. The matter was last heard on 07.06.2021 and issued certain directions which include direction to APPCB and GVMC to file fresh reports in terms of Tribunal's order dated 07.06.2021 for further hearing on 28.07.2021.
6. Accordingly, this respondent files the fresh report as under.

6.1. Stage of implementation of various directions of Hon'ble NGT in O.A.No.606/2018 (regarding Compliance of Municipal Solid Waste Management Rules, 2016), O.A.No.673/2018 (regarding polluted river stretches), O.A.No.519/2019 (regarding Bio-Mining/Remediation of

legacy waste at sanitary landfill) and O.A.No.593/2017 (regarding 100% treatment of sewage by 01.04.2020).

In compliance to the orders dated 16.01.2019 of the Hon'ble National Green Tribunal, Principal Bench, New Delhi in O.A No.606 of 2018, the then Chief Secretary to Govt., Andhra Pradesh State appeared in person before the Hon'ble NGT at New Delhi on 26.04.2019 and submitted Status Report on implementation of Waste Management Rules & other directions. The Hon'ble NGT directed to submit the quarterly reports. Accordingly, eight quarterly reports were submitted to CPCB starting from July, 2019 covering the status of implementation of the directions issued by the Hon'ble NGT in O.A. No.606/2018, O.A. No.673/2018, O.A. No.519/2019 and O.A.No.593/2017. The 8th quarterly report dated 09.07.2021 for the State of Andhra Pradesh submitted to CPCB by the Chief Secretary, Government of Andhra Pradesh is herewith enclosed **(Annexure I)**.

The status of compliance in respect of GVMC is furnished below in the above matter pertaining to 6.1.

6.1.1. Implementation Status of Directions issued by Hon'ble NGT in O.A No.606/2018 by Greater Visakhapatnam Municipal Corporation (GVMC).

The present implementation status with directions issued by the Hon'ble NGT in connection with O.A.No.606/2018 as per the information furnished by GVMC is herewith submitted as follows:

S.No	Activity	Description of Parameters	Present status
1	Door to Door Collection	Door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other nonresidential premises.	100% Door to Door garbage collection has been achieved covering 6,36,864 households.
		Transportation in covered vehicles to processing or disposal facilities	100% Collection of waste is being transported in covered vehicles.
2	Source Segregation	Segregation of waste by Households into Bio-degradable, Non-biodegradable, domestic hazardous	Out of 6,36,864 households in the GVMC, 5,47,912 households (86.04%) segregated waste is being collected from source. 32 No.of meetings conducted on implementation of Solid waste Management rules.
3	Litter Bins & Waste Storage Bins	a. Installation of Twin-bin/ segregated litterbins in commercial & public areas at every 50-100 meters. b. Installation of Waste storage bins in strategic locations across the city, as per requirement c. Elimination of Garbage Vulnerable Points.	Twin-bin system installed.
4	Transfer Stations	Installation of Transfer Stations instead of secondary storage bins in cities with population above 5 lakhs.	Complied
5	Separate transportation	a) Compartmentalization of vehicles for the collection of different fractions of waste. b) Use of GPS in collection and transportation vehicles to be made mandatory at least in cities with population above 5 lakh along with the publication of route map.	Separate vehicles are being used to collect wet & dry wastes, separately, for secondary transportation also. 100 Vehicles (64.5%) tracking devices fixed to the vehicles to track the movement.

6	Public Sweeping	All public and commercial areas to have twice daily sweeping, including night sweeping and residential areas to have daily sweeping.	Sweeping is taken place twice in all public & commercial areas and in residential areas daily sweeping is taken place.
7	Waste Processing. Wet Waste Dry Waste MRF Facility	<p>a. Separate space for segregation, storage, decentralized processing of solid waste to be demarcated.</p> <p>b. Establishing systems for home / decentralized and centralized composting.</p> <p>c. Setting up of MRF Facilities.</p>	<p>a. Separate space for segregation, storage, decentralized processing of solid waste is demarcated.</p> <p>b. 2.3% (Out of 6,36,834 HHs, 15,245 HHs have initiated Home Composting).</p> <p>c. MRF(dry waste) established for sorting of recyclables at Kappulaupda, KRM Colony, Gajuwaka, Cheemulapalli, Anakapalli, Bheemilli.</p>
8	Scientific Landfill	<p>a. Setting up common or regional sanitary landfills by all local bodies for the disposal of permitted waste under the rules.</p> <p>b. Systems for the treatment of legacy waste to be established.</p>	<p>a. The responsibility fixed on the Developer of WtE/WtC Plants and made it a part of the agreement.</p> <p>b. Out of 25 lakh Metric Tons, 3 Lakh Metric Tons of Legacy waste treated so far.</p>
9	C&D Waste	Ensure separate storage, collection and transportation of construction and demolition wastes.	<p>Construction & Demolition Waste Processing Facilities provided with total capacity of 200 TPD. Established C&D Waste Call Center.</p> <p>15 no. of C&D Waste collection centers established for collection of C&D Waste</p> <p>32 No.of meetings conducted on implementation of C&D waste Management.</p>
10	Plastic Waste	Implementation of ban on plastics below <50 microns thickness and single use plastics.	<p>98 Taskforce teams are constituted in the ULBs for inspections and for surprise raids to ensure no sale & usage of banned plastic carry bags.</p> <p>About 18,421 Kgs of plastic carry bags of below 50 microns</p>

			<p>thickness were seized and Rs.3,41,500/- towards fine was collected from the violators. Awareness in big way taken up to avoid use of single use plastics.</p> <p>68 No.of Campaigns conducted on ban on Plastic Carry Bags.</p>
11	Bulk Waste Generators (BWGs)	Bulk waste generators to set up decentralized waste processing facilities as per SWM Rules, 2016.	189 Bulk Waste Generators were identified and Wet Waste Processing Facilities are provided by Bulk Waste Generators, processing 8.9 Tons of wet waste per day.
12	RDF	Mandatory arrangements have to be made by cement plants to collect and use RDF, from the RDF plants, located within 200 kms.	<p>Not tied up with Cements Plants and using non-recyclable Plastic waste in road construction.</p> <p>14.5 Metric Tons of plastic waste used in road construction of length 8 Kms (location of road laid with plastic waste at 39th & 58th wards of GVMC)</p>
13	Preventing solid waste from entering into water bodies	Installation of suitable mechanisms such as screen mesh, grill, nets, etc. in water bodies such as nallahs, drains, to arrest solid waste from entering into water bodies.	Out of 20 vulnerable locations identified, 15 No.s were fixed with screen mesh and wire nets.
14	User Fees	Waste Generators paying user fee for solid waste management, as specified in the bye-laws of the local bodies.	<p>GVMC collecting user fee from waste generators.</p> <p>a) Rs. 2,11,79,800/- amount collected from HHs for implementation of collection of user fee for solid waste management.</p> <p>b) Rs.66,000/- amount collected for implementation of collection of user fee for C&D waste.</p> <p>c) Rs.63,25,600/- amount collected for implementation on levy of fines / penalty for open</p>

			burning and littering of solid waste.
15	Penalty provision	Prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules and delegate powers to officers or local bodies to levy spot fines as per the byelaws framed.	Levy of penalties incorporated on spot on littering.
16	Notification of Bye Laws	Frame bye-laws incorporating the provisions of MSW Rules, 2016 and ensuring timely implementation.	Bye-laws incorporating the provisions of MSW Rules, 2016 is implemented.
17	Citizen Grievance Redressal	Resolution of complaints on Swachhata App within SLA.	100% resolution of complaints on Swachhata App/Nagaraseva are being cleared within SLA.
18	Monitoring mechanism	States/ULBs to update month wise targets/action plans on the online MIS.	100% reports are being updated in MIS from time to time.

6.1.2. Implementation Status of directions issued in O.A.No.593/2017 by GVMC regarding all ULBS shall ensure 100% treatment of Sewage by 01.04.2020:

The estimated sewage generation per day in GVMC area is about 289.80 MLD. GVMC has provided 18 sewage treatment plants of capacity 177 MLD. The GVMC is under construction of additional STP of capacity 54.00 MLD at Narava and 16.5 MLD at Gajuwaka, Aganampudi.

6.1.3. Implementation Status of directions issued in O.A.No.519/2019 by GVMC regarding Bio-Mining/Remediation of legacy waste at sanitary landfill:

With regard to treatment of Legacy waste Bio-mining is taken up in GVMC. So far 3.0 Lakh Metric Tons of Legacy waste treated out of 25 Lakh Metric Tons in GVMC. Waste to Energy(WtE) Plant under PPP mode is under construction by M/s.Jindal Urban Waste Management Ltd. 90% of works completed in the WtE Plant in Greater Visakhapatnam Municipal Corporation and the plant is expected to be commissioned by November 2021.

6.1.4. Status of implementation of directions issued in O.A. No 673 of 2018 by GVMC regarding Polluted River Stretches:

There are no polluted river stretches in GVMC area.

6.2. Status of industries situated near the water bodies:

There are no industries located near the Mudasarlova Reservoir, Gambheeram Reservoir and Raiwada Reservoir and Thatipudi Reservoir. In respect of Meghadrigedda reservoir, there are no water polluting industries existing in the catchment. However, there are two industries existing near to the Meghadrigedda reservoir (within 1 KM radius) viz., i) M/s. Visakha Cement Works, a unit of Andhra Cements Limited, Durga Nagar, Visakhapatnam and ii) Open cast mine of Komati Diwakar, Porlupalem Village, Pendurthi Mandal, Visakhapatnam District. M/s. Visakha Cement Works is a Clinker grinding industry and is not in operation since 2018. The industry has provided bag house/bag filters to cement mills, coal mill,

clinker silo packing house and slag drier as Air Pollution Control Equipment to control dust emissions. Regarding water pollution, the industry generates only domestic effluents for which septic tank followed by soak pit are provided for treatment and disposal. Open cast Building Stone & Gravel Quarry of Komati Diwakar generates only domestic effluents which are disposed by septic tank followed by soak pit. No wastewater from the above units enters into Meghadrigedda reservoir.

6.3. Water quality and sediment quality : APPCB collected the water and sediment samples from 1. Meghadri Gedda, 2. Mudasarlova, 3. Raiwada, 4. Tatipudi and 5. Gambhiramedda reservoirs and their drains during 12.07.2021 to 14.07.2021. The Board has carried out the testing of quality of water and sediments of these reservoirs and drains following are submitted:

6.3.1. Meghadrigedda Reservoir, Visakhapatnam District

The water samples are collected from the following locations :

W-163: Sample collected from the Megadrigedda reservoir near locks in Southeast side

W-164: Sample collected from the Megadrigedda reservoir in South side

W-165: Sample collected from the Megadrigedda reservoir in Southwest side

W-166: Sample collected from the Megadrigedda reservoir in East side

The analysis results are tabulated below :

S.No	Parameter	Unit	W-163	W-164	W-165	W-166	Drinking Water Specification: IS: 10500: 2012 Requirement	
							Requirement (Acceptab	Permissible Limit in the absence of

							le Limit)	alternate source
I. Physico Chemical								
1.	pH	--	7.82	7.88	7.78	7.68	6.5-8.5	No Relaxation
2.	Electrical Conductivity	μS/cm	487	466	460	502	--	--
3.	Dissolved Oxygen	--	5.8	6.6	7.0	5.4		
4.	Total Dissolved Solids	mg/L	312	304	296	320	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	1.4	1.6	1.4	1.8	--	--
6.	Chloride (as Cl)	mg/L	58.7	53.8	58.7	63.5	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	188	192	188	196	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	128	128	116	128	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	20.8	22.4	22.4	20.8	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	18.46	17.49	14.58	18.46	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	2.72	2.48	2.40	2.88	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.01	BDL	BDL	0.01	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	0.15	BDL	BDL	BDL	--	--
14.	Phosphate	mg/L	0.03	0.03	0.03	0.05	--	--

	(as P)							
15.	Sulphate (as SO ₄)	mg/L	12.0 5	15.23	14.82	13.17	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	0.62	0.56	0.35	0.77	1.0 mg/l	1.5 mg/l
II Bacteriological								
17.	Fecal Coliform (MPN/100 ml)	MPN /100 ml	9	7	7	11	-	-
18.	Total Coliform (MPN/100 ml)	MPN /100 ml	28	39	21	39	Shall not be detectable in any 100 ml sample	-
III Heavy Metals								
19.	Chromium (as Cr)	mg/L	BDL	BDL	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	BDL	0.001	0.001	0.001	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.009	0.010	0.011	0.012	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	BDL	BDL	BDL	BDL	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	0.001	0.001	0.001	BDL	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.001	0.001	0.002	0.002	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	0.001	0.002	0.001	0.002	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/L	BDL	BDL	BDL	BDL	0.01 mg/l	No Relaxation
28.	Mercury	mg/L	BDL	0.000	BDL	BDL	0.001	No

	(as Hg)			2			mg/l	Relaxation
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S.No.	Parameter	Unit	W-163	W-164	W-165	W-166	Limit
IV. Pesticides							
1.	Alpha - BHC	µg/l	BLQ	BLQ	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	BLQ	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	BLQ	BLQ	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	BLQ	BLQ	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	BLQ	BLQ	BLQ	1.0
6.	4,4' - DDT	µg/l	BLQ	BLQ	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	BLQ	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	BLQ	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	BLQ	BLQ	--
12.	Heptachlor	µg/l	BLQ	BLQ	BLQ	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	BLQ	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	BLQ	BLQ	--
15.	Endosulfan - II	µg/l	BLQ	BLQ	BLQ	BLQ	0.4 µg/l
16.	Delta - BHC	µg/l	BLQ	BLQ	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l)

The Inlet drain water samples are collected from the following locations :

W-167: Sample collected from the Inlet drain of Megadrigedda reservoir near Vepagunta to Sabbavaram Road

W-168: Sample collected from the Inlet drain of Megadrigedda reservoir near Pinagadi Village

W-169: Sample collected from the Inlet drain of Megadrigedda reservoir near Chintalagatla Village.

The analysis results are tabulated below :

S.No	Parameter	Unit	W-167	W-168	W-169	Drinking Water Specification: IS: 10500: 2012 Requirement	
						Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
I. Physico Chemical:							
1.	pH	--	7.06	7.21	7.22	6.5-8.5	No Relaxation
2.	Electrical Conductivity	μS/cm	574	676	642	--	--
3.	Dissolved Oxygen	--	5.6	5.2	6.0	--	--
4.	Total Dissolved Solids	mg/L	364	420	408	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	4.2	4.8	4.6	--	--
6.	Chloride (as Cl)	mg/L	68.4	88.0	83.1	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	188	196	180	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	140	144	136	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	27.2	20.8	19.2	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	17.49	22.35	21.38	30 mg/l	100 mg/l

11.	Nitrate (as NO ₃)	mg/L	3.96	4.72	4.28	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.01	BDL	0.14	--	--
13	Ammonical Nitrogen (as NH ₃ -N)	mg/L	0.05	BDL	BDL	--	--
14.	Phosphate (as P)	mg/L	0.16	0.06	0.04	--	--
15.	Sulphate (as SO ₄)	mg/L	17.17	24.98	16.93	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	0.68	0.92	0.89	1.0 mg/l	1.5 mg/l
II Bacteriological							
17.	Fecal Coliform (MPN/100 ml)	MPN /100 ml	11	14	14	-	-
18.	Total Coliform (MPN/100 ml)	MPN /100 ml	64	93	75	Shall not be detectable in any 100 ml sample	-
III Heavy Metals							
19.	Chromium (as Cr)	mg/L	BDL	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	0.107	0.006	0.001	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.043	0.021	0.014	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	0.001	0.001	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	0.001	0.001	0.001	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.004	0.006	0.001	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	0.002	0.002	0.002	0.01 mg/l	0.05 mg/l

26.	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/L	0.002	BDL	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/L	BDL	0.0002	0.0001	0.001 mg/l	No Relaxation

IV. Pesticides						
1.	Alpha - BHC	µg/l	BLQ	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	BLQ	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	BLQ	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	BLQ	BLQ	1.0
6.	4,4' - DDT	µg/l	BLQ	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	BLQ	--
12.	Heptachlor	µg/l	BLQ	BLQ	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	BLQ	--
15.	Endosulfan - II	µg/l	BLQ	BLQ	BLQ	0.4 µg/l
16.	Delta - BHC	µg/l	BLQ	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Sediment collection samples are collected from the reservoir & Inlet drains joining the Reservoir at the following locations :

SL-013: Sediment Sample collected from Megadrigedda reservoir near Locks in Southeast side.

SL-014: Sediment Sample collected from Megadrigedda reservoir in South side

SL-015: Sediment Sample collected from Megadrigedda reservoir in Southwest side

SL-016: Sediment Sample collected from Megadrigedda reservoir in East side

SL-017: Sediment Sample collected from Inlet drain of Megadrigedda reservoir near Vepagunta to Sabbavaram Road.

SL-018: Sediment Sample collected from Inlet drain of Megadrigedda reservoir near Pinagadi Village

SL-019: Sediment Sample collected from Inlet drain of Megadrigedda reservoir near Chintalagatla Village.

The analysis results are tabulated below :

S. No.	Parameter	Unit	SL-013	SL-014	SL-015	SL-016
1.	pH	--	7.16	7.46	7.14	6.65
2.	Chromium (as Cr)	mg/kg	9.66	10.74	8.75	11.34
3.	Nickel (as Ni)	mg/kg	8.61	8.43	9.78	5.00
4.	Copper (as Cu)	mg/kg	12.90	11.92	14.63	10.50
5.	Zinc (as Zn)	mg/kg	86.08	38.65	18.55	15.30
6.	Arsenic (as As)	mg/kg	0.61	0.70	0.54	0.52
7.	Cadmium (as Cd)	mg/kg	0.11	0.13	0.04	0.26
8.	Lead (as Pb)	mg/kg	8.39	7.73	6.33	7.88
9.	Mercury(as Hg)	mg/kg	0.02	0.04	0.02	0.03

Sl. No	Parameter	Unit	SL-017	SL-018	SL-019
1.	pH	--	6.99	7.92	8.03
2.	Chromium (as Cr)	mg/kg	10.68	9.92	13.41
3.	Nickel (as Ni)	mg/kg	7.02	3.89	2.76
4.	Copper (as Cu)	mg/kg	26.61	4.50	3.58
5.	Zinc (as Zn)	mg/kg	57.84	8.90	6.55
6.	Arsenic (as As)	mg/kg	1.06	0.32	0.29
7.	Cadmium (as Cd)	mg/kg	0.12	0.10	0.03

8.	Lead (as Pb)	mg/kg	7.78	4.59	3.40
9.	Mercury (as Hg)	mg/kg	0.03	0.02	0.04

Water quality

APPCB collected water samples at different locations in the reservoir and analysed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis of the samples, it is observed that the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coliforms in reservoirs storing surface water. All municipalities employ disinfection through chlorination to eliminate coliforms and also pathogens if any in the drinking water before supplying to public. Hence the water of Megadrigedda Reservoir is fit for drinking purpose after disinfection. The analysis also indicates no contribution of industrial wastewater.

Drain water quality

APPCB collected samples from the inlet drains joining the reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis, all the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of Pesticides is not detected. BOD (4.2 mg/l to 4.8 mg/l) and total coli forms (64 to 93 MPN) are slightly exceeding the drinking water standards. This may be due sewage contamination from residential areas of Pendurthi, GVMC limits.

Sediment Quality

Sediment samples (7 No.s) from drinking water reservoir and from the inlet drains joining the reservoir were collected and analyzed for heavy metals such as Chromium (8.75 to 13.14 mg/kg), Nickel (2.76 to 9.78 mg/kg), Copper

(3.58 to 14.63 mg/kg), Zinc (6.55 to 86.08 mg/kg), Arsenic (0.29 to 1.06 mg/kg) , Cadmium (0.03 to 0.26 mg/kg), Lead (3.40 to 8.39 mg/kg), Mercury (0.02 to 0.04 mg/kg). The concentrations of all the metals analysed in the sediments samples are below USEPA sediment standards and Threshold Effect concentration (below which adverse effects are not expected to occur) as per consensus based Sediment Quality Guidelines (SQG) enclosed as **(Annexure II)**.

6.3.2. Mudasarlova Reservoir, Visakhapatnam District

The water samples are collected from the following locations :

W-145: Sample collected from Mudasarlova Reservoir in East side

W -146: Sample collected from Mudasarlova Reservoir in North side

W-147: Sample collected from Mudasarlova Reservoir in South side

The analysis results are tabulated below :

S. No.	Parameter	Unit	W-145	W-146	W-147	Drinking Water Specification: IS: 10500: 2012 Requirement	
						Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
I. Physico Chemical:							
1.	pH	--	7.80	8.19	8.20	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	607	586	589	--	--
3.	Dissolved Oxygen	--`	6.8	6.6	7.0		
4.	Total Dissolved Solids	mg/L	384	368	372	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	1.8	1.6	1.4	--	--
6.	Chloride (as Cl)	mg/L	92.9	92.9	92.9	250 mg/l	1000 mg/l

7.	Total Alkalinity (as CaCO ₃)	mg/L	192	184	184	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	140	92	108	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	19.2	17.6	17.6	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	22.35	11.66	15.55	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	3.18	2.96	2.92	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.01	0.01	0.01	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL	BDL	--	--
14.	Phosphate (as P)	mg/L	0.01	0.03	0.03	--	--
15.	Sulphate (as SO ₄)	mg/L	21.39	25.10	23.18	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	0.85	0.47	0.86	1.0 mg/l	1.5 mg/l
II Bacteriological							
17.	Fecal Coliform (MPN/100 ml)	MPN/100ml	7	4	7	-	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	39	20	28	Shall not be detectable in any 100 ml sample	-
III Heavy Metals							
19.	Chromium (as Cr)	mg/L	BDL	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	0.001	0.001	0.001	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.011	0.015	0.008	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	0.001	0.001	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	0.001	0.002	0.001	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.002	0.005	0.002	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	0.001	0.001	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/L	BDL	BDL	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/L	0.0002	0.0001	BDL	0.001 mg/l	No Relaxation

IV.Pesticides		Unit	W-145	W-146	W-147	Limit
1.	Alpha – BHC	µg/l	BLQ	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	BLQ	0.04
3.	Gamma – BHC	µg/l	BLQ	BLQ	BLQ	2.0
4.	4,4' – DDD	µg/l	BLQ	BLQ	BLQ	1.0
5.	4,4' – DDE	µg/l	BLQ	BLQ	BLQ	1.0
6.	4,4' – DDT	µg/l	BLQ	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	BLQ	0.03
9.	Endosulfan – I	µg/l	BLQ	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	BLQ	--
12.	Heptachlor	µg/l	BLQ	BLQ	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	BLQ	--
15.	Endosulfan – II	µg/l	BLQ	BLQ	BLQ	0.4 µg/l
16.	Delta – BHC	µg/l	BLQ	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Inlet drain **water** samples are collected from the following locations :

W – 210 : Sample collected from Inlet drain of Mudasarlova Reservoir in West side

The analysis results are tabulated below :

S. No.	Parameter	Unit	W-210	Drinking Water Specification: IS: 10500: 2012 Requirement	
				Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
1.	pH	--	6.85	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	749	--	--
3.	Dissolved Oxygen	--	1.8	--	--
4.	Total Dissolved Solids	mg/l	480	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/l	4.2	--	--
6.	Chloride (as Cl)	mg/l	83.1	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/l	196	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/l	180	200 mg/l	600 mg/l

9.	Calcium (as Ca)	mg/l	32.0	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/l	24.3	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/l	3.84	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/l	0.25	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/l	0.16	--	--
14.	Phosphate (as P)	mg/l	0.83	--	--
15.	Sulphate (as SO ₄)	mg/l	36.89	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/l	0.35	1.0 mg/l	1.5 mg/l
17.	Fecal Coliform (MPN/100 ml)	MPN/100ml	15	-	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	75	Shall not be detectable in any 100 ml sample	-
19.	Chromium (as Cr)	mg/l	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/l	0.172	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/l	0.083	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/l	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/l	0.001	0.05 mg/l	1.5 mg/l
24.	Zinc (as Zn)	mg/l	0.002	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/l	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/l	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/l	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/l	0.0002	0.001 mg/l	No Relaxation
Pesticides			Unit	W-210	Limit
1.	Alpha - BHC		µg/l	BLQ	0.01
2.	Beta- BHC		µg/l	BLQ	0.04
3.	Gamma - BHC		µg/l	BLQ	2.0
4.	4,4' - DDD		µg/l	BLQ	1.0
5.	4,4' - DDE		µg/l	BLQ	1.0
6.	4,4' - DDT		µg/l	BLQ	1.0
7.	Aldrin		µg/l	BLQ	0.03
8.	Dieldrin		µg/l	BLQ	0.03
9.	Endosulfan - I		µg/l	BLQ	0.4
10.	Endosulfan Sulfate		µg/l	BLQ	0.4
11.	Endrin		µg/l	BLQ	--
12.	Heptachlor		µg/l	BLQ	--
13.	Heptachlorapoxide		µg/l	BLQ	--
14.	Methoxychlor		µg/l	BLQ	--
15.	Endosulfan - II		µg/l	BLQ	0.4 µg/l
16.	Delta - BHC		µg/l	BLQ	0.04 µg/l
17.	Endrin Aldehyde		µg/l	BLQ	--

BLQ: Below Limit of Quantation (0.05µg/l)

The Sediment collection samples are collected from the reservoir & Inlet drains joining the Reservoir at the following locations :

SL-004: Sediment sample collected from Mudasarlova Reservoir in East side

SL-005: Sediment sample collected from Mudasarlova Reservoir in North side

SL-006: Sediment sample collected from Mudasarlova Reservoir in South side

SL-020: Sediment Sample collected from Inlet drain to Mudasarlova Reservoir in West side

The analysis results are tabulated below :

S.No.	Parameter	Unit	SL-004	SL-005	SL-006	SL-020
1.	pH	--	7.60	7.58	7.72	7.62
2.	Chromium (as Cr)	mg/kg	0.92	0.22	0.84	23.76
3.	Nickel (as Ni)	mg/kg	6.20	0.18	4.67	9.11
4.	Copper (as Cu)	mg/kg	2.13	0.67	2.15	7.77
5.	Zinc (as Zn)	mg/kg	19.47	2.13	15.35	36.87
6.	Arsenic (as As)	mg/kg	0.79	0.06	0.22	0.86
7.	Cadmium (as Cd)	mg/kg	0.05	0.01	0.06	BDL
8.	Lead (as Pb)	mg/kg	1.54	0.20	1.22	6.11
9.	Mercury (as Hg)	mg/kg	0.02	0.01	0.03	0.06

Water quality

APPCB collected water samples at different locations in the reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis of the samples, it is observed that the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS

10500 : 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coliforms in reservoirs storing surface water. All municipalities employ disinfection through chlorination to eliminate coliforms and also pathogens if any in the drinking water before supplying to public. Hence the water of Mudasarlova Reservoir is fit for drinking purpose after disinfection. The analysis also indicates no contribution of industrial wastewater.

Drain water quality

APPCB collected sample from the inlet drain joining the reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis, all the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500: 2012. Presence of Pesticides is not detected. BOD (4.2 mg/l) and total coli forms (75 MPN) are exceeding the drinking water standards. This may be due to sewage from nearby residential areas located in the catchment area of Mudasarlova.

Sediment Quality

Sediment samples (4 No.s) from drinking water reservoir and from the inlet drain joining the reservoir were collected and analyzed for heavy metals such as Chromium (0.22 to 23.76 mg/kg), Nickel (0.18 to 9.11 mg/kg), Copper (0.67 to 7.77 mg/kg), Zinc (2.13 to 36.87 mg/kg), Arsenic (0.06 to 0.86 mg/kg), Cadmium (0.01 to 0.06 mg/kg), Lead (0.20 to 6.11 mg/kg), Mercury (0.01 to 0.06 mg/kg). The concentrations of all the metals analysed in the sediments samples are below USEPA sediment standards and Threshold Effect concentration (below which adverse effects are not expected to occur) as per consensus based SQG enclosed as **(Annexure II)**.

6.3.3. Raiwada Reservoir, Visakhapatnam District

The water samples are collected from the following locations :

W - 142: Sample collected from Raiwada Reservoir in Southeast side

W - 143: Sample collected from Raiwada Reservoir in South side

W-144 : Sample collected from Raiwada Reservoir in Southwest side

The analysis results are tabulated below :

S.No.	Parameter	Unit	W-142	W-143	W-144	Drinking Water Specification: IS: 10500: 2012 Requirement	
						Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
I. Physico Chemical:							
1.	pH	--	7.17	7.83	8.07	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	204	198	212	--	--
3.	Dissolved Oxygen	--	6.6	7.0	7.3		
4.	Total Dissolved Solids	mg/l	140	136	148	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/l	1.2	1.0	1.2	--	--
6.	Chloride (as Cl)	mg/l	14.6	14.6	19.5	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/l	116	112	112	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/l	96	88	100	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/l	19.2	17.6	20.8	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/l	11.66	10.69	11.66	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/l	1.08	1.14	1.28	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/l	BDL	0.01	BDL	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/l	BDL	BDL	BDL	--	--
14.	Phosphate (as P)	mg/l	0.01	0.01	0.01	--	--

15.	Sulphate (as SO ₄)	mg/l	1.17	1.54	1.67	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/l	0.33	0.19	0.49	1.0 mg/l	1.5 mg/l
II Bacteriological							
17.	Fecal Coliform (MPN/100 ml)	mg/l	4	4	7	-	-
18.	Total Coliform (MPN/100 ml)	mg/l	15	21	28	Shall not be detectable in any 100 ml sample	-
III Heavy Metals							
19.	Chromium (as Cr)	mg/l	BDL	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/l	0.001	0.003	0.004	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/l	0.011	0.015	0.015	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/l	BDL	0.001	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/l	0.001	0.002	0.001	0.05 mg/l	1.5 mg/l
24.	Zinc (as Zn)	mg/l	0.008	0.010	0.007	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/l	0.001	0.001	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/l	BDL	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/l	BDL	BDL	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/l	BDL	BDL	BDL	0.001 mg/l	No Relaxation

IV. Pesticides		Unit	W-142	W-143	W-144	Limit
1.	Alpha - BHC	µg/l	BLQ	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	BLQ	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	BLQ	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	BLQ	BLQ	1.0
6.	4,4' - DDT	µg/l	BLQ	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	BLQ	--

12.	Heptachlor	µg/l	BLQ	BLQ	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	BLQ	--
15.	Endosulfan – II	µg/l	BLQ	BLQ	BLQ	0.4 µg/l
16.	Delta – BHC	µg/l	BLQ	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Inlet drain water samples are collected from the following locations :

W – 212: Sample collected from Inlet drain of Raiwada Reservoir at Jeenapadu village(west side)

W – 213: Sample collected from Inlet drain to Raiwada Reservoir at Tamarabba village (North east side)

The analysis results are tabulated below :

S.No.	Parameter	Unit	W-212	W-213	Drinking Water Specification: IS: 10500: 2012 Requirement	
					Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
1.	pH	--	6.90	7.43	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	173	192	--	--
3.	Dissolved Oxygen	--	6.4	6.8	--	--
4.	Total Dissolved Solids	mg/L	116	132	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	1.2	1.0	--	--
6.	Chloride (as Cl)	mg/L	14.6	14.6	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	76	104	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	60	80	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	16.0	19.2	75 mg/l	200 mg/l

10.	Magnesium (as Mg)	mg/L	4.86	7.77	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	1.48	1.60	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.01	BDL	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL	--	--
14.	Phosphate (as P)	mg/L	0.03	BDL	--	--
15.	Sulphate (as SO ₄)	mg/L	4.24	2.69	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	BDL	0.09	1.0 mg/l	1.5 mg/l
17.	Fecal Coliform (MPN/100 ml)	MPN/100ml	4	4	- Shall not be detectable in any 100 ml sample	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	21	20		-
19.	Chromium (as Cr)	mg/L	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	0.002	0.001	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.067	0.028	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	0.000	0.000	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	0.001	0.001	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.001	0.003	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	BDL	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/L	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/L	BDL	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/L	BDL	BDL	0.001 mg/l	No Relaxation

Pesticides		Unit	W-212	W-213	Limit
1.	Alpha - BHC	µg/l	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	BLQ	1.0

6.	4,4' - DDT	µg/l	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	--
12.	Heptachlor	µg/l	BLQ	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	--
15.	Endosulfan - II	µg/l	BLQ	BLQ	0.4 µg/l
16.	Delta - BHC	µg/l	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Sediment collection samples are collected from the reservoir & Inlet drains joining the Reservoir at the following locations :

SL-010: Sediment Sample collected from Raiwada Reservoir in Southeast side

SL-011: Sediment Sample collected from Raiwada Reservoir in South side

SL-012: Sediment Sample collected from Raiwada Reservoir in Southwest side

SL-022: Sediment Sample collected from Inlet drain of Raiwada Reservoir at Jeenapadu village (west side)

SL-023: Sediment Sample collected from Inlet drain of Raiwada Reservoir at Tamarabba village (North east side)

The analysis results are tabulated below :

S.No.	Parameter	Unit	SL-010	SL-011	SL-012	SL-022	SL-023
1.	pH	--	7.34	7.29	7.19	6.68	6.53
2.	Chromium (as Cr)	mg/kg	16.12	13.25	16.55	12.37	10.30
3.	Nickel (as Ni)	mg/kg	12.39	9.67	11.33	16.92	14.06
4.	Copper (as Cu)	mg/kg	22.24	12.48	15.17	14.35	13.64
5.	Zinc (as Zn)	mg/kg	28.14	16.79	22.34	62.20	58.00
6.	Arsenic (as As)	mg/kg	1.53	0.86	1.03	3.17	2.23
7.	Cadmium (as)		0.07	0.05	0.05	BDL	BDL

	Cd)	mg/kg					
8.	Lead (as Pb)	mg/kg	7.86	4.90	6.22	13.72	11.64
9.	Mercury (as Hg)	mg/kg	0.01	0.01	0.01	0.03	0.02

Water quality

APPCB collected water samples at different locations in the reservoir and analysed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis of the samples, it is observed that the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coliforms in reservoirs storing surface water. All municipalities employ disinfection through chlorination to eliminate coliforms and also pathogens if any in the drinking water before supplying to public. Hence the water of Raiwada Reservoir is fit for drinking purpose after disinfection. The analysis also indicates no contribution of industrial wastewater.

Drain Water Quality

APPCB collected samples from the inlet drain of Raiwada reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis, it is observed that all the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coli forms in surface water drains. The analysis also indicates no contribution of industrial wastewater.

Sediment Quality

Sediment samples (5 No.s) from drinking water reservoir and from the inlet drain joining the reservoir were collected and analyzed for heavy metals such as

Chromium (10.32 to 16.55 mg/kg), Nickel (9.67 to 16.92 mg/kg), Copper (12.48 to 22.24 mg/kg), Zinc (16.76 to 62.2 mg/kg), Arsenic (0.86 to 3.17 mg/kg) , Cadmium (0.05 to 0.07 mg/kg), Lead (4.90 to 13.72 mg/kg), Mercury (0.01 to 0.03 mg/kg). The concentrations of all the metals analysed in the sediments samples are below USEPA sediment standards and Threshold Effect concentration (below which adverse effects are not expected to occur) as per consensus based SQG enclosed as **(Annexure II)**.

6.3.4. Thatipudi Reservoir, Vizianagram District

The water samples are collected from the following locations :

W-148: Sample collected from Thatipudi Reservoir in East side

W-149: Sample collected from Thatipudi Reservoir in South side

W-150: Sample collected from Thatipudi Reservoir in Southwest side

The analysis results are tabulated below :

S.No.	Parameter	Unit	W-148	W-149	W-150	Drinking Water Specification: IS: 10500: 2012 Requirement	
						Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
I. Physico Chemical:							
1.	pH	--	7.76	7.79	7.79	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	244	241	249	--	--
3.	Dissolved Oxygen	--	6.1	7.0	7.0		
4.	Total Dissolved Solids	mg/L	164	160	168	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	1.2	1.2	1.4	--	--
6.	Chlorides (as Cl)	mg/L	14.6	14.6	14.6	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	136	136	140	200 mg/l	600 mg/l
8.	Total Hardness	mg/L	116	108	104	200	600 mg/l

	(as CaCO ₃)					mg/l	
9.	Calcium (as Ca)	mg/L	25.6	25.6	27.2	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	12.6 3	10.6 9	8.74	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	1.12	1.02	1.16	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	BDL	BDL	0.01	--	--
13	Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL	BDL	--	--
14.	Phosphate (as P)	mg/L	0.02	0.02	0.02	--	--
15.	Sulphate (as SO ₄)	mg/L	0.38	1.09	1.04	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	0.25	0.36	0.19	1.0 mg/l	1.5 mg/l

II Bacteriological							
17.	Fecal Coliform (MPN/100 ml)	MPN/100ml	4	4	3	-	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	14	15	11	Shall not be detectable in any 100 ml sample	-
III Heavy Metals							
19.	Chromium (as Cr)	mg/L	BDL	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	BDL	BDL	0.001	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.012	0.013	0.014	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	0.001	BDL	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	BDL	BDL	0.001	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.003	0.002	0.004	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	0.001	0.001	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/L	BDL	0.002	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/L	BDL	BDL	BDL	0.001 mg/l	No Relaxation

Pesticides		Unit	W-148	W-149	W-150	Limit
IV. Pesticides						
1.	Alpha - BHC	µg/l	BLQ	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	BLQ	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	BLQ	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	BLQ	BLQ	1.0
6.	4,4' - DDT	µg/l	BLQ	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	BLQ	--
12.	Heptachlor	µg/l	BLQ	BLQ	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	BLQ	--
15.	Endosulfan - II	µg/l	BLQ	BLQ	BLQ	0.4 µg/l
16.	Delta - BHC	µg/l	BLQ	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Inlet drain **water** samples are collected from the following locations :

W - 214: Sample collected from Inlet drain of Thatipudi Reservoir at Kasipatnam Village

The analysis results are tabulated below :

S.No.	Parameter	Unit	W-214	Drinking Water Specification: IS: 10500: 2012 Requirement	
				Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source

I. Physico Chemical:					
1.	pH	--	7.19	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	240	--	--
3.	Dissolved Oxygen	--	7.0	--	--
4.	Total Dissolved Solids	mg/L	172	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	1.2	--	--
6.	Chloride (as Cl)	mg/L	14.6	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	132	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	108	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	24.0	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	11.6 6	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	1.28	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.03	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	--	--
14.	Phosphate (as P)	mg/L	0.08	--	--
15.	Sulphate (as SO ₄)	mg/L	17.2 2	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	BDL	1.0 mg/l	1.5 mg/l
II Bacteriological					
17.	Fecal Coliform (MPN/100 ml)	MPN/100ml	7	-	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	23	Shall not be detectable in any 100 ml sample	-
III Heavy Metals					
19.	Chromium (as Cr)	mg/L	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	0.001	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.025	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	0.009	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	0.003	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.021	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	BDL	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/L	BDL	0.003 mg/l	No Relaxation

27.	Lead (as Pb)	mg/L	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/L	0.0003	0.001 mg/l	No Relaxation

S. No.	Parameter	Unit	W-214	Limit
IV.Pesticides				
1.	Alpha – BHC	µg/l	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	0.04
3.	Gamma – BHC	µg/l	BLQ	2.0
4.	4,4' – DDD	µg/l	BLQ	1.0
5.	4,4' – DDE	µg/l	BLQ	1.0
6.	4,4' – DDT	µg/l	BLQ	1.0
7.	Aldrin	µg/l	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	0.03
9.	Endosulfan – I	µg/l	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	0.4
11.	Endrin	µg/l	BLQ	--
12.	Heptachlor	µg/l	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	--
14.	Methoxychlor	µg/l	BLQ	--
15.	Endosulfan – II	µg/l	BLQ	0.4 µg/l
16.	Delta – BHC	µg/l	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Sediment collection samples are collected from the reservoir & Inlet drains joining the Reservoir at the following locations :

SL-007: Sediment Sample collected from Thatipudi Reservoir in East side

SL-008: Sediment Sample collected from Thatipudi Reservoir in South side

SL-009: Sediment Sample collected from Thatipudi Reservoir in Southwest side

SL-024: Sediment Sample collected from inlet drain to Thatipudi Reservoir at Kasipatnam village

The analysis results are tabulated below :

S.No.	Parameter	Unit	SL-007	SL-008	SL-009	SL-024
1.	pH	--	7.52	7.37	7.32	6.57

2.	Chromium (as Cr)	mg/kg	11.05	8.26	11.01	10.53
3.	Nickel (as Ni)	mg/kg	7.63	3.17	6.18	17.99
4.	Copper (as Cu)	mg/kg	6.48	3.06	4.44	23.82
5.	Zinc (as Zn)	mg/kg	11.47	8.01	12.00	41.78
6.	Arsenic (as As)	mg/kg	0.42	0.25	0.42	3.57
7.	Cadmium (as Cd)	mg/kg	0.02	0.02	0.02	BDL
8.	Lead (as Pb)	mg/kg	6.04	2.95	6.72	8.77
9.	Mercury (as Hg)	mg/kg	0.01	0.02	0.01	0.06

Water quality

APPCB collected water samples at different locations in the reservoir and analysed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis of the samples, it is observed that the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coli forms in reservoirs storing surface water. All municipalities employ disinfection through chlorination to eliminate coliforms and also pathogens if any in the drinking water before supplying to public. Hence the water of Tatipudi Reservoir is fit for drinking purpose after disinfection. The analysis also indicates no contribution of industrial wastewater.

Drain Water Quality

APPCB collected samples from the inlet drain of Thatipudi reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis, it is observed that all the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of

Pesticides is not detected. It is common phenomenon to find total coli forms in surface water drains. The analysis also indicates no contribution of industrial wastewater.

Sediment Quality

Sediment samples (4 No.s) from drinking water reservoir and from the inlet drain joining the reservoir were collected and analyzed for heavy metals such as Chromium (8.26 to 11.05 mg/kg), Nickel (3.17 to 17.99 mg/kg), Copper (3.06 to 23.82 mg/kg), Zinc (8.01 to 41.78 mg/kg), Arsenic (0.25 to 0.42 mg/kg) , Cadmium (BDL to 0.02 mg/kg), Lead (2.95 to 8.77 mg/kg), Mercury (0.01 to 0.06 mg/kg). The concentrations of all the metals analysed in the sediments samples are below USEPA sediment standards and Threshold Effect concentration (below which adverse effects are not expected to occur) as per consensus based SQG enclosed as **(Annexure II)**.

6.3.5. GAMBHIRAM GEDDA RESERVOIR, VISAKHAPATNAM DISTRICT

The water samples are collected from the following locations :

W-139: Sample collected from Gambhiramedda Reservoir in East side

W-140: Sample collected from Gambhiramedda Reservoir in South side

W-141: Sample collected from Gambhiramedda Reservoir in West side

The analysis results are tabulated below :

S. No.	Parameter	Unit	W-139	W-140	W-141	Drinking Water Specification: IS: 10500: 2012 Requirement	
						Requirement (Acceptable)	Permissible Limit in the absence of alternate

						Limit)	source
I. Physico Chemical:							
1.	pH	--	7.14	7.10	7.15	6.5-8.5	No Relaxation
2.	Electrical Conductivity	μS/cm	477	568	572	--	--
3.	Dissolved Oxygen	--	7.5	6.0	4.6		
4.	Total Dissolved Solids	mg/L	316	372	384	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	1.4	1.6	1.6	--	--
6.	Chlorides (as Cl)	mg/L	63.5	68.4	73.3	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	172	180	184	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	116	156	156	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	19.2	22.4	24.0	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	16.52	24.3	23.32	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	1.92	2.04	2.10	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.08	0.03	0.07	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	BDL	BDL	--	--
14.	Phosphate (as P)	mg/L	0.03	0.02	0.03	--	--
15.	Sulphate (as SO ₄)	mg/L	18.82	35.19	40.81	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	0.56	0.64	0.59	1.0 mg/l	1.5 mg/l
II. Bacteriological							
17.	Fecal Coliform (MPN/100 ml)	MPN/100ml	9	7	7	-	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	23	39	43	Shall not be detectab	-

						le in any 100 ml sample	
III. Heavy Metals							
19.	Chromium (as Cr)	mg/L	0.001	BDL	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/L	0.001	0.002	0.003	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/L	0.011	0.014	0.021	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/L	0.001	0.001	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/L	0.002	0.002	0.002	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/L	0.007	0.004	0.008	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/L	0.002	0.001	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/L	BDL	BDL	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/L	0.001	BDL	0.001		
28.	Mercury (as Hg)	mg/L	0.0002	0.0001	0.0002	0.001 mg/l	No Relaxation

Note: - All values are expressed in mg/l except pH, Conductivity, T.Coli & F. Coli

IV. Pesticides						
1.	Alpha - BHC	µg/l	BLQ	BLQ	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	BLQ	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	BLQ	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	BLQ	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	BLQ	BLQ	1.0
6.	4,4' - DDT	µg/l	BLQ	BLQ	BLQ	1.0
7.	Aldrin	µg/l	BLQ	BLQ	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	BLQ	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	BLQ	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	BLQ	BLQ	0.4
11.	Endrin	µg/l	BLQ	BLQ	BLQ	--
12.	Heptachlor	µg/l	BLQ	BLQ	BLQ	--
13.	Heptachlorap oxide	µg/l	BLQ	BLQ	BLQ	--
14.	Methoxychlor	µg/l	BLQ	BLQ	BLQ	--
15.	Endosulfan - II	µg/l	BLQ	BLQ	BLQ	0.4 µg/l
16.	Delta - BHC	µg/l	BLQ	BLQ	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	BLQ	BLQ	--

Note: BLQ (Below Limit of Quantation (0.05µg/l))

The Inlet drain water samples are collected from the following locations :

Sampling location: W-211: Sample collected from the Inlet drain joining the Gambhiramgedda Reservoir in NorthWest side

The analysis results are tabulated below :

S. No.	Parameter	Unit	W-211	Drinking Water Specification: IS: 10500: 2012 Requirement	
				Requirement (Acceptable Limit)	Permissible Limit in the absence of alternate source
I. Physico Chemical:					
1.	pH	--	6.89	6.5-8.5	No Relaxation
2.	Electrical Conductivity	µS/cm	434	--	--
3.	Dissolved Oxygen	--	6.2	--	--
4.	Total Dissolved Solids	mg/L	280	500 mg/l	2000 mg/l
5.	Biochemical Oxygen Demand	mg/L	2.4	--	--
6.	Chloride (as Cl)	mg/L	24.4	250 mg/l	1000 mg/l
7.	Total Alkalinity (as CaCO ₃)	mg/L	188	200 mg/l	600 mg/l
8.	Total Hardness (as CaCO ₃)	mg/L	180	200 mg/l	600 mg/l
9.	Calcium (as Ca)	mg/L	36.8	75 mg/l	200 mg/l
10.	Magnesium (as Mg)	mg/L	21.38	30 mg/l	100 mg/l
11.	Nitrate (as NO ₃)	mg/L	2.06	45 mg/l	No Relaxation
12.	Nitrite Nitrogen (as NO ₂ -N)	mg/L	0.01	--	--
13.	Ammonical Nitrogen (as NH ₃ -N)	mg/L	BDL	--	--
14.	Phosphate (as P)	mg/L	0.03	--	--
15.	Sulphate (as SO ₄)	mg/L	48.91	200 mg/l	400 mg/l
16.	Fluoride (as F)	mg/L	0.38	1.0 mg/l	1.5 mg/l
II. Bacteriological					
17.	Fecal Coliform (MPN/100 ml)		9	-	-
18.	Total Coliform (MPN/100 ml)	MPN/100ml	28	Shall not be detectable in any 100 ml sample	-

III. Heavy Metals					
19.	Chromium (as Cr)	mg/l	BDL	0.05 mg/l	No Relaxation
20.	Manganese (as Mn)	mg/l	0.048	0.1 mg/l	0.3 mg/l
21.	Iron (as Fe)	mg/l	0.035	0.3 mg/l	No Relaxation
22.	Nickel (as Ni)	mg/l	0.001	0.02 mg/l	No Relaxation
23.	Copper (as Cu)	mg/l	0.001	0.05 m/l	1.5 mg/l
24.	Zinc (as Zn)	mg/l	0.002	5 mg/l	15 mg/l
25.	Arsenic (as As)	mg/l	0.001	0.01 mg/l	0.05 mg/l
26.	Cadmium (as Cd)	mg/l	BDL	0.003 mg/l	No Relaxation
27.	Lead (as Pb)	mg/l	BDL	0.01 mg/l	No Relaxation
28.	Mercury (as Hg)	mg/l	0.000 3	0.001 mg/l	No Relaxation

Note: - All values are expressed in mg/l except pH, Conductivity, T.Coli & F. Coli.

IV.Pesticides				
1.	Alpha - BHC	µg/l	BLQ	0.01
2.	Beta- BHC	µg/l	BLQ	0.04
3.	Gamma - BHC	µg/l	BLQ	2.0
4.	4,4' - DDD	µg/l	BLQ	1.0
5.	4,4' - DDE	µg/l	BLQ	1.0
6.	4,4' - DDT	µg/l	BLQ	1.0
7.	Aldrin	µg/l	BLQ	0.03
8.	Dieldrin	µg/l	BLQ	0.03
9.	Endosulfan - I	µg/l	BLQ	0.4
10.	Endosulfan Sulfate	µg/l	BLQ	0.4
11.	Endrin	µg/l	BLQ	--
12.	Heptachlor	µg/l	BLQ	--
13.	Heptachlorapoxide	µg/l	BLQ	--
14.	Methoxychlor	µg/l	BLQ	--
15.	Endosulfan - II	µg/l	BLQ	0.4 µg/l
16.	Delta - BHC	µg/l	BLQ	0.04 µg/l
17.	Endrin Aldehyde	µg/l	BLQ	--

Note : BLQ(Below Limit of Quantation (0.05µg/l)

The Sediment collection samples are collected from the reservoir & Inlet drains joining the Reservoir at the following locations :

SL-001 : Sediment Sample collected from the Gambhiramgedda Reservoir in East side

SL-002 : Sediment Sample collected from the Gambhiramgedda Reservoir in South side

SL-003: Sediment Sample collected from the Gambhiramgedda Reservoir in West side

SL-021: Sample collected from Inlet drain to Gambhiramgedda Reservoir in North West side

The analysis results are tabulated below :

S. No.	Parameter	Unit	SL-001	SL-002	SL-003	SL-021
1.	pH	--	7.42	7.48	7.54	7.82
2.	Chromium (as Cr)	mg/kg	12.55	12.07	10.58	16.96
3.	Nickel (as Ni)	mg/kg	16.63	14.28	16.15	7.89
4.	Copper (as Cu)	mg/kg	21.15	19.96	19.58	9.46
5.	Zinc (as Zn)	mg/kg	33.91	25.27	23.49	15.48
6.	Arsenic (as As)	mg/kg	0.98	1.71	1.29	0.60
7.	Cadmium (as Cd)	mg/kg	0.08	0.06	0.07	BDL
8.	Lead (as Pb)	mg/kg	12.14	10.75	8.83	8.05
9.	Mercury (as Hg)	mg/kg	0.01	0.02	0.01	0.03

Water quality

APPCB collected water samples at different locations in the reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis of the samples, it is observed that the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500 : 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coli forms in reservoirs storing surface water. All municipalities employ disinfection through chlorination to eliminate coliforms and also pathogens if any in the drinking water before supplying to public. Hence the water of Gambhiramgedda Reservoir is fit for drinking purpose after disinfection. The analysis also indicates no contribution of industrial wastewater.

Drain Water Quality

APPCB collected sample from the inlet drain of Gambhiramgedda reservoir and analyzed for physico chemical (16 parameters), Bacteriological (2 parameters), heavy metals (10 parameters) and pesticides (17 parameters). As per the analysis, it is observed that all the physico chemical parameters and heavy metals are within the prescribed standards of drinking water as per IS 10500: 2012. Presence of Pesticides is not detected. It is common phenomenon to find total coli forms in surface water drains. The analysis also indicates no contribution of industrial wastewater.

Sediment Quality

Sediment samples (4 No.s) from drinking water reservoir and from the inlet drain joining the reservoir were collected and analyzed for heavy metals such as Chromium (10.58 to 16.96 mg/kg), Nickel (7.89 to 16.63 mg/kg), Copper (9.46 to 21.15 mg/kg), Zinc (15.48 to 33.91 mg/kg), Arsenic (0.6 to 1.71 mg/kg), Cadmium (BDL to 0.08 mg/kg), Lead (8.05 to 12.14 mg/kg), Mercury (0.01 to 0.03 mg/kg). The concentrations of all the metals analysed in the sediments samples are below USEPA sediment standards and Threshold Effect concentration (below which adverse effects are not expected to occur) as per consensus based SQG enclosed as **(Annexure II)**.

6.4. Conclusions on water quality of reservoirs :

- Water quality is meeting all the physico – chemical, heavy metals and pesticides parameters except presence of coliforms as per IS 10500 standards of drinking water. However, water is fit for drinking after disinfection.
- BOD is observed in the inlet drains of Meghadrigedda and Mudasarlova which may be due to sewage contamination.

- The sediment quality in all the reservoirs are below the USEPA sediment standards and Threshold Effect concentration (below which adverse effects are not expected to occur) as per consensus based SQG.

The above report is placed before the Hon'ble Tribunal for its kind consideration to pass appropriate directions.

DATED-22-07-2021


Joint Chief Environmental Engineer
A.P. POLLUTION CONTROL BOARD
ZONAL OFFICE
VISAKHAPATNAM
JOINT CHIEF ENVIRONMENTAL ENGINEER
AP POLLUTION CONTROL BOARD
ZONAL OFFICE
VISAKHAPATNAM

ADITYA NATH DAS, I.A.S.,



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CHIEF SECRETARY

F. No. EFS01-ENVOPEST (COVC)/3/2019-Sec.I

Dt: 09.07.2021

To

The Chairman,
Central Pollution Control Board,
Parivesh Bhawan, East Arjun Nagar,
New Delhi – 110 032.
Email: ccb.cpcb@nic.in & divyasinha.cpcb@nic.in

Sir,

Sub:- NGT – OA. No. 606 of 2018 - Tribunal order dt.26.04.2019 and
12.09.2019 – 8th Quarterly Report of the State of Andhra Pradesh –
Submitted – Reg.

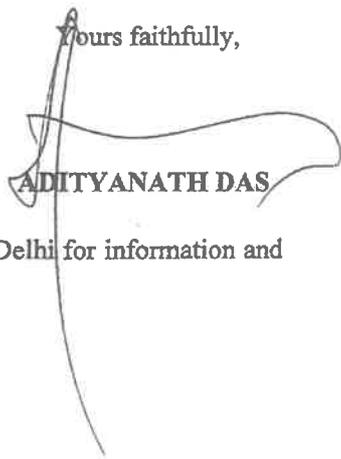
- Ref:-
1. Hon'ble NGT Order dt. 26.04.2019 in O.A. No. 606 of 2018.
 2. 1st Quarterly report submitted on 29.07.2019.
 3. Hon'ble NGT Order dt. 12.09.2019 in O.A. No. 606 of 2018.
 4. 2nd quarterly report submitted on 30.10.2019.
 5. 3rd quarterly report submitted on 29.01.2020.
 6. 4th quarterly report submitted on 23.06.2020.
 7. 5th quarterly report submitted on 03.09.2020.
 8. 6th quarterly report submitted on 26.11.2020.
 9. 7th quarterly report submitted on 22.03.2021.

* * * * *

In compliance to the Hon'ble National Green Tribunal Orders dated 26.04.2019, 12.09.2019,
07.01.2020, 10.01.2020, 28.02.2020, 02.07.2020 and 14.12.2020 in O. A. No. 606 of 2018,
the 8th quarterly report of the State of Andhra Pradesh is herewith submitted.

Encl: Status Report.

Yours faithfully,


ADITYANATH DAS

Copy to the Advocate on Records, Govt. of Andhra Pradesh, New Delhi for information and
necessary action.

1.0 INTRODUCTION:

In compliance to the orders of the Hon'ble National Green Tribunal, Principal Bench, New Delhi order dated 16.01.2019, the then Chief Secretary to Govt., Andhra Pradesh State has appeared in person before the Hon'ble NGT at New Delhi on 26.04.2019 and submitted Status Report on implementation of Waste Management Rules & other directions issued. The Hon'ble NGT in it's orders dated 26.04.2019, 12.09.2019, 07.01.2020, 10.01.2020, 28.02.2020, 02.07.2020 & 14.12.2020 has issued other directions and directed to submit the quarterly reports.

Accordingly, seven quarterly reports were submitted, so far in July, 2019, October, 2019, January 2020, June 2020, September 2020, November 2020 & March 2021 respectively. The 8th quarterly report for the State of Andhra Pradesh is, now submitted as below:

2.0. COMPLIANCE TO SOLID WASTE MANAGEMENT RULES, 2016 INCLUDING LEGACY WASTE.

There are 124 ULBs consisting of 17 Municipal Corporations and 76 Municipalities & 31 Nagar Panchyaths existing in the State of Andhra Pradesh. The total solid waste generation from all ULBs is about 6898TPD. About 118 Lakh Tons of legacy waste is accumulated in the existing dump yards.

Government have approved the Request for Proposal (RFP) for remediation of existing MSW dump sites through Bio-Mining process in Urban Local Bodies vide G.O.Rt.No.102, dated 12-3-2021 of MA & UD (UBS) Department and also constituted several committees for scrutiny of the tenders floated on RFP for Remediation of existing MSW dumpsites through Bio-Mining Projects in the Urban Local Bodies vide G.O.Rt.No.103, dated 12-3-2021 of MA & UD (UBS) Department.

At present, remediation of existing dumpsites is completed in 2 ULBs i.e. Vijayawada & Tirupathi Municipal Corporations and work is in progress in 2 ULBs i.e. Greater Visakhapatnam Municipal Corporation and Tanuku Municipality. It is proposed to take up dumpsites remediation in ULBs with population above 1 lakh under Swachh Bharat Mission Phase-II. Dumpsites remediation in balance ULBs will be taken up with the ULB funds.

2.1. Identification of suitable sites for Waste Processing Facilities and Landfills:

- **Current Status:** Out of total 124 Urban Local Bodies (ULBs), sites are identified in 110 ULBs. 14 ULBs are newly constituted and DPR study is in progress.

- **Desirable level of compliance in terms of statutes:** To be complied by 30.06.2018, as per the Hon'ble NGT order dt. 22.12.2016 in OA No. 199/2014.
- **Gap between current status and desired levels:** Sites are to be identified for 14 newly constituted ULBs.
- 10 ULBs have constituted newly during January 2020 and another 4 ULBs have constituted during December 2020. Sites are to be identified for the above 14 newly constituted ULBs.
- **Proposals of attending the gap with time lines:** 100% complied with the directions for the existing ULBs and sites to be identify for newly constituted 14 ULBs.

2.2 Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source and ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.

- **Current Status:** At present, door to door garbage collection is happening from 37.88 Lakh households (99.00%), out of 38.27 Lakhs households in 124 ULBs.
 - The percentage of segregation of waste at source, at present is 82.16 %, covering 31.44 Lakh households, out of 38.27Lakh Households.
 - It is submitted that directions are issued to all the ULBs to conduct Special Drives to achieve 100% collection of segregated waste. Awareness campaigns among the Public are being organized through Ward Volunteers & Ward Secretaries to handover Segregated Waste to the Municipal Public Health Workers. At present 2,539 members (Ward Sanitation & Environment Secretaries) are entrusted with the responsibilities of creating awareness, monitoring and implementation in the respective wards of the Urban Local Bodies.
 - Regular Information Education & Communication (IEC) activities are being conducted in the ULBs and also among street vendors/Hawkers on Segregation of Waste and on handing over of it to the Municipal PH Workers. Awareness among the PH Workers is also taken up to collect the Segregated Waste from the Waste Generators.
 - Primary garbage collection is done through Push Carts/Autos. In addition to the vehicles engaged by the ULBs for transportation of Waste i.e., for secondary transportation, 140 Nos. of 14 cubic meter capacity Refuse Compactor Vehicles, 340 Nos. of 6 cubic meter capacity Refuse Compactor Vehicles have been supplied to the ULBs through Swachh Andhra Corporation & garbage is being transported in covered

compartmentalized vehicles. Transfer Stations are also established instead of Secondary Storage bins.

- Government of Andhra Pradesh introducing new program Clean Andhra Pradesh (CLAP). Cleanliness and sanitation for the State of Andhra Pradesh has been a story of steady progress under Swachha Bharat Mission. In cognizance of this fact and to initiate a state-wide movement to build a Clean Andhra Pradesh.
- The core objective of the Mission is to create “Bin free – Litter free – Garbage free cities”, visual cleanliness of the city’s, 100% of door to door collection, 100% source segregation with community participation encouraging home composting and on site waste treatment and 100% Scientific treatment of solid waste generation. Planning to procure 4500 No. of Primary Garbage Collection Vehicles (Garbage tippers with compartments). The Garbage Tippers will be provided with GPS Devices for tracking, and Mike System.
- Introducing 3 bins system in all 124 ULBs in the state for dry waste, wet waste and hazards waste collection & 100 % source segregated waste collection in all 124 ULBs.
- It is proposed to construct Garbage Transfer stations (GTSs) in all ULBs for timely collection and dispose of the segregated waste from Households. The Solid Waste operating load is equally distributed among the Garbage Transfer Stations. Garbage Tipper will deposit segregated waste at Transfer Stations which have established for every 8-10 wards. Necessary training will be provided to the ULB officials and Vehicle Operators for effective collection of segregated waste from HHs.
- A Dash Board is also developed (Online Waste Management System) to monitor gate-to-gate garbage collection, quantities of Wet & Dry waste collected, transport vehicles movement etc., at Micro-pocket level, Cluster level and at ULB level. Radio Frequency Identification (RFID) Tags have been fixed to almost 25.58 lacks gates, supplied 13,535 Nos. scanners to read the tags, 994 Nos weighing scales and 746 vehicle tracking devices fixed to the vehicles to track the movement. This is to ensure 100% coverage, to improve the garbage collection system & transportation.
- **Desirable level of compliance in terms of statutes:** As per SWM Rules, 2016, 100% source segregation and door to door collection to be achieved by 08.04.2018 (2 years).
- **Gap between current status and desired levels:** 1% of door to door garbage collection and 17.84 % of collection of segregated waste to be achieved.

- **Proposals of attending the gap with time lines:** Owing to COVID-19 pandemic situation, 100% segregated waste collection could not be achieved. However, it will be achieved by end of December 2021. It is also proposed to procure 4500 Compartmentalized Autos to reduce the drudgery of PH Workers for primary collection of garbage from gate to gate, tenders called for procurement of Compartmentalized Autos.

2.3. Setting up of solid waste processing facility and sanitary landfill facilities:

➤ Waste to Energy Plants:

- **Current Status:** Two Waste to Energy Plants under PPP mode are under construction by M/s. Jindal Urban Waste Management Ltd. 90% of works completed in the WtE Plant in Greater Visakhapatnam Municipal Corporation (GVMC Cluster with 4 ULBs to process 1133 TPD Solid Waste) and 96% of works completed in Guntur Municipal Corporation (Guntur Cluster with 9 ULBs to process 1202 TPD Solid Waste) and these two plants are expected to be commissioned by November 2021 & June 2021.

With regard to development of Sanitary Land Fills, the responsibility is fixed on the Developer of Waste to Energy Plants and made it a part of the agreements and it will be commissioned

- **Desirable level of compliance in terms of statutes:** As per SWM Rules, 2016, Processing Facilities and Landfills have to be provided by 32 ULBs, which have more than 1,00,000 populations by 31.03.2018 (2 years) and remaining 92 ULBs, which have less than 1,00,000 populations by 31.03.2019 (3 years). The Waste to Energy Plant in Guntur (covering 9 ULBs & additional 16 ULBs in 100 KMs radius) & Visakhapatnam (covering 4 ULBs & additional 8 ULBs in 100 KMs radius) will be commissioned by June & November 2021 respectively, in which the developers are directed to develop Processing Facilities and Landfills.
- **Gap between status and desired levels:** It is proposed to establish Waste to Compost Plants/Bio-Methanation Plants with mechanized MRFs, in balance ULBs
- **Proposals of attending the gap with time lines:** Two Waste to Energy Plants, which are under construction at Guntur & Visakhapatnam are likely to be commissioned by June, 2021 & November, 2021.

➤ Waste to Compost plants:

- **Current Status:** Out of 54 Waste to Compost Plants awarded covering 58 ULBs, 31 Waste to Compost Plants covering 34 ULBs are under operation and 18 Waste to

Compost Plants covering 18 ULBs will be commissioned by Sept, 2021. The balance 5 projects covering 6 ULBs were cancelled and will be retendered.

With regard to Development of Sanitary Land Fills, the responsibility fixed on the Developer of Waste to Compost Plants and made it a part of the agreements.

1922 Bulk Waste Generators were identified in the State and Wet Waste Processing Facilities are provided by 760 Bulk Waste Generators and processing 64.10 Tons of wet waste per day.

With regard to practice of Home Composting, so far 10,904 Paryavarana Mitras & 360 Master Trainers are engaged to bring awareness and to see Home Composting is practiced at house to house level. Demonstrations in 6.83 lakhs house-holds were completed and about 2.80 lakh house-holds are currently Practicing Home Composting in the ULBs (about 7.45 % of total house-holds in 124 ULBs).

- **Desirable level of compliance in terms of statutes:** As per SWM Rules, 2016, processing facilities and landfills have to be provided by 31.03.2019 (3 years).
- **Gap between current status and desired levels:** Out of 54 Waste to Compost Plants awarded covering 58 ULBs, 31 Waste to Compost Plants covering 34 ULBs are operational and 18 Waste to Compost Plants covering 18 ULBs will be commissioned by Sept, 2021. The balance 5 projects covering 6ULBs were cancelled and will be retendered.

For the 72 ULBs including the cancelled 6 ULBs, tenders were invited for establishment of ISWM projects under PPP mode and the projects will be awarded by end of July 2021. 1162 Bulk Waste Generators have to commence practice onsite Wet Waste processing facilities.

- **Proposals of attending the gap with time lines:** It is submitted that, the balance 20 WtC Plants will be commissioned by September, 2021.

For the 72 ULBs including the cancelled 6 ULBs, tenders were invited for establishment of ISWM projects under PPP mode and the projects will be awarded by end of July 2021.

2.4 Bio-remediation or capping of old and abandoned dump sites.

- **Current Status:** With regard to treatment of 118.0 Lakh MTs (Approx.) Legacy Waste identified in 124 ULBs, all the ULBs were instructed to investigate & analyze to take up bio-remediation/bio-mining (at least some portion initially on pilot basis).
 - For the 14 newly constituted ULBs, Detailed Study of SWM is in progress.

Bio-mining is taken up in Greater Visakhapatnam Municipal Corporation, Vijayawada Municipal Corporation, Tirupati Municipal Corporation and Tanuku Municipality. So far, 3.00 Lakh MTs of Waste is treated in Greater Visakhapatnam Municipal Corporation, 2.8 Lakh MTs waste treated in Vijayawada Municipal Corporation, 10,000 MTs of waste treated in Tanuku Municipality & 1.56 Lakh MTs waste treated in Tirupati Municipal Corporation. In Vijayawada Municipal Corporation and Tirupathi Municipal Corporations 100 % Legacy waste treated in existing dump sites. As a part of SBM Phase-II, Bio-mining of legacy waste will be taken up on priority basis in ULBs with population above 1 lakh. Balance ULBs were instructed to investigate & analyze to take up bio-remediation/bio-mining (at least some portion initially on pilot basis). For the 14 Newly constituted ULBs, detailed Study of SWM is in progress.

Bio Capping of dump site has already been completed in Kadapa Municipal Corporation and developed into a beautiful green space.

- **Desirable level of compliance in terms of statutes:** As per SWM Rules, 2016, bio-remediation of legacy waste to be achieved by 08.04.2021.
- **Gap between current status and desired levels:** The Bio-remediation shall be taken up in remaining 106 ULBs. For the 14 newly constituted ULBs Detailed Study of SWM is in progress.
- **Proposals of attending the gap with time lines:** Initiate process for treatment of legacy waste in the ULBs by August, 2022 by requesting finances from GoI under Swachh Bharat Mission Phase –II (SBM).

2.5 Ensure separate storage, collection and transportation of construction and demolition waste:

- **Current Status:** Total estimated C&D waste generation from all 124 ULBs in the State of Andhra Pradesh is about 495 TPD.

Out of 124 ULBs, Construction & Demolition Waste Processing Facilities are provided at 3 ULBs i.e. Visakhapatnam, Tirupati and Vijayawada with total capacity of 480 TPD.

In 110 ULBs C&D Waste Call Centers established and balance 14 ULBs are in Progress. In 79 ULBs C&D Waste Collection Centers are established. The ULBs generating above 50 TPD will go for C&D Waste processing facilities and below 50 TPD for Crushing Units, under cluster approach, considering viability. The end product of sand and gravel from the

Construction & Demolition Waste Processing Facilities is being supplied to industries and also being used in construction of roads.

- **Desirable level of compliance in terms of statutes:** As per C&D Rules, 2016, ensuring separate storage, collection and transportation of construction and demolition wastes by 29.03.2019 (3 years).
- **Gap between current status and desired levels:** Collection Centers of C&D Waste have to be established in 45 ULBs.
- **Proposals of attending the gap with time lines:** Collection Centers in balance 45 ULBs will be established by August, 2021. With regard to C&D Waste processing facilities, it is proposed to establish in cluster approach by December, 2021.

2.6 Status of the Identification and Development of Model Cities and Towns:

- **Current Status:** The Municipal Administration & Urban Development Dept., has identified Visakhapatnam, Tirupati & Kakinada, as 3 model cities in the State of Andhra Pradesh. The status of these model cities in implementation of waste management rules is as follows.
 - Door to Door Garbage Collection is undertaken in all the three cities. So far, 100% of households are covered under the Door to Door collection in all 3 model cities.
 - Source Segregation of municipal waste at household level is being enforced. So far, 90% of the households in Visakhapatnam, 75% of the households in Kakinada and 100% households in Tirupati are segregating waste at household level and handed over to the Municipal PH Workers.
 - Waste to Energy Plant in Visakhapatnam is expected to be commissioned by November, 2021.
 - In Tirupati Bio-Methanation Plant with 50 TPD Capacity is in operation.
 - Bulk Waste Generators are identified and instructed to carry out onsite composting of wet waste. 189 BWGs identified at Visakhapatnam, 33 at Kakinada and 87 at Tirupati. Out of this, the 189 BWGs at Visakhapatnam, 2 at Kakinada and 87 BWGs at Tirupati are practicing on-site composting of wet waste.
 - Bio-mining of legacy waste is taken up in Visakhapatnam and Tirupati. In Visakhapatnam, 3 lakh MT of legacy waste is processed out of the 10 lakh MT legacy waste. In Tirupati, 1.5 lakh MT of legacy waste is processed, out of the 1.5 lakh MT legacy waste. Sanitary Landfill is established at Visakhapatnam. In Kakinada, Work Order issued to an Agency for Bio-mining.

- Material Recovery Facilities (MRF) established in Visakhapatnam, Kakinada and Tirupati.
 - Construction & Demolition (C&D) Waste processing plant is established in Visakhapatnam & C&D crushing unit is established in Tirupati.
 - ULB level committees are constituted in all the three towns for monitoring of implementation of Waste Management Rules.
 - In Tirupati, STP with 50 MLD Capacity is functioning to treat the 33 MLD sewage generated. In Visakhapatnam, the expected sewage generation is 181.84 MLD & 18 Nos STPs with a capacity of 177 MLD are functioning. In Kakinada, 5 MLD capacity STP is under construction.
 - Treated waste water is being reused in Visakhapatnam & Tirupati for industrial use and plantation purposes etc.
- **Desirable level of compliance in terms of statutes:** As per the directions of the Hon'ble NGT these Three Model Towns have to be fully compliant by end of October, 2019 and other ULBs by April, 2020.
 - **Proposals of attending the gap with time lines:** It is submitted that, since some of the activities mentioned in the Waste Management Rules and directions of Hon'ble NGT are yet to be complied fully in these model towns owing to COVID - 19 pandemic situation from March, 2020, it is requested to allow another 18 months' time (i.e., September, 2021), in the interim report submitted in October, 2019 to the Hon'ble NGT to comply them.
 - **Name and designation of designated officer for ensuring compliance to provisions under statutes:**

S.No	Department	Designated Officer for ensuring compliance
i.	MA&UD	Commissioner and Director of Municipal Administration, Andhra Pradesh.
ii.	APPCB	Member Secretary.

2.7. Solid Waste Management in Census towns & Villages:

- **Current Status:**
 1. Out of total 116 Census Towns identified, 46 are merged into Municipalities or converted into Nagar Panchayats. 62.7 MTs of solid waste are generated from these 70 Census Towns. 29 census towns were selected to make fully compliance to Solid Waste Management Rules, 2016.
 2. Solid Waste Processing Centers were constructed in 29 Model Villages. Door to Door collection of waste is being practiced in 29 model villages. Vermi Seeding is done in 29 model villages.

3. Apart from 29 Model Villages, in the remaining 41 census towns, Solid Wealth Processing Centers constructed in 27 census towns and door to door collection is being carried out in 39 census towns.
 4. Other than the census towns Solid Waste Management activity is being practiced in rural villages in the entire State. In 9913 Gram Panchayats Solid Wealth Processing Center sheds constructed and in 7113 Gram Panchayats, door to door collection is initiated and vermi seeding is done.
- **Desirable level of compliance in terms of statutes:**
 1. Setting up solid waste processing facilities by local bodies and census towns below 100000 populations with 3 years. Timeline i.e. by 08.12.2020.
 2. All 29 model villages have to be fully complained to SWM Rules, 2016 by 31st October, 2019.
 3. Implementation of SWM Rules, 2016 in the remaining 41 villages have to be ensured in full compliance by 30th April, 2021.
 - **Gap between current status and desired levels:** In phase-II out of 41 Model Villages, construction of 39 SWPC Sheds completed and another 2 will be completed by June 15th 2021. Ensuring segregation at source and 100% of door to door collection of segregated waste and transportation in covered vehicles for processing and disposal of waste and setting up of solid waste processing facilities by census towns below 100000 populations.
 - **Proposals of attending the gap with time lines:**
 1. Construction of SWPC sheds in the Phase-II (41) villages will be completed by 15th June, 2021.
 2. Implementation of SWM Rules and PWM Rules in the remaining 41 census towns of Phase-II will be ensured by 30th July, 2021.
 3. The Government of Andhra Pradesh aimed to implement SWM activity in all villages by December, 2021.
 4. A 100 days special sanitation campaign is planned from July 8th, 2021 with the name Jagananna Swacha Sankalpam aiming at implementation of SWM Rules in all Grampanchayats in the State.
 - **Name and designation of designated officer for ensuring compliance to provisions under statute:**

S.No	Department	Designated Officer for ensuring compliance
i.	PR&RD	State Project Coordinator, SWM.
ii.	APPCB	Member Secretary

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3.0. BIO- MEDICAL WASTE MANAGEMENT RULES, 2016:

- **Current Status:** In the state of Andhra Pradesh, total no. of Health Care Facilities (HCFs) are 11,043 among which 9,848 Health Care Facilities (HCFs) are having valid Bio-medical Waste (BMW) Authorization which is 89.178% & 10,621 HCFs have tied up with Common Bio-medical Waste Treatment Facilities (CBWTFs) which is 96.17 %, as on 30.04.2021. The Government of Andhra Pradesh released Administrative sanction of for obtaining authorization certificates for the AYUSH stand alone Dispensaries and Teaching Hospitals and to tie up with agencies for treatment and disposal of the Biomedical Waste in accordance with the Bio - Medical Waste Management Rules, 2016. AYUSH Hospitals in the State are being pursued for obtaining Authorization and tie up. All AYUSH Hospitals are non-bedded only.
- **Desirable level of compliance in terms of statutes:** Target to achieve 100% Authorization and 100% tie up by 30.04.2021.
- **Gap between current status and desired levels:** 1,195 HCFs shall renew the BMW Authorization and 422 HCFs shall tie-up with CBWTFs.
- **Proposals of attending the gap with time lines:** All the HCFs including Veterinary, AYUSH will be brought under valid Bio-Medical Waste Authorization (BMWA), tie -up with CBWTFs within 2 months. APPCB issued instructions to all Regional officers that environmental compensation shall be initiated against the defaulting HCFs and CBWTFs. APPCB already initiated action for conducting Gap analysis study and completed in the districts of Srikakulam and Vizianagaram in 2018. Gap analysis study will be conducted in the state of Andhra Pradesh very soon.
- **Name and designation of designated officer for ensuring compliance to provisions under statute:**

S.No	Department	Designated Officer for ensuring compliance
i.	HM&FW	Principal Secretary, A.P. Secretariat, Velagapudi.
ii.	APPCB	Member Secretary.

4.0. COMPLIANCE TO HAZARDOUS WASTE RULES:

- **Current Status:** There are 2648 Hazardous Waste Generating Industries in the State of AP as per 2019-20 HW Inventory. About 158364.46 MT of Landfillable waste, 4287.08 MT of Incinerable waste, 53608.98 MT of Recyclable waste and 349572.08 MT of Utilizable waste was generated as per the HWM Inventory 2019-20. APPCB is encouraging the co-processing of Hazardous Waste in the Cement Kilns. There are 10

cement plants in the State of AP having co-processing facility. There are 6 Pre-Processing facilities in the State of AP. There are two Common Treatment Storage & Disposal Facility (TSDF) existing in the State of Andhra Pradesh namely M/s. Coastal Waste Management Project, Pharmacy, Parawada, Visakhapatnam & M/s. Coastal Waste Management Project (Unit-2) by M/s. Mumbai Waste Management Limited, (A Subsidiary of M/s. Ramky Enviro Engineers Ltd.,) SPS Nellore District. APPCB is granting authorization to the facility with the field inspection report duly indicating the adequacy of facilities for collection, storage, packaging, transportation, treatment, processing, use, destruction, recycling, recovery, pre-processing, co-processing, utilization, offering for sale, transfer or disposal of the hazardous and other wastes. APPCB is not permitting the import and transboundary movement of the hazardous and other wastes from any country to the State of AP for its disposal. APPCB has developed Hazardous Waste Online Manifest Application and Vehicle Tracking System for hazardous and other wastes and is being implemented. The Govt., of Andhra Pradesh established a Waste Exchange platform in the name of "Andhra Pradesh Environment Management Corporation" for providing effective mechanism for collection, transportation, storage, treatment, processing, delivery and disposal of industrial and other waste.

- **Desirable level of compliance in terms of statutes:** The HW Inventory for the year 2019-20 was submitted to CPCB on 31.10.2020. The Landfillable waste was disposed in the TSDF, Visakhapatnam and TSDF, SPSR Nellore district in 5 Captive landfills. The Incinerable waste is being disposed in incinerator located at TSDF, Parawada, Visakhapatnam and in 7 Captive incinerators. The Recyclable waste like Brass dross, zinc and copper bearing wastes, lead waste, used and waste oil, etc is sent to recyclable HW industries. The utilizable waste is managed in Co-processing in Cement plants, Solvent Recovery Units, etc.
- **Gap between current status and desired levels:** The disposal of Hazardous & Other Waste generated by the industries will be reviewed in the CFE / CFO Committee meetings during their establishment and operational phase and it is a continuous activity. All Hazardous Waste generating industries are covered under TSDF, Captive landfills, Cement plants for co-processing, recycling existing units in the state.

- **Proposals of attending the gap with time lines:** The proposal of disposal mode of Hazardous waste will be decided based on the recommendation of the Committees and such industries are being regularly monitored by the Board.
- **Name and designation of designated officer for ensuring compliance to provisions under statutes:**
Member Secretary, A.P. Pollution Control Board.

5.0. COMPLIANCE TO E-WASTE RULES:

- **Current Status:**
 1. APPCB has submitted the quarterly reports for the F.Y 2020-21 to the CPCB on 14.10.2020.
 2. APPCB has submitted annual report to the CPCB on 23.11.2020 in Form-V for the year 2019-20. As per annual report, total e-Waste processed by Authorized dismantler facilities existing in the state is 66,672 Kgs/annum.
 3. CPCB issued authorization to producers in State of Andhra Pradesh to
 - M/s. Anyemi Online Services Private Ltd, Visakhapatnam
 - M/s. Kreaive UPI Solutions, Rajahmundry, East Godavari Dist
 - M/s. Favorite Led Displays, Srinagar Colony, Guntur
 4. The Board officials verified the status of operation of EPR Producer Authorized Collection Centers in the State of Andhra Pradesh and it is observed that 186 collections centers are not working out of 210 and status reports are being furnished to CPCB time to time.

Checking of informal trading, dismantling and recycling of waste:

AP Pollution Control Board requested the Commissioner and Director of Municipal Administration, GoAP to issue necessary instructions to all Commissioners for conducting quarterly drive for checking of informal trading, dismantling & recycling activities and for channelizing the e-Waste to authorized dismantlers & recyclers in obedience to the Hon'ble NGT directions issued in OA No. 512/2018 dated 12.02.2019.

The APPCB is implementing the action plan mentioned vide Hon'ble NGT directions issued in OA No. 512/2018, dated 12.02.2019. Further, APPCB has submitted the follow up action report to CPCB on 09.10.2020 as per the Hon'ble NGT Order dated 02.09.2019 in OA No. 512/2018.

The A.P Pollution Control Board is co-ordinating with district administration to carryout quarterly drive for checking informal trading, and also creating awareness by conducting programmes.

APPCB has submitted a report on 12.10.2020 to CPCB in compliance of NGT order in the matter of O.A No. 621/2018 on illegal storage/ dismantling/ Recycling of e-waste.

Facilitate collection and disposal of e-waste: There are 8 Recycling / Dismantling/ Refurbishers units in operation in the State of Andhra Pradesh.

Governance frame work for monitoring compliance: Govt. of A.P. appointed nodal officers at state, city and district level for monitoring the compliance of implementation of status of e-waste management rules vide G.O. Rt. No. 87, dt. 14.10.2019.

Information, Education and Communication (IEC) Plan be firmed up and executed:

The Board is conducting awareness programmes. The Board conducted meeting with all the bulk consumers of electronic equipments and major industries to motivate to comply the provisions of e-waste management rules and also to furnish annual returns regularly. The Board also conducted a workshop at Vijayawada with all the stake holders, EPR authorized representatives, recyclers, dismantlers, government departments etc., to share their experiences and views to bring a awareness for effective implementation of e-waste management rules in the state of Andhra Pradesh.

Strengthen system of enforcement: APPCB has been carrying out periodical verification of collection centers and dismantling / recycling units and coordinating with District Administration for better implementation of e-waste management rules and also conducting quarterly review meetings at district level.

- **Desirable level of compliance in terms of statutes:** As per the E-Waste (Management) Rules, 2016, collection target for producer shall comply 50% during 5th year i.e. by March, 2021 and 70% by March, 2023 for collection of e-Waste, either in number or weight.

As per the O.M received from MoEF &CC, New Delhi dt: 15.10.2020 due to in wake of COVID-19 pandemic to keep the targets for e-waste collection at 2019-20 level i.e at 30% as against 40% prescribed for the current year i.e 2020-21.

- **Gap between current status and desired levels:** Action Plan will be implemented to meet the desirable level of compliance in terms of statutes.

- **Proposals of attending the gap with time lines:** The Board is coordinating with district administration to carryout quarterly drive for checking informal trading, and also creating awareness by conducting programmes.

APPCB developing a user friendly mobile & web application to act as a platform connecting consumers with the authorized recyclers, dismantlers for the effective e-waste management.

As per the EoDB reforms 2020-2021 a meeting has been conducted on 22.09.2020 to process the E-Waste authorization applications through AP Industries portal and these modules are integrated with single desk portal of Andhra Pradesh.

- **Name and designation of designated officer for ensuring compliance to provisions under status:**

Nodal officers are fixed under G.O. Rt.No. 87, dt. 14.10.2019

State Level	Special Chief Secretary to Govt., Environment, Forest, Science & Technology Dept., assisted by Member Secretary, APPCB.
Municipal Corporation and Municipalities	Municipal Commissioners of Municipal Corporation and Municipalities.
District	District Collectors assisted by Regional Officer, APPCB, Distinct Panchayat Officers and all Municipal Commissioners.

6.0. STATUS OF STPS AND RE-USE OF TREATED WASTE WATER:

- **Current Status:** The estimated sewage generation from 120 ULBs is 1503.20 MLD. At present 43 STPs are existing in 12 Urban Local Bodies (ULBs) for treating 515.85 MLD of sewage. Another 46 STPs with a treatment capacity of 480.07 MLD sewage are under construction. A Preliminary Project Report has been submitted to Government of India, to sanction funds under National River Conservation Project for construction of STPs with a capacity of 242 MLD.

In 12 ULBs where STPs are existing, 326.97 MLD (64%) of treated waste water is being utilized for industrial/agriculture/plantation/irrigation purposes.

- **Desirable level of compliance in terms of statutes:** All ULBs shall ensure 100% treatment of sewage by 01.04.2020, as per Hon'ble NGT Order dated. 28.08.2019 in OA No. 593/2017.
- **Gap between current status and desired levels:** 987.35 MLD.
- **Proposals of attending the gap with time lines:** Owing to COVID - 19 pandemic situation, all the resources including manpower, financial are diverted to reduce the spread of COVID Virus. Hence, 46 STPs with a treatment capacity of 480.07 MLD sewage, taken up under various schemes are expected to be completed by June, 2022.

It is respectfully submitted that owing to financial constrains and Covid-19 pandemic situation, no substantial progress made in these activities and therefore from internal resources / external funding these said works are proposed to take up.

- **Name and designation of designated officer for ensuring compliance to provisions under statute:**

S.No	Department	Designated Officer for ensuring compliance
i.	MA&UD	CDMA, Guntur
ii.	APPCB	Member Secretary.

7.0. COMMON EFFLUENT TREATMENT PLANTS (CETPs):

- **Current Status:** Seven CETPs are existing in the state of Capacity 30.52 MLD. The 7 CETPs are in operation i.e., i) Brandix India Apparel City Private Limited, ii) Ramky Pharma City (India) Ltd., Visakhapatnam, iii) M/s. Machilipatnam Imitation Jewellery Park Pvt. Ltd., iv) Vijayawada Auto Cluster Development Company, Vijayawada, Krishna, v) Common Effluent treatment Plant (CETP) Nagari, Chittoor, vi) Kondapally CETP and viii) CETP, AP SEZ, Achutapuram, Visakhapatnam. The Officers of APPCB has been regularly monitoring the CETPs every month. In 3 CETPs namely Brandix India Apparel City Private Limited, Ramky Pharma City (India) Ltd, Visakhapatnam & Atchutapuram Effluent Treatment Limited, Atchutapuram, the treated wastewater is being discharged into the sea through marine outfall in presence of APPCB officials, under the lock and key system.
- **Desirable level of compliance in terms of statutes:** All 7 CETPs shall comply with the norms stipulated by APPCB.
- **Gap between current status and desired levels:---**
- **Proposals of attending the gap with timelines: ---**
- **Name and designation of designated officer for ensuring compliance to provisions under the statute:**
Member Secretary, A.P. Pollution Control Board.

8.0. POLLUTED RIVER STRETCHES (O.A. No 673 of 2018):

- **Current Status:** Central Pollution Control Board (CPCB), Delhi has identified 351 river stretches as polluted river stretches in the Country for not meeting the prescribed water quality standards. Among them five river stretches namely Godavari River (Rayanpeta to Rajamahendravaram), Krishna River (Amaravati to Hamsala Deevi), Tungabhadra (Manthralayam to Bavapuram), Kundu (Nandyal to Madduru) and Nagavali (along Thotapally) have been identified in Andhra Pradesh for exceeding the prescribed standard limit of 3 mg/lit of Bio-chemical Oxygen Demand (BOD), during the period related to

2016 & 2017. APPCB has been monitoring all five polluted river stretches on monthly basis under National Water Quality Monitoring Program (NWMP). As per Hon'ble NGT directions, the EFS & T Dept., Govt. of AP, vide G. O. Rt. No. 177, dated 05.12.2018 constituted RRC. So far, 5 RRC meetings were convened with stakeholders to review the progress and submitted the action plans to CPCB.

The Govt., of AP has submitted the performance guarantees of Rs 10 Crores vide dt: 24.02.2020 to the Central Pollution Control Board, New Delhi, in compliance with the directions issued by the Hon'ble NGT, New Delhi.

The CPCB submitted the action plans as per the directions of Hon'ble NGT order in O.A. No. 673/2018 and the action plans has been approved for priority-IV for the State of Andhra Pradesh.

MA&UD Dept. in co-ordination with APPCB has submitted Monthly Progress report upto April 2021, to Jal Sakthi, New Delhi and CPCB.

APPCB has been monitoring the 5 polluted river stretches at 27 locations on monthly basis and the data is being uploaded in RRC Website <https://rrc.ap.gov.in/Views/Monitoring.aspx> time to time.

As per the data of Water Quality Monitoring Reports of March 2021, the parameters of BOD & Faecal Coliform are meeting the National Water Quality Standards in the 5 polluted river stretches. In all river stretches BOD & Faecal coliform are within limits. Average value for last one year in Priority – IV rivers with BOD – 2.40mg/l and Faecal Coliform – 232 MPN/100ml and in Priority – V rivers BOD – 1.9mg/l and Faecal Coliform – 23.42 MPN/100ml.

- **Desirable level of compliance in terms of statutes:** As per the National Water Quality Standards, river stretches shall meet the parameters namely Bio-chemical Oxygen Demand (BOD) – 3 mg/l & Faecal Coliform - 500 MPN / 100 ml.
- **Proposals of attending the gap with time lines:** The status and the proposals for STPs are as follows:

Name of the river/ Town	Present demand (MLD)	Existing capacity (MLD)	Under construction (MLD)	Existing gap (MLD)
Tughabhadra/ Kurnool	60	2.4	12	45.6
Kundu/ Nandyal	21	--	10	11
Godavari/ Rajamundry	51	30	5	16
Nagavali/ Srikakulam	12	--	10	2

Krishna/ Vijayawada	158	130	20	8
Total	302	162.4	57	82.6

The total sewage generation from the five polluted river stretches is 302 MLD, 11 STPs of capacity 162.40 MLD is existing and 57 MLD capacity of STPs are under construction.

The Government of Andhra Pradesh issued G.O. RT. No.103, dated.25.11.2020 appointing Commissioner and Director of Municipal Administration & Urban Development Dept, Guntur. A.P as Nodal Authority for setting-up of STPs for 100% treatment of sewage by 31.03.2021 in the five identified polluted river stretches in Andhra Pradesh viz., Godavari, Krishna, Tungabhadra, Kundu and Nagavali in coordination with the A.P. Pollution Control Board.

The Central Monitoring Committee (CMC) has been reviewing the monthly progress of the five polluted river stretches and the 9th CMC meeting was held on 04.03.2021 under the Chairmanship of Secretary, Jal Sakthi, New Delhi.

9.0 122 NON ATTAINMENT CITIES WITH REFERENCE TO AMBIENT AIR QUALITY

(O.A. No 681 of 2018):

- **Current Status:** The APPCB has been monitoring air quality at 81 locations in 20 cities & towns in Andhra Pradesh under State and National Air Monitoring Program on monthly basis as per Central Pollution Control Board (CPCB) protocol.

CPCB, Delhi has identified 124 cities and towns in India as non-attainment in respect of air pollution for not meeting the National Ambient Air Quality Standards (NAAQS).

Thirteen of them, namely, Visakhapatnam, Vijayawada, Guntur, Nellore, Kurnool, Srikakulam, Vizianagaram, Rajahmundry, Eluru, Ongole, Chittoor, Kadapa & Anantapur in Andhra Pradesh have been identified as non-attainment cities in the State of AP in respect of Particulate Matter (PM₁₀) concentration.

Out of 13 non-attainment cities, action plan was prepared by 6-member Air Quality Monitoring committee (AQMC) for 5 non-attainment cities and approved by CPCB for implementation. The Short Term (6 months), Medium term (1 year) and long term (2 years) action points were prepared to implement by all the stakeholders departments to reduce the gap to meet the desired levels. The matter is being reviewed by the Air Quality Monitoring Committee (AQMC) on quarterly basis.

The revised action plans were placed before the AQMC meeting on 25.02.2021 for remaining 08 non attainment cities namely Srikakulam, Vizianagaram, Rajahmundry, Eluru, Ongole, Chittoor, Kadapa & Anantapur in the state of Andhra Pradesh and have

been submitted to CPCB on 25.02.2021 for further approval. CPCB vide letter/email dt: 24.03.2020 has approved the revised action plans of 08 non attainment cities along with the recommendations for ground implementation with immediate effect and the same has been communicated to all the stakeholder departments.

In the second meeting of the monitoring committee for the National Clean Air Programme (NCAP) of the MoEF&CC convened on 27.02.2020 at New Delhi directed to include micro level planning in action plans of Non attainment cities.

The 2nd and 3rd Quarterly (Period: July-September & October-December 2020) implementation progress report of approved action plans has been prepared after obtaining the information from stake holder departments for 05 non attainment cities and has submitted to CPCB on 28.04.2021 through the Chief Secretary, GoAP .

As per the data of National Ambient Air Quality Monitoring Reports of 2021, (i.e., from January to March 2021), out of 13 non-attainment cities, 04 cities namely, Nellore, Ongole, Chittoor & Kadapa are meeting the National Ambient Air Quality Standards.

- **Desirable level of compliance in terms of statutes:** The desirable level of compliance in terms of statues as per National Ambient Air Quality standards for annual averages of PM₁₀ is 60µg/m³.
- **Gap between current status and desired levels:** 09 non-attainment city namely Srikakulam, Vizianagaram, Visakhapatnam, Rajamahendravaram, Eluru, Vijayawada, Guntur, Kurnool & Ananthapur are to be complied with National Ambient Air Quality Standards.
- **Proposals of attending the gap with time lines:** Short Term (6 months), Medium term (1 year) and long term (2 years) action points were prepared to implement by all the stakeholders departments to reduce the gap to meet the desired levels. The Air Quality Monitoring Committee (AQMC) is reviewing the issues on quarterly basis. It is expected to reduce 35% of excess levels in next 3 years, 50% in next 5 years and 70-80% in next 10 years under National Clean Air Program (NCAP).
- **Name and designation of designated officer for ensuring compliance to provisions under statutes:**

S. No	Department	Designated Officer for ensuring compliance
i.	MA&UD	Commissioner & Director
ii.	Transport	Commissioner, Vijayawada
iii.	Civil Supplies	Commissioner
iv.	AP Police (Traffic)	DGP
v.	Industries	Commissioner, Vijayawada.
vi.	Agriculture	Commissioner

vii.	Mining Department	Director, Mines & Geology
viii.	AP Transco	Chief Managing Director
ix.	AP Genco	Managing Director
x.	NHAI	Regional Director
xi.	NREDCAP	Managing Director
xii.	APSDMA	Managing Director
xiii.	PESO	Dy. Chief Control of Explosives
xiv.	Greater Visakhapatnam Municipal Corporation	Commissioner
xv.	Vijayawada Municipal Corporation	Commissioner.

9.0. 100 INDUSTRIAL CLUSTERS

- **Current Status:**

Visakhapatnam:

After, the MoEF&CC meeting held on 12.11.2018 at New Delhi, Visakhapatnam area was declared as Other Polluted Areas (OPA) as the CEPI score was deemed to 44.74 and the same was considered by the Hon'ble NGT in its Order Dt.14.11.2019 in O.A. No. 1038/2019.

The Board is implementing the action plans for improving environmental quality of Ambient Air, Ground and Surface Water in Visakhapatnam area to keep the CEPI score less than 60 i.e. Other Polluted Areas (OPA).

Vijayawada:

The CEPI score of industrial areas of Kondapalli & Ibrahimpatnam under Vijayawada is reported as 68.04. The Hon'ble National Green Tribunal, vide Order Dt.14.11.2019 in O.A. No.1038/2018, directed the State PCBs for furnishing revised action plan and action taken report before 31.01.2020 to bring down the pollution load in the industrial areas covered under Critically Polluted Area (CPA) and Severally Polluted Area (SPA).

Accordingly, revised action plan for industrial areas of Kondapalli & Ibrahimpatnam (Vijayawada area) was submitted to the CPCB on 27.01.2020 and the other information of Revised Action plan was submitted on 31.01.2020 along with Format A & B and a map demarcating with core zone of SPA & impact zone i.e. 5 km around the core zone covering proposed for monitoring all the critical parameters.

The CPCB sought clarification on 20.02.2020 on the Format A & B and directed the Board to collect Environmental Compensation from non complying industries for the non compliance observed for the past five years in exceedance of Environmental Standards.

The Board has issued Show Cause Notices on 17.10.2020 to the defaulting industries (2 Nos) for payment of Environmental Compensation for the non compliance observed in the industries for the past five years in exceedance of Environmental Standards & stipulated

conditions. Accordingly, Environment Compensation (EC) of Rs. 1,40,000/- collected from M/s. Kondapalli Envirotech Pvt. Ltd., Sy.No. 233, IDA, Kondapalli (V), Ibrahimpatnam (M), Krishna District and EC of Rs. 41,40,000/- collected from M/s. NTTPS, Ibrahimpatnam, Krishna District for exceedance of Environmental Standards and stipulated conditions in the past five years, as per CPCB directions.

- **Desirable level of compliance in terms of statutes:** The Action plans shall be implemented for maintaining the Environmental Quality with CEPI score of less than 60 i.e. the Other Polluted Areas.
- **Gap between current status and desired levels:** The CEPI score of industrial area of Kondapalli & Ibrahimpatnam (Vijayawada area) is covered under Severely Polluted Areas with CEPI score of 68.04. The Board regularly monitoring and implementing the action plans for improving the environmental quality of Ambient Air, Ground and Surface Water in industrial areas of Kondapalli & Ibrahimpatnam (Vijayawada) and to bring down the CEPI score less than Other Polluted Areas (OPA) i.e. less than CEPI score of 60.
- **Proposals of attending the gap with time lines:** The Board prepared revised action plan for industrial areas of Kondapalli & Ibrahimpatnam (Vijayawada area) for restoration of environment quality in industrial areas of Kondapalli & Ibrahimpatnam (Vijayawada).
The Board is levying Environmental Compensation from the defaulting industries located in the industrial area of Kondapalli & Ibrahimpatnam (Vijayawada area).
The Board is implementing the action plans for improving the environmental quality of Ambient Air, Ground & Surface Water in Visakhapatnam area and Kondapalli & Ibrahimpatnam (Vijayawada area) to maintain CEPI score less than 60 i.e. Other Polluted Areas (OPA).
- **Name and designation of designated officer for ensuring compliance to provisions under statutes:**

S.No	Department	Designated Officer for ensuring compliance
i.	APPCB	Member Secretary.

10.0. GROUND WATER EXTRACTION / CONTAMINATION AND RE-CHARGE:

APPCB continued to monitor ground water quality at 33 locations in the State of Andhra Pradesh under National Water Quality Monitoring Programme (NWMP) half yearly i.e in the month of April (before monsoon) and October (after monsoon). No significant organic or inorganic pollution due to anthropogenic activities was observed from the results. At certain locations higher concentrations of TDS, Hardness, Fluoride, Nitrate, etc. were observed, and

this could be attributed to soil chemical composition of that particular area. APPCB also monitoring ground water quality wherever it is required on receipt of complaints due to industrial activity.

- **Name and designation of designated officer for ensuring compliance to provisions under statutes:**

Director, Ground Water Dept.

11.0. AIR POLLUTION INCLUDING NOISE POLLUTION:

➤ Air Pollution:

Andhra Pradesh Pollution Control Board is regularly monitoring ambient air quality in the State at 81 locations covering 20 cities and towns including all district head quarters using manual and continuous real-time monitoring stations. The PM10 concentrations representing Respirable Suspended Particulate Matter found exceeding the annual average standard ($60 \mu\text{g}/\text{M}^3$) at almost all the places. But, meeting the 24 hour average standard ($100 \mu\text{g}/\text{M}^3$). High concentrations of PM10 can be attributed to the road dust, vehicular exhaust emissions, industrial activity, construction & demolition activities, etc. Action plans have been prepared and are under implementation to control air pollution levels in all the 13 non-attainment cities in Andhra Pradesh to bring down the air pollution to meet the National Ambient Air Quality Standards including PM10 concentrations to below $60\mu\text{g}/\text{m}^3$ in coordination with the concerned stakeholders. Ministry of Environment, Forests and Climate Change, Govt. of India, New Delhi has sanctioned an amount of Rs. 10.40 crores to APPCB to undertake the following activities to control air pollution in the four non-attainment cities namely, Vijayawada, Guntur, Nellore and Kurnool.

S. No.	Component details	Budget sanctioned (Rs.)	Amount released (Rs.)	Status of Utilization
I. Vijayawada – funds sanctioned during FY 2019-20				
1	Installation and commissioning of 3 nos. CAAQMS	3.6 crore (@1 crore capital cost per CAAQMS & 20 lakh for 1 year's O&M)		Notification of Award (NoA) has been issued to M/s. Environnement SA India Pvt. Ltd. for the supply of 08 CAAQM stations, vide Award No.: APPCB – 12022/1 /2019-SS-CL-APPCB, dated 07.05.2021. Supply, installation & commissioning will be completed in six months time.
2	*Mechanical street sweepers (2 nos.)	2 crore (@ 50 lakh capital cost		Procured 3 nos. and O&M is in process.

		per sweeper & 50 lakh for 1 year's O&M)	6.00 Crores	
3	*Water sprinkler (3 nos.)	1 crore (@24 lakh capital cost per sprinkler & 6 lakh for 1 year's O&M)		Procured and O&M is in process.
4	Source Apportionment Study	80 lakh		Issued Work order to Indian Institute of Technology, Tirupathi, vide NoA No. APPCB-12022/1/2019-SS-CL-APPCB-22, dated 19.05.2020. An advance of Rs.31,98,900/- released to IIT, Tirupathi. Work is in progress. First phase winter season monitoring completed. 2 nd installment of 25% of the total contract value also released.
5	Mobile Enforcement Unit (4 nos.)	30 lakh (@7.5 lakh per unit including vehicle & 1 staff)		Established four teams and operated for a period of two months, February & March, 2020 and requested CPCB to extend this system for the other four non-attainment cities with the remaining balance funds. Reply awaited.
6	*Greening and paving activities	2.3 crore		Works under progress and requested further to completion.
*APPCB has released Rs. 5.00 crores to Municipal Corporation, Vijayawada in two installments (1st installment of Rs. 2.00 crores was released during May, 2020 and an amount of Rs. 1.8466 crores was utilized towards procurement of Mechanical street sweepers (3 nos.) and Water sprinkler (3 nos.). 2nd installment of Rs. 3.00 crores was released during March 2021 towards to meet the committed expenditure of Rs. 3.4534 crores as per the work orders issued, vide Lr. No. Rc. V1-142820/2019 dated 23.02.2021).				
II. Guntur - funds sanctioned during FY 2019-20 & 2020-21				
1	Implementation of approved city action plans.	0.96 crores	0.88 crores	0.0246632 crores (utilized) and 0.1753368 crores (committed expenditure)
III. Nellore - funds sanctioned during FY 2019-20 & 2020-21				
1	Implementation of approved city action plans.	0.86 crores	0.82 crores	0.0246632 crores (utilized) and 0.0753368 crores (committed expenditure)
IV. Kurnool - funds sanctioned during FY 2019-20 & 2020-21				
1	Implementation of approved city action plans.	0.86 crores	0.82 crores	0.10 crores (committed expenditure)
V. Visakhapatnam - funds released during FY 2020-21				
1	Implementation of approved city action plans.	0.20 crores	0.12 crores	Initiated the process of utilization.
VI. Srikakulam - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.
VII. Vizianagaram - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.
VIII. Rajamahendravaram - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.

IX. Eluru - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.
X. Ongole - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.
XI. Chittoor - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.
XII. Anantapur - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	2.00 crores	2.00 crores	Initiated the process of utilization.
XIII. Kadapa - funds sanctioned during FY 2020-21				
1	Implementation of approved city action plans.	1.00 crores	1.00 crores	Initiated the process of utilization.
Total		27.88 crores	23.64 crores	
Utilization certificate for an amount of Rs. 6,02,18,409/- submitted to CPCB (Rs. 2,27,10,825/- utilized and Rs. 3,75,07,584/- committed expenditure).				

➤ **NOISE POLLUTION:**

APPCB is operating four real-time noise monitoring stations. The station locations and the data are as follows:

Year	Tirumala (GNC building)		Vijayawada (All India Radio)		Visakhapatnam (AU, Siripuram)		Visakhapatnam (Zoo park)	
	Commercial / residential		Commercial		Commercial / residential		Sensitive	
2013	73	71	70	66	73	69	66	65
2014	73	71	70	65	74	68	67	65
2015	74	70	70	64	74	64	67	63
2016	71	67	70	65	75	67	60	56
2017	75	70	69	64	75	67	65	64
2018	76	72	70	65	74	67	68	67
2019	73	70	70	65	74	67	63	62
2020	59.1	57.3	67.1	63.8	73.8	71.6	55.2	55.2
2021 (upto April)	63.5	63.8	65.6	64.4	64.0	56.8	57.4	56.8
Ambient Air Quality standards in respect of noise								
	Industrial Area		Commercial Area		Residential Area		Silence zone	
Day time	75		65		55		50	
Nigh time	70		55		45		40	
All values are expressed in dB (A) Leq.								
Day time means 06.00 AM to 10.00 PM.								
Night time means 10.00 PM to 06.00 AM.								
Remarks: Noise levels are found exceeding at all the four places with their respective zone standards during day & night times.								

APPCB in coordination with the other stake holders has formulated action plans for control of noise pollution in the State. These action plans have been communicated to CPCB on

15.07.2019 and to the concerned stakeholders on 31.12.2019 for implementation to control of noise pollution in the State.

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APPCB is in the process of procurement of 13 nos. of Real Time Noise Monitoring Stations to install at important cities and towns including all the district headquarters to monitor noise levels on Real Time basis. Purchase Order has been issued for supply, installation and commissioning of these 13 stations. In addition to that Board has been procuring 6 nos. of portable noise level meters to meet the regulatory requirements of APPCB for which Board has also been issued Purchase Order for supply and installation of these instruments.

CPCB has also sanctioned 8 nos. of Real Time Noise Monitoring Stations to Andhra Pradesh to install at Visakhapatnam and Vijayawada @ 4 nos. each and released an amount of Rs. 1,29,23,077/- to APPCB. APPCB is in the process of procurement of these stations.

APPCB has addressed a letter to EFS & T Department, Govt. of Andhra Pradesh, dated 14.12.2020 requesting to examine the issue of Notification for installation of Noise limiters to all the existing and new sound systems including public address systems.

- **Name and designation of designated officer for ensuring compliance to provisions under statutes:**

Head of following Departments:

i.	Police Department
ii.	Transport Department
iii.	Municipal Administration & Urban Development Department
iv.	Education Department
v.	A.P. Pollution Control Board

12.0. ACTION TAKEN ON ILLEGAL SAND MINING:

Irrigation department has carried out bathymetric survey in upstream of Prakasam Barrage i.e., (From KM 0.00 to KM 13.50). It is a scientific study done by using Single Beam Echo Sounder (SBES), Positioning and Navigation systems from Prakasam Barrage to Ibrahimpatnam (About 13.50 km upstream of Barrage) in Krishna River in regular grid intervals of 10m (Both in X & Y Planes). Downstream areas has not come under the purview of de-siltation. The area of study is only foreshore water submerged area which will be considered as reservoir. The study was carried out by hiring the services of M/s BSP Hydro Dredging Works, Bhimavaram. M/S BSP Hydro Dredging Works, Bhimavaram has previous experience in conducting Hydrographic Surveys required for National Waterway-4 in Krishna River from Harischandrapuram to Chamarru and conducted Bathymetry surveys in the Krishna River. Further, the firm has conducted Bathymetry & Hydrographic Survey for design of floating.

- i. The capacity of Prakasam Barrage is 3.071 TMC at 12' (+17.39 Mts) Level from crest level i.e., F.R.L (Full Reservoir Level).
- ii. After conducting the Bathymetric survey, the capacity of Prakasam barrage is 2.982 TMC at 12' (+17.39 Mts)
- iii. Critical areas in barrage w.r.t bed level along with GPS co-ordinates indicating reservoir area is as follows:

The GPS co-ordinates indicating in reservoir area are as follows:

S.No	Village name	Depth in Mt	GPS Coordinates
(a)	Gollapudi	3.0	1632.2381,8033.3658
(b)	Venkatayapalem	3.0	1631.3973,8032.5441
(c)	Lingayapalem	3.0	1634.8838,8030.5596
(d)	Surayapalem	4.0	1632.4663,8033.1526
(e)	Guntupalli	4.5	1634.1632,8031.5177
(f)	Uddandrayunipalem	5.0	1633.5291,8031.2338

In accordance with the Bathymetric survey in foreshore area of Prakasam Barrage from 0.00 to 13.50 KM that the capacity of Prakasam barrage is arrived as 2.982 TMC and the silt volume above original Bed Level to be removed has estimated as 1,24,77,704 Cum. Increase in Water storage capacity after conducting de- siltation of 1,24,77,704 cum quantity as per Bathymetry survey will the water storage will be increased 0.441 TMC.

Depth of accumulation and quantity of sand that can be removed in the Villages of Lingayapalem and Rayapudi.

- After conducting the bathymetric survey, it is observed that the silt accumulated as patches in between 10.80 to 12.700 KM in Lingayapalem Village to a total an estimated quantity of 4,29,710 Cum and in between 12.700 to 13.500 KM in Rayapudi Village to an estimated quantity of 71,177 cum can be proposed for De-Siltation.

No Affect In Flood Banks Above Anicut (Foreshore Area)

- The Left Flood Bank above the Anicut extends from 0.00 to 13.00 KM to a point where it abuts on the Ibrahimpatnam Hills.
- The Right Flood Bank above the Anicut/Starts from Tadepalli Hill and extends up to Undavalli Hills distance of 1.32Km. Later under Flood Control Programme, this Flood Bank is extended up to Vaikuntapuram Hill for a further distance of 22.60Km.
- The flood Banks were stable and no damage was occurred in floods occurred during the year 2009 & 2019, where the discharge was recorded as 11.10 Lakh Cusecs and 8.05 Lakh Cusecs respectively.

Present status on Bhawani Island and measures taken to protect the island due to de-siltation activities.

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- As per the records, no de-silting activity conducted surroundings of Bhavani Island and no damage was caused due to de-siltation.

It is submitted that, the Barrage area falls up to 13.5 km from the Prakasam barrage. After the Hon'ble National Green Tribunal Order dated 04.04.2019 that all the de-siltation works have been stopped in Prakasam barrage. In this regard, it is to submit that, after general elections conducted in May-2019, that the new State Government, in the interest of sustainable sand mining, compliance to environmental regulations, ensuring affordable prices of sand and raising valuable public revenues to the state exchequer, had been reviewed the existing Free Sand Policy. Subsequently New Sand Policy was introduced w.e.f. 05.09.2019 in lieu of Free Sand Policy, by appointing M/s Andhra Pradesh Mineral Development Corporation (APMDC) Ltd., a State Government Corporation, as an agent to operate on behalf of Government to undertake Sand quarrying and supply of Sand to the public, vide G.O.Ms.Nos. 70,71,72,73 of Industries, Infrastructure, Investment & Commerce (Mines-II) Department dt. 04.09.2019. The salient features as per New Sand policy, 2019 is as follows:-

- I. Sand excavation from reaches, transportation to stockyards and loading and transportation from stockyard to end consumers shall be undertaken by M/s APMDC.
- II. Sale price:
 - a. Sale price of sand has fixed at Rs. 375/- per ton at the stockyards established near the sand reaches.
 - b. Sand depots are also established near to the urban centers and District Headquarters where there are no nearby sand reaches. At Sand depots, sale price of sand shall be fixed by adding transportation and loading charges in addition to base price of Rs. 375/- per ton for bringing the sand to the sand depot.
 - c. Transportation charges from Stockyards and Sand depots to the consumer destination are additional.
- III. De-casting of Pattalands:
 - (a) Ms APMDC shall undertake De-casting of sand from patta lands with the consent of pattadars.
- IV. De-siltation of Sand
 - a. Irrigation Department shall take-up de-siltation of Dams, Reservoirs, Barrages and large tanks directly or by allotting the work to M/s APMDC Ltd.

- b. In case of Irrigation Department undertaking the de-siltation work directly, they shall put in place a suitable administrative mechanism, to efficiently supervise the de-siltation process.
- c. The sand available after de-silting should be handed over to M/s APMDC Ltd. for transporting to stockyards for supply to Government works and public use
- d. In case of handing over De-siltation areas to M/s APMDC Ltd., M/s APMDC Ltd., shall undertake de-siltation works and dispose of the sand as per policy in vogue.

V. Sand extraction in Scheduled areas:

- a. Excavation and transportation of Sand to the Specified stockyards from Sand bearing areas located partially/fully in Scheduled Areas shall be done by forming Tribal Societies as per the Panchayats Extension to Scheduled Areas (PESA) Rules, 2011 with Technical and Administrative support from M/s APMDC Ltd. under the direct supervision and control of the Agency ITDA / District Collector & Magistrate concerned. M/s APMDC Ltd. shall dispose off the sand from the stockyards.

VI. GPS tracking system:

- a. GPS to be fitted in the vehicles carrying sand from sand reach to the stockyard and from stockyard to the consumer.
- b. Vehicles without GPS are not permitted to transport Sand
- c. No transportation of the sand outside the state is allowed
- d. Stringent punishment and penalties will be levied if sand is transported illegally.

VII. It is submitted that, with regard to the detailed study, covering the scope of work to assess the extent of the damage to Avifauna, Aquatic flora and fauna including benthic community, Acharya Nagarjuna University, involving the Departments of Botany and Microbiology, Zoology and Aquaculture, Environmental Sciences and Sociology and Social Work of Acharya Nagarjuna University and Central Pollution Control Board (CPCB) has undertaken the detailed study to assess the extent of the damage to the Avifauna, Aquatic Flora & Fauna including benthic community in the Prakasam Barrage up to 13.5 km's on the upstream side. The report of the study is as follows:

“Basing on the above conclusions drawn from different studies, the members opined that there was no notable negative impact on water quality regarding TSS & Turbidity, Phytoplankton, Riparian vegetation, Zooplankton, Benthos, Fishes and Avian fauna at de-siltation sites in river Krishna during the study period.”

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The Hon'ble National Green Tribunal, New Delhi was posted the case on 14.02.2020. Secretary (Mines) filed Bathymetric report and Nagarjuna University report to Hon'ble National Green Tribunal on 17.01.2020.

Further, on 14.02.2020 the matter was came to the Hon'ble National Green Tribunal, New Delhi and ordered that the report needs to be independently evaluated and validated. For this purpose, the Hon'ble National Green Tribunal, New Delhi has constitute Expert Appraisal Committee on the subject of the MoEF&CC, nominees of CPCB, Indian School of Mines, Dhanbad and the Indian Institute of Science, Bengaluru. The joint Committee may be assisted by the Andhra Pradesh State PCB. The CPCB will be the nodal agency for co-ordination and compliance. The applicants will be free to give their view point/submissions to the CPCB within two weeks. The CPCB will provide all documents to the members of the Committee. The report may be furnished within two months by email at judicial-ngt@gov.in.

Accordingly the Expert Committee has sought certain clarifications on Bathymetric survey report and Ecological Assessment report from the E.E., KC.Division Vijayawada and Nagarjuna University. In this connection the E.E., KC.Division Vijayawada and Nagarjuna University have been submitted their clarification to the Expert Committee.

The Expert Committee has submitted clarification to the Hon'ble National Green Tribunal, New Delhi on Bathymetric survey and Ecological Assessment which report has been submitted by the E.E., KC. Division Vijayawada and Nagarjuna University and matter posted for hearing on 24.08.2020 in OA No 935/2018. The case is disposed off with no further order is necessary except that the operations be overseen by the same Expert Committee to ensure that no damage is caused to the environment.

Accordingly, a report dated 20.07.2020 has been submitted by the Expert Committee to the Hon'ble National Green Tribunal, New Delhi. Overall Concluding the remarks in the report are:-

“Overall concluding remarks of the Committee Members

- i. Water Resource Department, Government of Andhra Pradesh has carried out bathymetric survey in conformity with the established and recommended practices. As per the Bathymetric survey carried out during December, 2019 to January, 2020 present storage capacity of Prakasam barrage is 2.982 TMC. There is loss in storage capacity of 0.089 TMC as compared to the design capacity of 3.071 TMC.

- ii. The report submitted by Water Resource Department, Govt. of Andhra Pradesh to Hon'ble NGT is satisfactory.
- iii. From the Ecological assessment report it can be inferred that the cautious use of dredgers & mechanised boats and judicious desilting activity may not have serious impacts on flora and fauna in Prakasam barrage.
- iv. Overall the Ecological assessment report is satisfactory excepting the section on Water quality."

In view of above, the Hon'ble National Green Tribunal, New Delhi order delivered in O.A. No. 935 of 2018 dated 24.08.2020, "no further order is necessary except that the operations be overseen by the same Expert Committee to ensure that no damage is caused to the environment "and all pending applications do not survive and are disposed of.

The GoAP vide GOMs No.78, Ind. & Comm. (M.III) Dept., dt:12.11.2020 have upgraded the existing sand policy 2019 and sand excavation, storage and sale operations shall be undertaken by Central Government agencies/Central Government PSUs, in case no response is received from them it shall be entrusted to a agency selected through technical and commercial bid with a minimum auction premium fixed by the GoAP, in addition to Seig. Fee and applicable levies. The selected agency may explore to employ boats men societies for sand excavation from specified notified reaches through de-siltation as per the procedure in vogue.

- Name and designation of designated officer for ensuring compliance to provisions under statutes:

S.No	Department	Designated Officer for ensuring compliance
i.	Mining	DM&G, Vijayawada.

13.0. REJUVENATION OF WATER BODIES:

- **Current Status:** As directed by the Hon'ble NGT in its Order, dated 25.02.2020 in O. A. No. 325/2015 & in M. A. No. 26/2019, APPCB has submitted the status report to Central Pollution Control Board, vide APPCB letter No. APPCB-12023/1/2020-SS-CL-APPCB, dated 22.05.2020 on the present status of water bodies been dealt with by the concerned stakeholder departments as detailed below:

I. Water bodies managed by Panchayat Raj and Rural Development Department (PR & RD):

10606 water bodies identified in the State for repair, renovation and restoration, out of which 9204 water bodies are selected for restoration. 6572 water bodies restored completely so far and 768 water bodies are under process of restoration at present. 804 water bodies are to be restored as per Action plan (2019-20).

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These water bodies are mainly meant for ground water recharge & to maintain water table, improvement of soil moisture, agriculture productivity improvement, biomass & greenery improvement, etc. purposes. These details have been submitted to CPCB already, vide APPCB Lr. No. APPCB-12023/3/2018-SS-CL-APPCB-1274, dated 17.10.2019.

II. Water bodies managed by Municipal Administration & Urban Development (MA & UD) Department:

A total of 866 water bodies are located in about 120 Urban Local Bodies (ULB) in the State of Andhra Pradesh as per the information provided by the MA & UD Dept.

Details of restoration of water bodies are as follows:

S.No.	Particulars	Nos.
1	Total number of water bodies.	866
2	No. of water bodies selected for restoration.	80
3	No. of water bodies restored completely so far.	36
4	No. of water bodies under restoration at present.	13
5	No. of water bodies to be restored.	817

III. Water bodies managed by Irrigation Department:

A total of 41 medium irrigation tanks are located in the 10 districts of Andhra Pradesh. Irrigation Dept. has also provided a list of 1,658 minor irrigation tanks pertaining to Anantapuram district. The water of these tanks is mostly used for irrigation and potable purposes.

- **Desirable level of compliance in terms of statutes:** 804 water bodies are to be restored as per Action plan (2019-20) mainly meant for ground water recharge & to maintain water table, improvement of soil moisture, agriculture productivity improvement, biomass & greenery improvement, etc.

Hon'ble NGT in its order dated 18.11.2020 in O A No. 325/2015 has issued directions to identify the suitable Nodal agency among the various stake holders to handle the restoration of water bodies in the State. Accordingly, APPCB has addressed letter to the Secretary to the Government of Andhra Pradesh, EFS&T Department, vide letter, dated 18.12.2020 requesting to address the issue at government level for identification of the suitable nodal agency to deal with the subject of Restoration of Water Bodies.

Further, Ministry of Jalshakti, Govt. of India has convened a video conference meeting on 30.03.2021 with the concerned stakeholders including SPCBs and requested to expedite the process of identification of single Nodal agency in the State to deal with the topic of "Restoration of Water Bodies".

Accordingly, APPCB has addressed letters, dated 22.04.2021 and 02.06.2021 requesting the EFS & T Department, Govt. of Andhra Pradesh to take up this matter with the State Govt.

- **Name and designation of designated officer for ensuring compliance to provisions under statutes:**

S. No.	Department	Designated Officer for ensuring compliance
i.	PR&RD	Additional Commissioner
ii.	APPCB	Member Secretary.
iii.	MA&UD	Commissioner
iv.	Water Resources Department	Special Chief Secretary to Government
v.	Forest Department	Principal Chief Conservator of Forests
vi.	AP Space Application Centre	Vice Chairman

- **Monitoring of Coastal waters:**

❖ APPCB is continued to monitor Coastal waters of Bay-of-Bengal at 40 locations regularly on monthly basis covering all the 9 coastal districts of Andhra Pradesh. No abnormality in the concentrations of dissolved oxygen, BOD, pH, etc. was observed at these locations.

❖ APPCB is allowing discharge of treated effluent into sea only after meeting the Chemical Oxygen Demand (COD) & Total Suspended Solids (TSS) discharge standards. All industries provided online continuous effluent quality monitoring systems and connected to the CPCB and APPCB servers. Further, APPCB issued Standard Operating Procedures (SOPs) and is being implemented by the industries providing the following:

- Web cameras focusing on ETPs, guard ponds & flow meters & to connect APPCB server;
- Visible level indicators in all guard ponds.
- Open trenches for all the pipelines carrying treated effluents within the premises.

❖ A dash board has been prepared to monitor the collection and disposal of the effluents including sample collection and kept for public view. Software (mobile app) with a dash board is developed and it is under implementation.

➤ **COMPLIANCE OF CERTAIN OTHER DIRECTIONS OF THE HON'BLE NGT:**

- CC TV cameras are installed at dump sites in 70 ULBs and in remaining 54 ULBs installation is in progress. It will be ensured that installation of CCTV Cameras will be completed in all the ULBs, by December 2021.
- Appointed Nodal Officers & constituted Committees for the implementation of Waste Management Rules & other directions of Hon'ble NGT, in all ULBs.
- As per the Hon'ble NGT directions, Instructions issued to all the District Collectors to conduct Review Meetings with the Municipal Commissioners on Implementation of

orders of the Hon'ble NGT and also all Waste Management Rules. All the 13 District Collectors are conducting review meetings regularly.

- In July, 2019, in December, 2019 & February 2021 teams of Commissioners & Engineers have visited, Indore & Bangalore to study the functioning of waste water treatment plants, Wet waste Decentralized Plants, Onsite Composting plants and MRFs facilities, as a part of exposure visit to know the innovative practices, as directed by the Hon'ble NGT.
- In February 2021 team of Principal Secretary, Managing Director, Swachha Andhra Corporation, Officials of C&DMA & some of the Corporation Commissioners have visited Hyderabad & Indoor to Study functioning of Waste Water Treatment plants, Wet Waste Decentralized Plants, Onsite Composting plants and MRF facilities, as a part of exposure visit to know the innovative practices, as directed by the Hon'ble NGT.
- State level SWM Policy, Reuse of Waste Water Policy & Plastic Waste Management Policy have been prepared and submitted to Central Pollution Control Board, as directed by the Hon'ble NGT.
- In all 13 Districts Special Task Forces have been constituted as per the orders of the Hon'ble NGT.
- With regard to tapping with appropriate measures (wire nets, etc), all drains to ensure no municipal solid or plastic waste is allowed to reach river systems, water bodies, etc. In Vijayawada & Rajahmundry Iron mesh are fixed in certain places, at the canals/rivers. The Commissioners of concerned ULBs were directed to take up survey with the help of Engineers positioned in the ULBs, to identify the vulnerable locations/stretches to tap with wire nets in the first instance. It is further submitted that, this direction will be complied by June, 2021.
- All 110 ULBs existing in the State have furnished Annual Reports up to 2019-20 in Statutory Forms of Form III (C&D), Form IV (SWM) & Form V (PWM) to APPCB.
- Sweeping in All 124 ULBs in the State is being carried out on daily basis i.e one time in residential areas and twice in public and commercial areas. 110 ULBs have also installed twin bin system in public places.
- All 124 ULBs having separate Street sweeping, collection and disposal system and transportation is being carried through covered vehicles.

- All 110 ULBs existing in the State have framed bye-laws for user fee and incorporated in collection system and 74 ULBs are currently collecting user fee from waste generators.
- Capacity building of local bodies has been taken up in all 124 ULBs and also 100% training is imparted to the P.H Workers in Door to Door collection system.
- Training is also imparted to Waste pickers/waste collectors on waste management rules.
- Personal Protective Equipment is provided to all Public Health Workers in all 124 ULBs for safe handling of solid waste.
- Directed Town Planning Department to incorporate setting up of processing and disposal facilities in the Master Plans. Currently, Master Plans for all 124 ULBs is under preparation and setting up of processing and disposal facilities will be incorporated.
- On 12th & 13th of September, 2019 State Level Workshop was conducted to impart trainings to the Municipal Commissioners, Municipal Engineers, Environmental Engineers, Municipal Health Officers, Sanitary Inspectors etc., on important activities involved in Waste Management. Regional workshops were also conducted for the officers on 23rd October, 2019, 6th November, 2019, 3rd December, 2019 at Vijayawada, Visakhapatnam & Anantapuram respectively.

➤ **Implementation of Plastic Waste Management Rules, 2016 in Urban Local Bodies:**

The State has released G.O.Ms.No.349, dated 29.10.2018 for implementation of Plastic Waste Management Rules, 2016 in the ULBs.

The plastic waste in Urban Local Bodies is being collected through the Public Health Workers of the ULBs. The segregated plastic waste, which is recyclable, is sent to recyclers i.e. from MRFs and the segregated plastic, which is not suitable for recycling is sent to nearby Cement Plants and also being used in road construction in some ULBs. 29 ULBs have so far, tied up with nearby Cements Plants to send non-recyclable Plastic Waste & another 2 ULBs found viable to send Plastic Waste to Cement Plants, considering the distance and instructions issued to Municipal Commissioners to enter into MoU with them also by end of September, 2021.

The manufacture, sale& usage of plastic carry bags of below 50 microns' thickness is banned in the State of Andhra Pradesh. 721 Taskforce Teams are constituted in the

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ULBs for inspections and for surprise raids to ensure no sale & usage of banned plastic carry bags.

About 2.40 Lakh Kgs of plastic carry bags of below 50 microns' thickness were seized and Rs.169 lakhs towards fine was collected from the violators.

In Visakhapatnam, Vizianagaram, Vijayawada, Kurnool & Tirupati, under extended producer responsibility, Plastic Waste Collection system has been established.

Instructions issued to the Municipal Commissioners of Head Quarter ULBs to conduct stakeholders' meetings under the Chairmanship of the District Collectors to ensure setting up collection centers under EPR in Municipal Corporations & bigger ULBs.

In Visakhapatnam, Vijayawada, Tirupati, Rajamahendravaram, Kakinada & Amalapuram Plastic Waste is being used in construction of Roads and the details are as follows;

Sl. No.	Name of the ULB	Length of road constructed	Quantity of Plastic Waste utilized for constructions of Road
1	Visakhapatnam (GVMC)	8 Kms	14.5 Tons
2	Vijayawada	5 Kms	5 Tons
3	Tirupati	0.9Kms	0.6 Tons
4	Rajamahendravaram	3 Kms	4.2 Tons
5	Kakinada	1.2 Kms	2 Tons
6	Amalapuram	1 Km	0.2 Tons

Guidelines were already issued on compulsory usage of plastic waste in construction of Roads in the ULBs.

Awareness Campaigns and Rallies have been conducted in a big way in the ULBs to avoid usage of Single Use Plastic.

Material Recovery Facilities (MRFs) have been established in 79 ULBs. The establishment of MRFs in other ULBs is under process. Material Recovery Facilities will be established in the remaining ULBs, 16 ULBs by the end of August, 2021, in 15 ULBs by end of September, 2021 and 14 ULBs by the end of December 2021.

14.0. CONCLUSION:

Directions issued to all ULBs, in respect of compliance of Solid Waste Management Rules, Plastic Waste Management Rules, Construction and Demolition Waste Management Rules and implementation of other Hon'ble NGT directions.

The State Level Committee constituted by the Hon'ble NGT, for the State of Andhra Pradesh under the Chairmanship of Hon'ble Justice Sri B. Seshasayana Reddy, Former Judge of AP

High Court, conducted 12 meetings and considerable progress was observed in all Waste Management activities. The last meeting was held on 09.01.2020.

In respect of the implementation of Bio-Medical Waste Management Rules for safe disposal of Bio-Medical Waste, 89.17% of Health Care Facilities (HCFs) obtained Authorizations from APPCB, as statutory requirement. 96.17% of HCFs have tied up with Common Bio-medical Waste Treatment Facilities (CBWTFs) for safe disposal of Bio-Medical Waste generated.

In respect of Hazardous Waste Management, the State is identifying the best practices for disposal of Incinerable Hazardous Waste for co-processing in cement plants thereby saving consumption of conventional fuels. The Govt., of Andhra Pradesh established a Waste Exchange platform in the name of "Andhra Pradesh Environment Management Corporation" for providing effective mechanism collection, transportation, storage, treatment, processing, delivery and disposal of industrial and other waste.

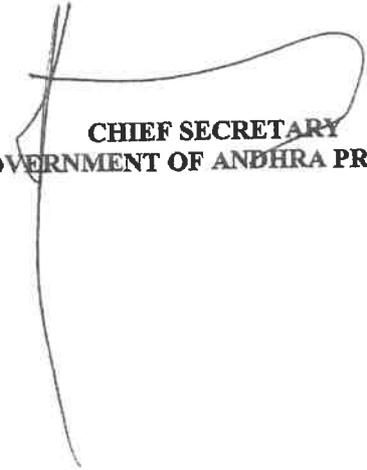
With respect to e-Waste Management, APPCB is developing a user friendly and visually appealing web/mobile application to act as a platform connecting consumers with the authorized recyclers, dismantlers & collection centers for the effective e-waste management.

In respect of 100 industrial clusters, APPCB is implementing the stringent measures for controlling the pollution of industrial area of Kondapalli & Ibrahimpatnam under Vijayawada. As per the CPCB directions, revised action plans were submitted for restoration of Environment Quality in the vicinity of Kondapalli & Ibrahimpatnam industrial area covered under Vijayawada area. The Board regularly monitoring and continuing to implement the action plans for improving environmental quality of Ambient Air, Ground and Surface Water in Vijayawada area and the same is being maintained to keep the CEPI score is less than 60 i.e for Other Polluted Areas (OPA). Environment Compensation (EC) of Rs. 1,40,000/- collected from M/s. Kondapalli Envirotech Pvt. Ltd., Sy.No. 233, IDA, Kondapalli (V), Ibrahimpatnam (M), Krishna District and EC of Rs. 41,40,000/- collected from M/s. NTTPS, Ibrahimpatnam, Krishna District for exceedance of Environmental Standards and stipulated conditions in the past five years.

In respect of compliance on the issues like Non-attainment Cities, Rejuvenation of water bodies, Polluted River Stretches, the action plans are being implemented by all Stakeholder Departments from time to time for achieving the desirable results.

It is submitted that, since some of the activities mentioned above are yet to be complied with, owing to COVID - 19 pandemic situations from March, 2020, all the resources including

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manpower, finances are diverted to reduce the spread of COVID – 19 Virus and other related activities in the Urban Local Bodies of the State. The other Stakeholders, who are involved/supporting the above activities are also diverted in involvement on containment of COVID-19. We regretfully submit to the kind consideration of the Hon'ble NGT for complying with the mile stones.


**CHIEF SECRETARY
GOVERNMENT OF ANDHRA PRADESH**

**COMPLIANCE STATUS OF CERTAIN OTHER DIRECTIONS AS PER O.A 606
DATED: 29.04.2019 OF THE HON'BLE NGT**

S. No	Activity	Description of Parameters	Present status for the quarter ending May, 2021
1	Door to Door Collection	Door to door collection of segregated solid waste from all households including slums and informal settlements, commercial, institutional and other nonresidential premises.	99% Door to Door garbage collection has been achieved covering 37.88 lakh households, out of 38.27 lakh households.
		Transportation in covered vehicles to processing or disposal facilities	100% Collection of waste is being transported in covered vehicles in all 124 ULBs.
2	Source Segregation	Segregation of waste by Households into Bio-degradable, Non- biodegradable, domestic hazardous	Out of 38.27 lakh households in the ULBs, 31.44 lakh households (82.16%) segregated waste is being collected from source.
3	Litter Bins & Waste Storage Bins	a. Installation of Twin-bin/ segregated litterbins in commercial & public areas at every 50-100 meters. b. Installation of Waste storage bins in strategic locations across the city, as per requirement c. Elimination of Garbage Vulnerable Points.	91.66% (In 110 ULBs twin-bin system installed) 14 Newly constituted ULBs will be Installed.
4	Transfer Stations	Installation of Transfer Stations instead of secondary storage bins in cities with population above 5 lakhs.	Complied
5	Separate transportation	a). Compartmentalization of vehicles for the collection of different fractions of waste. b). Use of GPS in collection and transportation vehicles to be made mandatory at least in cities with population above 5 lakh along with the publication of route map.	In 124 ULBs, separate vehicles are being used to collect wet & dry wastes, separately, for secondary transportation also. 746 Vehicles (69.8%) tracking devices fixed to the vehicles to track the movement.
6	Public Sweeping	All public and commercial areas to have twice daily sweeping, including night sweeping and residential areas to have daily sweeping.	In all 124 ULBs sweeping is taken place twice in all public & commercial areas and in residential areas daily sweeping is taken place.
7	Waste Processing. Wet Waste Dry Waste MRF Facility	a. Separate space for segregation, storage, decentralized processing of solid waste to be demarcated. b. Establishing systems for home / decentralized and centralized composting. c. Setting up of MRF Facilities.	a. In all 124 ULBs Separate space for segregation, storage, decentralized processing of solid waste is demarcated. b. 7.31 % (Out of 38.27 lakhs HHs, 2.80 lakhs HHs have initiated Home Composting). c. In 79 ULBs MRF are established for sorting of recyclables. d. 30 Wet Waste Processing units covering 33 ULBs are functional.
8	Scientific Landfill	a. Setting up common or regional sanitary landfills by all local bodies for the disposal of permitted waste under the rules. b. Systems for the treatment of legacy waste to be established.	a. The responsibility fixed on the Developer of WtE/WtC Plants and made it a part of the agreement. b. Work commenced in 4 ULBs for treating of legacy waste. C. Out of 4 ULBs 2 ULBs Legacy Waste Treatment completed
9	C&D Waste	Ensure separate storage, collection and transportation of construction and demolition wastes.	Out of 124 ULBs, Construction & Demolition Waste Processing Facilities are provided at 3 ULBs i.e. Visakhapatnam, Tirupati and Vijayawada with total capacity of 480 TPD. 110 ULBs established C&D Waste Call Centers and 79 ULBs established C&D Waste Collection Centers. Balance 14 newly constituted ULBs, establishment of Call Center is under process.

10	Plastic Waste	Implementation of ban on plastics below <50 microns thickness and single use plastics.	721 Taskforce teams are constituted in the ULBs for inspections and for surprise raids to ensure no sale & usage of banned plastic carry bags. About 2.40 Lack Kgs of plastic carry bags of below 50microns' thickness were seized and Rs.169 lakhs towards fine was collected from the violators. Awareness in big way taken up to avoid use of single use plastics.
11	Bulk Waste Generators (BWGs)	Bulk waste generators to set up decentralized waste processing facilities as per SWM Rules, 2016.	1922 Bulk Waste Generators were identified in the State and Wet Waste Processing Facilities are provided by 760 Bulk Waste Generators, processing 64.10 Tons of wet waste per day.
12	RDF	Mandatory arrangements have to be made by cement plants to collect and use RDF, from the RDF plants, located within 200 kms.	29 ULBs have tied up with Cements Plants so far and sending non-recyclable Plastic Waste.
13	Preventing solid waste from entering into water bodies	Installation of suitable mechanisms such as screen mesh, grill, nets, etc. in water bodies such as nallahs, drains, to arrest solid waste from entering into water bodies.	Out of 511 vulnerable locations identified, 419 Nos were fixed with screen mesh and wire nets.
14	User Fees	Waste Generators paying user fee for solid waste management, as specified in the by-laws of the local bodies.	Out of 124 ULBs, 74 ULBs are collecting user fee from waste generators.
15	Penalty provision	Prescribe criteria for levying of spot fine for persons who litters or fails to comply with the provisions of these rules and delegate powers to officers or local bodies to levy spot fines as per the byelaws framed.	In all 124 ULBs, levy of penalties incorporated on spot on littering.
16	Notification of Bye Laws	Frame bye-laws incorporating the provisions of MSW Rules, 2016 and ensuring timely implementation.	In 110 ULBs bye-laws incorporating the provisions of MSW Rules, 2016 is implemented. The 14 newly constituted ULBs bye laws will be incorporated by end of Dec.2021.
17	Citizen Grievance Redressal	Resolution of complaints on Swachhata App within SLA.	100% Resolution of complaints on Swachhata App/Nagaraseva are being cleared within SLA.
18	Monitoring mechanism	States/ULBs to update month wise targets/action plans on the online MIS.	100% reports are being updated in MIS from time to time.

COMPLIANCE STATUS OF ULBS WITH THE DIRECTIONS OF HON'BLE NGT ON SWM ACTIVITIES

S.No	Name of the Activity	Direction of Hon'ble NGT	Status Reported in 3 rd Quarterly Report of Jan, 2020	Status Reported in 4 th Quarterly Report of June, 2020	Status Reported in 5 th Quarterly Report of Aug, 2020	Status Reported in 6 th Quarterly Report of Oct, 2020	Status Reported in 7 th Quarterly Report of Jan 2021	Present Status for the quarter ending April, 2021	Action to be taken for Compliance
1	2	3	4	5	6	7	8	9	10
1	Percentage of Districts in which Special Task Force (Four members nominated by DM, SP,RO SPCB & District Legal Services Authority) for Awareness has been created	To constitute STFs in every district for bringing awareness about the SWM Rules, 2016	100% (In all 13 districts constituted Special Task Force)	-	-	-	-	-	Complied
2	Percentage of ULBs which have framed byelaws incorporating provisions of SWM Rules(15e)	Frame bye-laws incorporating the provisions of SWM Rules	100% (In all 110 ULBs byelaws framed)	-	-	-	100% (In all 120 ULBs byelaws framed)	(In 120 ULBs byelaws framed) out of 124 ULBs)	Complied,
3	Percentage of operators of Solid Waste Processing Facility who have submitted Annual Reports	Submission of Annual Reports in Statutory Forms to APPCB	100% (All 110 ULBs have submitted annual reports)	-	-	-	100 %	100 %	Complied,
4	Percentage of ULBs which have appointed Nodal Officer/Committee	Nodal officers at the level of local bodies, committees for bigger local bodies to monitor compliance of Waste Management Rules	100% (In all 110 ULBs Nodal Officers/Committee were appointed)	-	-	-	100% (In all 120 ULBs Nodal Officers/Committee were appointed)	100% (In all 124 ULBs Nodal Officers/Committee were appointed)	Complied
5	Percentage of ULBs which have submitted Annual Reports in Form IV to Secy. UD & SPCB	Prepare and submit annual Reports in Form IV on or before 30th April for every year to APPCB	100% (All 110 ULBs have submitted annual reports in Form IV)	-	-	-	-	-	Complied

6	Percentage of ULBs in which sweeping is carried out twice or more in Public areas.	To carryout sweeping in Public areas twice a day.	100% (In all 110 ULBs sweeping is carried out twice in Public areas)	-	-	100% (In all 120 ULBs sweeping is carried out twice in Public areas)	100% (In all 124 ULBs sweeping is carried out twice in Public areas)	Complied	
7	Percentage of ULBs in which sweeping is carried out once or more in Residential areas	To carryout sweeping in Residential areas twice a day.	100% (In all 110 ULBs sweeping is carried out twice in Residential areas)	-	-	100% (In all 120 ULBs sweeping is carried out once in Residential areas)	100% (In all 124 ULBs sweeping is carried out once in Residential areas)	Complied	
8	Percentage of ULBs in which user fees has been incorporated in byelaws	Collection of user fee from waste generators to be incorporated in bye Laws	100% (In all 110 ULBs user fee has been incorporated in the bye-laws)	-	-	91.66% (In 110 ULBs user fee has been incorporated in the bye-laws out of 120 ULBs)	88.70 % (In 110 ULBs user fee has been incorporated in the bye-laws out of 124 ULBs)	For 14 Newly constituted ULBs byelaws will be incorporated by Dec. 2021	
9	Percentage of ULBs having Door to Door Garbage Collection System	To arrange for Door to Door Garbage Collection from all Waste Generators	99% (Door to door garbage collection has been achieved covering 36.17 Lakh households, out of 36.54 lakh household).	99% (Door to door garbage collection has been achieved covering 36.17 Lakh households, out of 36.54 lakh household).	-	99% (Door to door garbage collection has been achieved covering 36.17 Lakh households , out of 36.54 lakh household)	99% (Door to door garbage collection has been achieved covering 37.18 Lakh households, out of 37.55 lakh household).	99% (Door to door garbage collection has been achieved covering 37.88 Lakh households, out of 38.27 lakh household).	Directed the ULBs to conduct Special Drive in all the localities. 100% will be achieved by September, 2021
10	Percentage of ULBs Transporting waste in covered Vehicles	Transportation through covered vehicles	100% (Collection of waste is being transported in covered vehicles in all 110 ULBs)	-	-	-	100% (Collection of waste is being transported in covered vehicles in all 120 ULBs)	100% (Collection of waste is being transported in covered vehicles in all 124 ULBs)	Complied
11	Percentage of ULBs having GPS Installed on Garbage Collection vans (>5 Lakh population)	Transportation through vehicle tracking system	69.8% (746 Vehicles tracking devices fixed to the vehicles to track the movement)	69.8% (746 Vehicles tracking devices fixed to the vehicles to track the movement)	-	69.8% (746 Vehicles tracking devices fixed to the vehicles to track the movement)	69.8% (746 Vehicles tracking devices fixed to the vehicles to track the movement)	69.8% (746 Vehicles tracking devices fixed to the vehicles to track the movement)	To complete the installation of GPS tracking devices to the vehicles has been completed and monitoring mechanism will be developed

									by September, 2021.
12	Percentage of ULBs using Compartmentalized Vehicles for collection of different fractions of waste	Collection of different fractions of waste in compartmentalized vehicles	100% (In all 110 ULBs Compartmentalized Vehicles)	-	-	-	100% (In all 120 ULBs Compartmentalized Vehicles)	100% (In 120 ULBs Compartmentalized Vehicles out of 124)	To complete the Compartmentalized Vehicles in remaining 4 New ULBs
13	Percentage of ULBs having Computerized Weighing Machine for weighing Solid Waste	To install Computerized Weighing Machine for weighing Solid Waste	87.8% (926 Nos weighing scales have been supplied)	87.8% (926 Nos weighing scales have been supplied)	-	90.14% (951 Nos weighing scales have been supplied)	90.14% (951 Nos weighing scales have been supplied)	90.14% (951 Nos weighing scales have been supplied)	To complete the installation of scanners, weighing scales etc., by end of September, 2021.
14	Percentage of ULBs having tipping fee based on quantum of waste generated/processed	Supporting fee for collection & disposal of solid waste	15 ULBs are paying tipping fee based on quantum of waste processed by the developer of WtC plant.	-	-	-	-	-	Complied
15	Percentage of ULBs having twin-bin System installed at public places	Setup twin bin system at public places for collection of waste	100% (In all 110 ULBs twin-bin system installed)	-	-	-	91.66% (In 110 ULBs twin-bin system installed out of 120 ULBs)	88.76% (In 110 ULBs twin-bin system installed out of 124 ULBs)	For 14 newly constituted ULBs twin bin system will be installed at Public places after receipt of funds from GoI under SBM II-Phase.
16	Percentage of ULBs having Transfer Stations instead of Secondary Storage bins	Facility to transport bulk in covered vehicles or containers to waste processing and disposal facilities.	100% (In all 110 ULBs Transfer Stations available instead of Secondary Storage bins)	-	-	-	100% (In all 120 ULBs Transfer Stations available instead of Secondary Storage bins)	100% (In all 124 ULBs Transfer Stations available instead of Secondary Storage bins)	Complied
17	Percentage of ULBs in which PPE has been Provided to Workers	Ensure that the operator of a facility provides PPE for safe environment	100% (In all 110 ULBs PPE is being provided to workers)	-	-	-	100% (In all 120 ULBs PPE is being provided to workers)	100% (In all 124 ULBs PPE is being provided to workers)	Complied

18	Percentage of ULBs in which Capacity Building of local bodies has been taken up by State Dept. of UD	IEC programs for protection of Environment	100% (Awareness programmes is being conducted in all 110 ULBs regularly)	-	-	-	100% (Awareness programmes are being conducted in all 120 ULBs regularly)	100% (Awareness programmes are being conducted in all 124 ULBs regularly)	Complied
19	Percentage of ULBs in which Workers have been educated on Door to Door Collection of waste	Training to workers on Door to Door collection of Waste	100% (In all 110 ULBs trainings have been imparted to the workers)	-	-	-	100% (In all 120 ULBs trainings have been imparted to the workers)	100% (In all 124 ULBs trainings have been imparted to the workers)	Complied
20	Percentage of ULBs in which Training has been imparted to Waste Pickers/Waste Collectors	Provide training on Waste Management rules to Waste Pickers/Waste Collectors	100% (In all 110 ULBs trainings have been imparted to the waste pickers/waste collectors)	-	-	-	100% (In all 120 ULBs trainings have been imparted to the waste pickers/waste collectors)	100% (In all 124 ULBs trainings have been imparted to the waste pickers/waste collectors)	Complied
21	Percentage of ULBs having Separate Street Sweeping, Collection & Disposal System	Setup separate Street Sweeping, Collection & Disposal System	100% (In all 110 ULBs separate Street Sweeping, Collection & Disposal System is being practiced)	-	-	-	100% (In all 120 ULBs separate Street Sweeping, Collection & Disposal System is being practiced)	100% (In all 124 ULBs separate Street Sweeping, Collection & Disposal System is being practiced)	Complied

22	Percentage of ULBs in which Segregation of Waste at house hold level/source has been implemented	Segregated Solid Waste to be collected from the entry gate or any other designated location	79% (Out of 36.54 lakh households in the ULBs, 28.86 lakh households segregated waste is being collected from source)	81% (Out of 36.54 lakh households in the ULBs, 29.60 lakh households segregated waste is being collected from source)		81% (Out of 36.54 lakh households in the ULBs, 29.60 lakh households segregated waste is being collected from source)	82.16% (Out of 37.55 lakh households in the ULBs, 30.85 lakh households segregated waste is being collected from source)	82.16% (Out of 38.27 lakh households in the ULBs, 31.44 lakh households segregated waste is being collected from source)	Awareness among the Public to handover Segregated Waste, through Ward Volunteers & Ward Secretaries appointed (House to House). Awareness created among the PH Workers to collect the Segregated Waste and 100% will be achieved by end of September, 2021.
23	Percentage of ULBs in which waste Segregation by Street Vendors has been implemented	Practicing of Segregated of waste by Street Vendors	100% (In all 110 ULBs Segregation of waste by Street vendors is being practiced)	-		-	100% (In all 120 ULBs Segregation of waste by Street vendors is being practiced)	100% (In all 124 ULBs Segregation of waste by Street vendors is being practiced)	Complied
24	Percentage of ULBs in which Segregation of Waste by RWAs, Market Associations, Gated Communities, Institutions(> 5000 sqm area), Hotels, Restaurants etc., has been implemented	The BWGs (Average waste generated rate exceeding 100 kgs/day) to process Bio-degradable waste within their premises	100% In all 110 ULBs, 1905 BWGs were identified so far, out of which 721 BWGs are practicing onsite processing.	100% In all 110 ULBs, 1922 BWGs were identified so far, out of which 725 BWGs are practicing onsite processing.		100% In all 110 ULBs, 1922 BWGs were identified so far, out of which 760 BWGs are practicing onsite processing.	In all 120 ULBs, 1922 BWGs were identified so far, out of which 760 BWGs are practicing onsite processing.	In all 124 ULBs, 1922 BWGs were identified so far, out of which 760 BWGs are practicing onsite processing.	Conducting ULB level workshops for the benefit of BWGs on the technologies and machinery available for onsite composting will be ensured, all the identified BWGs practicing onsite processing by end of September, 2021.

25	Percentage of ULBs in which Segregation of Waste at Source for inerts and Implementation of C&D Waste has been implemented	To make arrangements for collection, segregation & processing of C&D waste	64.5% (110 ULBs have established functional call centers, 71 ULBs have established C&D Waste collection centers & 3 ULBs having C&D Waste processing plants)	71.8% (110 ULBs have established functional call centers, 79 ULBs have established C&D Waste collection centers & 3 ULBs having C&D Waste processing plants)		71.8% (110 ULBs have established functional call centers, 79 ULBs have established C&D Waste collection centers & 3 ULBs having C&D Waste processing plants)	65.8% (110 ULBs have established functional call centers, remaining 10 newly constituted ULBs establishment of Call Center is under process, 79 ULBs have established C&D Waste collection centers & 3 ULBs having C&D Waste processing plants)	63.70% (110 ULBs have established functional call centers, remaining 14 newly constituted ULBs establishment of Call Center is under process, 79 ULBs have established C&D Waste collection centers & 3 ULBs having C&D Waste processing plants)	In the remaining ULBs Collection centers will be established by August, 2021. C&D Waste processing facilities will be established, by December, 2021.
26	Percentage of ULBs in which informal sector of waste pickers, waste collectors and recycling industry in reducing waste in state policy has been engaged	Provide broad guidelines regarding integration of informal sector of waste pickers, waste collectors in the waste management system	100% (Informal sector of waste pickers, waste collectors and recycling industry in reducing waste in state policy has been engaged for all 110 ULBs)						Complied
27	Percentage of ULBs in which Space for Solid Waste Segregation, storage and processing of solid waste is being provided in residential areas exceeding 200 units/5000 Square has been allocated	Space must be allocated for Solid Waste Segregation, storage and processing in residential areas exceeding 200 units/5000 Square	100% (Provision of space for Space for Solid Waste Segregation, storage and processing in residential areas exceeding 200 units/5000 Square is incorporated in AP Building Rules, 2017. All the ULBs are currently implementing as per the						Complied

		Rules)									
28	Percentage of ULBs in which Scheme for registration of Waste Pickers and dealers has been implemented	Scheme for registration of Waste Pickers and waste dealers to be implemented	100% (In all 110 ULBs Scheme for registration of Waste Pickers and dealers has been implemented).	-	-	-	100% (In all 120 ULBs Scheme for registration of Waste Pickers and dealers has been implemented).	96.77% (In 120 ULBs out of 124 ULBs Scheme for registration of Waste Pickers and dealers has been implemented).	For the remaining 4 newly constituted ULBs, Scheme for registration of Waste Pickers and dealers has to be implemented.		
29	Percentage of ULBs in which land has been identified for setting up of waste processing Facilities (22(1))	Facilitate Solid Waste Processing Facilities	100% (In all 110 ULBs site has been identified for setting up of waste processing facility).	-	-	-	91.6% (In 110 ULBs site has been identified for setting up of waste processing facility).	88.70 % (In 110 ULBs site has been identified for setting up of waste processing facility).	For the remaining 14 newly constituted ULBs, waste processing facility will be set up by end of Dec. 2021		
30	Percentage of ULBs in which non-biodegradable waste & inert waste are used for filling up of construction areas and construction of roads.	Usage of non-biodegradable waste in road construction	5.45% (6 ULBs - GVMC, Kakinada, Rajamahendravaram, Vijayawada, Tirupati & Amalapuram are using plastic waste in construction of roads).	5.45% (6 ULBs - GVMC, Kakinada, Rajamahendravaram, Vijayawada, Tirupati & Amalapuram are using plastic waste in construction of roads).	-	5.45% (6 ULBs - GVMC, Kakinada, Rajamahendravaram, Vijayawada, Tirupati & Amalapuram are using plastic waste in construction of roads).	5.00 % (6 ULBs - GVMC, Kakinada, Rajamahendravaram, Vijayawada, Tirupati & Amalapuram are using plastic waste in construction of roads).	4.83 % (6 ULBs - GVMC, Kakinada, Rajamahendravaram, Vijayawada, Tirupati & Amalapuram are using plastic waste in construction of roads).	Guidelines issued on compulsory usage of Plastic Waste in Road Construction.		
31	Percentage of ULBs in which usage of RDF by Cement plants/Power plants/Industries located within 200 km of such facility has been implemented	Plastic waste to which can be recycled, to recycle	27 ULBs have been tied up with nearby cement plants within 100 km radius out of 31 ULBs	28 ULBs have been tied up with nearby cement plants within 100 km radius out of 31 ULBs	-	-	29 ULBs have been tied up with nearby cement plants within 100 km radius out of 31 ULBs	29 ULBs have been tied up with nearby cement plants within 100 km radius out of 31 ULBs	Remaining 2 ULBs will be tied up by the end of September, 2021.		
32	Percentage of ULBs in which home/Decentralized & Centralized Composting has been initiated	At least 5% of Households to practice Home Composting, as suggested in Swachh Survekshan	5.22% (Out of 36.54 lakhs HHs, 191013 HHs have initiated Home Composting)	6.03% (Out of 36.54 lakhs HHs, 220659 HHs have initiated Home Composting)	-	7.66 % (Out of 36.54 lakhs HHs, 2.80 lakhs HHs have initiated Home	7.45 % (Out of 37.55 lakhs HHs, 2.80 lakhs HHs have	7.31 % (Out of 38.27 lakhs HHs, 2.80	IEC activities through Ward Volunteers & Ward sanitation Secretaries is taken up		

		guidelines.				Composting).	initiated Home Composting).	lakhs HHs have initiated Home Composting).	and demonstration is being given on the benefits of Home Composting
33	Percentage of ULBs in which Storage of Horticulture waste on generators on own premises has been initiated.	Store Horticulture/ garden waste generated in own premises	100% (In 110 ULBs, Storage of Horticulture waste on generators on own premises has been initiated)	-	-	-	-	-	Complied
34	Percentage of ULBs in which Setting up of solid waste and processing facilities has been incorporated in Master Plan	Solid waste and processing facilities shall be incorporated in Master Plan	In 18 ULBs, Draft master is prepared and Setting up of solid waste and processing facilities has been incorporated	In 18 ULBs, Draft master is prepared and Setting up of solid waste and processing facilities has been incorporated	-	-	-	-	Remaining ULBs master plans preparation is under process and setting up of processing and disposal facilities will be incorporated in the Master plans.
35	Percentage of ULBs in which 5% or 5 sheds in SEZ, IE, Industrial Park have been allocated for recovery and recycling facility	Direct the developers of SEZ, IE, Industrial Park to earmark at least 5% or 5 sheds for recovery and recycling facility	100% Guidelines issued	-	-	-	-	-	Complied
36	Percentage of ULBs in which Material Recovery Facilities for sorting of recyclables by informal sector have been setup	Setup Material Recovery Facilities for sorting of recyclables	51.8% (Out of 110 ULBs, 63 ULBs have established Material Recovery Facility).	65.45% (Out of 110 ULBs, 72 ULBs have established Material Recovery Facility).		66.36% (Out of 110 ULBs, 73 ULBs have established Material Recovery Facility).	65.83 % (Out of 120 ULBs, 79 ULBs have established Material Recovery Facility).	63.70 % (Out of 124 ULBs, 79 ULBs have established Material Recovery Facility).	The establishment of MRFs in other ULBs is under process. It is submitted that, Material Recovery Facilities in 16 ULBs by the end of August 2021, in 15 ULBs by end of September 2021, and 14 ULBs by the end of December 2021.

37	Percentage of ULBs in which waste from vegetable, flower, fish, meat, poultry, market is processed in Bio-methanation plant	Facilitate Solid Waste Processing Facilities	In 5 ULBs, waste from vegetable, flower, fish, meat, poultry, market is processed in Bio-Methanation plant In 6 ULBs, awarded yet to be commissioned In one ULB, tender is in finalization							Complied
38	Percentage of ULBs in which use of Chemical fertilizers in parks has been faced out.	Facilitate Solid Waste Processing Facilities	100% (In 110 ULBs, Use of Chemical fertilizers in Parks has been faced out)							Complied
39	Percentage Number of waste processing based on Waste to Energy/RDF	Facilitate Solid Waste Processing Facilities	Guntur Cluster - 95% Visakhapatnam Cluster - 87%	Guntur Cluster - 95% Visakhapatnam Cluster - 87%	Guntur Cluster - 95% Visakhapatnam Cluster - 87%	Guntur Cluster - 95% Visakhapatnam Cluster - 87%	Guntur Cluster - 96% Visakhapatnam Cluster - 90%			Two Waste to Energy Plants, which are under construction at Visakhapatnam & Guntur will be commissioned by November & June, 2021 respectively
40	Percentage of waste processing units based on Composting / Bio methanation	Facilitate Solid Waste Processing Facilities	Out of 53 Waste to Compost Plants awarded, covering 57 ULBs, 30 Waste to Compost Plants, covering 33 ULBs are under operation and 23 Waste to Compost Plants will be commissioned by July, 2020. For the 53 ULBs, DPR is under process to go for Waste to Compost Plants/Bio-	Out of 53 Waste to Compost Plants awarded, covering 57 ULBs, 30 Waste to Compost Plants, covering 33 ULBs are under operation and 23 Waste to Compost Plants will be commissioned by July, 2020. For the 53 ULBs, DPR is under process to go for Waste to	Out of 50 Waste to Compost Plants awarded, covering 54 ULBs, 27 Waste to Compost Plants, covering 30 ULBs are under operation and 23 Waste to Compost Plants will be commissioned by March, 2021. For the 48 ULBs, which were earlier	Out of 53 Waste to Compost Plants awarded, covering 57 ULBs, 30 Waste to Compost Plants, covering 33 ULBs are under operation and 23 Waste to Compost Plants covering 24 ULBs will be commissioned by July, 2021. for the 53 ULBs, DPR is	Out of 54 Waste to Compost Plants awarded, covering 58 ULBs, 31 Waste to Compost Plants, covering 34 ULBs are under operation and 18 Waste to Compost Plants covering 18 ULBs will be commissioned by Sept, 2021. for 72 ULBs,			For the 72 ULBs, DPR is under process to go for Waste to Compost Plants/Bio-Methanation Plants. By end of July, 2021 tenders will be finalized and work orders will be issued to the successful bidders & by April, 2022 these plants are expected to be commissioned.

			Methanation Plants.	Compost Plants/Bio-Methanation Plants.		formed into 7 clusters, for establishment of Waste to Energy Plants, restructuring is under process to go for Waste to Compost Plants/Bio-Methanation Plants.	under process to go for Waste to Compost Plants/Bio-Methanation Plants.	tenders invited for establishing Waste to Compost Plants/Bio-Methanation Plants.	
41	Percentage of ULBs in which Bio-degradable waste is sent to Compost/Bio-Methanation plant	Facilitate Solid Waste Processing Facilities	27 ULBs are sending bio-degradable waste to Compost/Bio-Methanation plant	27 ULBs are sending bio-degradable waste to Compost/Bio-Methanation plant		27 ULBs are sending bio-degradable waste to Compost/Bio-Methanation plant	33 ULBs are sending bio-degradable waste to Compost/Bio-methanation plant	33 ULBs are sending bio-degradable waste to Compost/Bio-methanation plant	After commissioning of waste to compost plants, the Bio-degradable waste will be sent for processing.
42	Percentage of ULBs in which Non-biodegradable waste is sent to MRF/Secondary storage facility	Plastic waste to which can be recycled, to recycle	100% (74 ULBs are sending to MRF & remaining ULBs are sending their Non-biodegradable waste to Secondary storage facility).	-		100% 74 ULBs are sending to MRF & remaining ULBs are sending their Non-biodegradable waste to Secondary storage facility.	79 ULBs are sending to MRF & remaining ULBs are sending their Non-biodegradable waste to Secondary storage facility.	79 ULBs are sending to MRF & remaining ULBs are sending their Non-biodegradable waste to Secondary storage facility.	Complied
43	Percentage of WtE Plants having facilities for segregation of waste prior to processing of waste in WtE Plants	WtE Plants must have facility for Segregation of Waste prior to processing	Two Waste to Energy plants are under construction. Facilities for segregation of waste prior to processing of waste in WtE Plants is incorporated in the agreement.	-		-	-	-	Complied
44	Percentage increase in number of Authorizations granted	Obtaining Authorizations for waste processing facilities from APPCB	8.2% (9 ULBs have obtained authorization from APPCB & 3 ULBs have applied for authorization).	15.45% (17 ULBs have obtained authorization from APPCB.		15.45% (17 ULBs have obtained authorization from APPCB.			

45	Percentage of ULBs displaying data relate to functioning of plan and its adherence to prescribed parameters displayed on ULBs website	-	100%	-	-	-	-	-	Complied
46	Percentage of ULBs in which land has been identified for landfill site (11 (f))	To setup SLFs for depositing inert waste & rejects after processing	All 110 ULBs have identified site for waste processing facility. The responsibility fixed on the Developer of WtE/WtC Plants and made it a part of the agreement.	-	-	-	-	-	Sites are to be identified for 14 Newly constituted ULBS
47	Percentage of ULBs in which land has been allocated for landfill site (Rule 12(a))	To setup SLFs for depositing inert waste & rejects after processing	All 110 ULBs sites have been allocated for waste processing facility. The responsibility fixed on the Developer of WtE/WtC Plants and made it a part of the agreement.	-	-	-	-	-	Sites are to be allocated for 14 Newly constituted ULBS
48	Percentage of ULBs having Own/Regional Operational landfill sites.	To setup SLFs for depositing inert waste & rejects after processing	All 110 ULBs sites have been allocated for waste processing facility. The responsibility fixed on the Developer of WtE/WtC Plants and made it a part of the agreement	-	-	-	-	-	14 Newly constituted ULBs to Comply.
49	Percentage of landfill sites in which provision of Green Belt/Buffer Zone around landfill site has been made	Provision of Green Belt/Buffer Zone around landfill site	-	-	-	-	-	-	After the establishment of SLFs by the developer, provision will be made for green belt/buffer zone.

50	Percentage of Landfill sites for which Buffer Zone has been notified	Buffer Zone for landfill sites shall be notified	-	-	-	-	-	-	After the establishment of SLFs by the developer notification will be issued for buffer zone.
51	Percentage of Landfill sites in which efforts have been taken to prevent/manage in generation of leachate	Prevent in generation of leachate in Landfill sites	-	-	-	-	-	-	After the establishment of SLFs measures will be taken by the developer to prevent in generation of leachate
52	Percentage of Landfill sites in which efforts have been taken to prevent/manage generation of methane gas	Prevent in generation of Methane gas in Landfill sites	-	-	-	-	-	-	After the establishment of SLFs measures will be taken by the developer to prevent in generation of Methane gas.
53	Percentage of Landfill/Dumpsites in which CCTV has been installed	Installation of CCTV at all dumpsites	25.45% (28 ULBs have installed CCTV Cameras at dumpsites).	57.27% (63 ULBs have installed CCTV Cameras at dumpsites).		57.27% (63 ULBs have installed CCTV Cameras at dumpsites).	55.0 % (66 ULBs have installed CCTV Cameras at dumpsites).	53.2 % (66 ULBs have installed CCTV Cameras at dumpsites).	CCTV Cameras will be installed in all the ULBs, by September, 2021.
54	Percentage of ULBs having De-Centralized waste disposal facilities	Facilitate decentralized waste disposal facilities	In GVMC and Vijayawada decentralized waste disposal processing is being practiced	-	-	-	-	-	Complied
55	Percentage of Landfill sites in which landfilling or dumping of mixed waste is continued	Measures to be taken not to dispose mixed waste in landfill	-	-	-	-	-	-	The responsibility fixed on the Developer of WtE/WtC Plants not to dispose mixed waste in landfill and made it a part of the agreement
56	Percentage of Landfill sites in which only non-usable, non-recyclable, non-biodegradable, non-	To dispose only non-usable, non-recyclable, non-biodegradable, non-	-	-	-	-	-	-	The responsibility fixed on the Developer of WtE/WtC

	biodegradable, non-combustible and non-reactive waste is disposed	combustible and non-reactive waste							Plants to dispose only non-usable, non-recyclable, non-biodegradable, non-combustible and non-reactive waste and made it a part of the agreement	
57	Percentage of ULBs in which Investigation of old/existing dumpsites for bio-mining has been initiated	Investigate & Analyse the old dumpsites for their potential of Bio-mining/Bio-remediation	39% Work commenced - 4 ULBs Work orders issued - 7 ULBs Tender Stage - 9 ULBs DPR Stage - 23 ULBs	43.63% Work commenced - 4 ULBs Work orders issued - 9 ULBs Tender Stage - 8 ULBs DPR Stage - 27 ULBs			60.90% commencing - 4 ULBs Work orders issued in - 13 ULBs Tender Stage - 15 ULBs DPR Stage - 35 ULBs	60.90% commencing - 4 ULBs Work orders issued in - 13 ULBs Tender Stage - 15 ULBs DPR Stage - 35 ULBs	60.90% commenced - 4 ULBs Work orders issued & 2 ULBs work completed in - 13 ULBs Tender Stage - 15 ULBs DPR Stage - 35 ULBs	Comprehensive DPRs are being prepared and initiate process for treatment of legacy waste in the ULBs by August 2022 by requesting finances from Gol under Swachh Bharat Mission - Phase - II (SBM).
58	Percentage of ULBs in which have framed Byelaws incorporating User fees and spot fines for littering	Prescribe from time to time user fee and collect from waste generators	100% (In all 110 ULBs Byelaws incorporated)				91.66% (In all 110 ULBs Byelaws incorporated)	88.70 % (In all 110 ULBs Byelaws incorporated)	For remaining 14 newly constituted ULBs bye laws will be incorporate by end of Dec. 2021.	
59	Percentage of ULBs having Citizen Grievance redressed mechanism	Establishment of Citizen Grievance redressal mechanism	100% Resolution of complaints on Swachhata App are being cleared within SLA.						Complied	
60	Percentage of ULBs uploading Month wise details of SWM targets on MIS	To regularly upload Month wise details of SWM targets on MIS	100% reports are being updated in MIS on time to time.						Complied	

Submission of Compliance Report on SWM					
S.N.	Questions	Remarks			
1	Numbers of ULBs	124			
2	Over all waste management status in States/UTs				
	a Quantity of MSW generated (TPD)	6898			
	b Quantity of MSW collected (TPD)	6830			
	c Quantity of MSW segregated & transported (TPD)	5668 & 6830			
	d Quantity of MSW processed (TPD)	2180			
	e Quantity of MSW disposed in secured land fill site (TPD)	257.5			
	f Gap in Solid Waste Management UTs (TPD) [1(a)- I(d)- 1(e)]	4460.5			
	g Solid Waste Management Plan	Furnished			
3	Waste Collection	Existing	Target	Gap	Timeframe
	a ULBs in which waste door-to-door collection is implemented(No.)	124	124	0	
	b ULBs in which segregation of waste is implemented (No.)	124	124	0	
	c ULBs in which transportation of segregated waste is implemented (No.)	124	124	0	
4	Waste Processing				
	Material Recovery facilities				
	(i) Total Capacity (TPD)	1239.9	1714.4	474.5	Nov-21
	(ii) Number	79	124	45	
	(iii) Number of ULBs covered	79	124	45	
	Plastic Waste Recycling				
	(i) Total Capacity (TPD)	247.98	342.88	94.9	Nov-21
	(ii) Number	79	124	45	
	(iii) Number of ULBs covered	79	124	45	
	Composting				
	(i) Total Capacity (TPD)	830	1560	730	May'2022
	(ii) Number	44	103	59	
	(iii) Number of ULBs covered	44	103	59	
	Biomethanation				
	(i) Total Capacity (TPD)	534	1380	846	May'2022
	(ii) Number	7	18	11	
	(iii) Number of ULBs covered	10	21	11	
	RDF				
	(i) Total Capacity (TPD)	101.4			
	(ii) Number	28		0	
	(iii) Number of ULBs covered	28		0	
	Waste to Energy Plants				
	(i) Total Capacity (TPD)	2335	2335	0	1.June'2021 2.November 2021
	(ii) Number	2	2	0	
	(iii) Number of ULBs covered	13	13	0	
4	Waste Disposal				
	Landfill				
	(i) Total Capacity (T)	257.5	530.5	273	Dec'2021
	(ii) Number	4	4	0	
	(iii) Number of ULBs covered	4	4	0	
5	Legacy Waste Management				
	a Number of dumpsites (No.)	104			
	b Quantity of Waste dumped at dumpsites (M.Tons)	118 lakh			
	c Number of dumpsites cleared (No.)	2			
	d Number of dumpsites in which bio-mining has commenced (No.)	5			
	e Time frame for clearing all dumpsites	Dec'2022			
6	Other Information				
	a Information regarding development of model towns/cities/villages	Enclosed			
	b Creation of Environmental cell	Yes			
	c Standardization of rates for procurement of services/equipment (to do away with the tendering process) required for solid waste management.	Nil			

Annexure

1. GVMC 2. Tirupati and 3. Kakinada are identified as Model Cities by MAUD department as per the directions of NGT for implementation of 100% Waste Management Rules. The progress of waste management in 3 model cities is as follows:

Activity	Visakhapatnam	Tirupati	Kakinada
Source Segregation	90%	100%	75%
Door to Door Garbage Collection	100 %	100 %	100 %
C&D Waste Management:			
C&D Call Centre	Established	Established	Established
C&D Waste Collection Centre	Established	Established	Established
C&D Waste Processing Facility	Established (M/s. Pro Enviro Engineers Pvt Ltd with 80 TPD Capacity)	Established (M/s. Pro Enviro Engineers Pvt Ltd with 50 TPD Capacity)	Established (ULB itself Collecting C&D Waste to fill up the low lying areas)
MRF	5 MRFs Established	1 MRF Established	1 MRF Established
Processing of waste through WtC/WtE	Decentralized WtC Plants 0 MTs processed WtE - Under construction Will be commenced by April, 2021	70 MTs processed through WtC	1 MT of Vegetable Waste is being processed
Treatment of Legacy Waste	Work Commenced by M/s Coromandal India Ltd	Work Commenced by Zigma global Pvt. Ltd.	Proposed under Swachh Bharat II by SAC
Installation of CC Cameras	Installed	Installed	Installed
STPs			
Total Sewage generated	240.04 MLD	47.47 MLD	36.0 MLD
Existing STPS	177 MLD	50 MLD	0.0 MLD
Capacity Under Construction	48.0 MLD	0.0 MLD	5.0 MLD
Gap	15.04 MLD	0.0 MLD	31.0 MLD

ANNEXURE II

Heavy metal ion concentration in River Sediment

Heavy metals	^a USEPA Sediment Standards	^b World River System	^c Indian River System
Co	50	20	-
Cu	31.6	100	28
Cr	43.4	100	87
Ni	22.7	90	27
Cd	0.99	-	-
Zn	121	350	16
Pb	35.8	-	-

References

^a USEPA (1999) National recommended water quality criteria-correction-United State Environmental Protection Agency EPA 822-Z-99-001, <http://www.epa.gov/ostwater/pci/revcom>), pp 25

^b Martin J, Meybeck M (1979) Elemental mass-balance of material carried by major world rivers. *Mar Chem* 7(3):178–206. doi: [10.1016/0304-4203\(79\)90039-2](https://doi.org/10.1016/0304-4203(79)90039-2)

^c Subramanian V, Sitaswad R, Abbas N, Jha PK (1987) Environmental geology of the Ganga River basin. *J Geol Soc India* 30:335–355

Harendra Singh et.al (2017), Assessment of heavy metal contamination in the sediment of the River Ghaghara, a major tributary of the River Ganga in Northern India *Applied Water Science*, Volume 7, Issue 7, pp 4133–4149

Sediment Quality Guidelines

S.No.	Metals	Consensus based SQG*		Canadian SQG**	
		TEC	PEC	ISQG	PEL
1	As	9.8	33	5.9	17
2	B	-	-	-	-
3	Cd	0.99	5.00	0.6	3.5
4	Cr	43	110	37.3	90
5	Co	-	-	-	-
6	Cu	32	150	35.7	197
7	Fe	20000	40000	-	-
8	Hg	0.18	1.11	0.17	0.486
9	Mn	460	1100	-	-
10	Ni	23	36	-	-
11	Pb	36	130	35	91.3
12	Zn	120	460	123	315

TEC; Threshold Effect concentration (below which adverse effects are not expected to occur)

PEC : Probable effect Concentration above which adverse effects are expected to frequently occur

*MacDonald, D.D., C.G. Ingersoll, and T.A. Berger. 2000. Development and Evaluation of Consensus-based Sediment Quality Guidelines for Freshwater Ecosystems. *Arch.Environ. Contam. Toxicol.* 39, 20-31.

*Consensus based sediment quality Guidelines, Recommendations for use and application, December 2003, Wisconsin Dept of Natural Sources

** Canadian Sediment Quality Guidelines for the protection of aquatic life, CCME, 2001
ISQG : Interim Freshwater Sediment Quality Guidelines , PEL : Probable effect level