BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

ORIGINAL APPLICATION NO.104 OF 2020

Mr.Rajesh Ghantayath — Applicant

Versus

The Union of India and others — Respondent(s)

INDEX

S. Suresh 27/1/2021

DEPONENT

Place: Bengaluru

Date: 27.01.2021

केन्द्रीय प्रदूषण नियंत्रण बोर्ड क्षेत्रीय निदेशालय (दक्षिण) REGIONAL DIRECTORATE (SOUTH) CENTRAL POLLUTION CONTROL BOARD MINISTRY OF ENVIRONMENT, FORESTS & CLIMATE CHANGE, GOVT OF INDIA BENGALURU-79 560 079

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

REPORT OF JOINT COMMITTEE IN THE MATTER OF O.A. 104 OF 2020 (M/s. MOTHER EARTH ENVIRON TECH PVT LTD.) SUBMITTED BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, SOUTHERN ZONE, CHENNAI

1.0 PREAMBLE

In the Original Application No. 104 of 2020 (SZ), filed by Mr. Rajesh Ghantayath Vs The Union of India & Ors., the Hon'ble National Green Tribunal (NGT), Chennai issued an Orders on 10.07.2020 (**Annexure 1**) with a direction that

"(10) ... there are violation of Environmental Clearance (EC) conditions resulting in environmental damage in managing the TSDF facility by the eighth respondent which is a serious environmental issue.

(11) So, considering the circumstances in order to ascertain the real state of affairs and further action to be taken. CPCB shall be the nodal agency to coordinating amongst the Members for taking up task, we feel appropriate to appoint a Joint Committee comprising of Senior Officer from Regional office, Ministry of Environment, Forest & Climate Change (MoEF & CC), Bangalore, a Senior Officer / Scientist from Regional Office, Central Pollution Control Board (CPCB) of Bangalore, District Collector, Ramnagara District, Karnataka, a Senior Officer from Karnataka State Environment Impact Assessment Authority (KSEIAA), Bangalore, a Senior Scientist or Expert in Environmental Engineering from National Institute of Technology (NIT), Surathkal, Karnataka and a Senior Officer from the Karnataka State Pollution Control Board (KSPCB) to inspect the area in question and submit a factual and action report if there is any violation found.

(12) The committee is directed to consider the question of compliance of the conditions of Environmental Clearance (EC), Consent to Establish and Consent to Operate and the compliance of the Hazardous and Other Wastes (Management, Handling and Transboundary Movement) Rules, 2016 and assess the damage caused to environment on account of the failure on the part of the eighth respondent unit in running the unit and assess environmental compensation against them for the damage caused to environment and if there is any remediation measures required on account of the damage caused, suggest the ways and means to remedy the situation.

(14) The committee is directed to submit a report to this Tribunal within a period of two months i.e., on or before 14.09.2020

The Joint Committee submitted Interim Report with a prayer to extend the time of submission of Committee Report on 11.09.2020, the Hon'ble NGT reposted the case to 24.12.2020. In continuation, further request to grant additional time of 3 weeks was considered by the Hon'ble NGT and the case is posted to **01.02.2021**

2.0 CONSTITUTION OF JOINT COMMITTEE

In compliance of Hon'ble NGT orders, the Central Pollution Control Board (CPCB) has requested the MoEF & CC, DC - Ramnagara, SEIAA – Karnataka, NIT- K, and KSPCB vide letter No. Tech 39 / Legal (NGT)/ RDS/2020-21/ dated 22.07.2020 as appointed by the Hon'ble NGT to nominate Senior official for constituting Joint Committee to complete the assigned task. CPCB has constituted Joint Committee based on the nomination received and issued Office Memorandum for the same vide order No. Tech 39/Legal (NGT)/RDS/2020-21/406 dated 10.08.2020 (**Annexure 2**). As per the O.M, the Joint Committee comprises the following members:

Table 1: Constitution of Joint Committee

No.	Name and Designation	Department
1.	Shri. E.Thirunavukkarasu Scientist E	Integrated Regional Office Min. of Envt. Forest & Climate Change 4th Floor, Kendriya Sadan, Koramangala, Bangalore – 560 034
2.	Shri. Ravikumar J.K. Scientific Officer –SEIAA	Department of Ecology & Environment, 7th Floor, M.S. Building, Bangalore – 560 001
3.	Dr. Arun Kumar Associate Professor	Department of Civil Engineering National Institute of Technology – Karnataka, Surathkal, Srinivasnagar, Mangalore – 575 025
4.	Dr. Dakshayini	Deputy commissioner & ADM office

No.	Name and Designation	Department
	Assistant Commissioner	1st Floor District Offices Complex B.M. Road, Ramanagara – 562 159
5.	Shri. Shanmukappa Senior Environmental Officer	Karnataka State Pollution Control Board, Zonal Office Bangalore – South, Nisargha Bhavan, Shivanagar, Bangalore – 560 079
6.	Shri. G. Thirumurthy Additional Director	Regional Directorate, Central Pollution Control Board, Nisargha Bhavan, Shivanagar, Bangalore – 560 079

Terms of References of the Joint Committee as follow:

1. To inspect the area in question and find out the compliance of the conditions of Environmental Clearance (EC) and Consent to Establish & Consent to Operate, compliance of the Hazardous and Other Wastes (Management, Handling and Trans-boundary Movement) Rules, 2016, sitting criteria of Landfills and also to verify the compliance of directions issued by CPCB & KSPCB.

2. To assess the damage caused to environment on account of the failure of the unit and assess environmental compensation against them for the damage caused to environment.

3. To assess the ground / surface water qualities in that area to ascertain any contamination, if any

4. To suggest the ways and means to remedy the situation on account of the damage caused, if any

3.0 MEETINGS AND INSPECTION OF JOINT COMMITTEE

Upon the formation of Joint Committee, preliminary meeting of Joint Committee was convened through Video Conference on 17.08.2020 and decided to carryout inspection & monitoring of M/s Mother Earth Environ

Tech Pvt Ltd and its surroundings on 03.09.2020. Accordingly, the Joint Committee carried out inspection and monitoring of TSDF - primary treatment plant, surface run off collection tank, ground water monitoring in and around the TSDF, and Surface water monitoring etc. on 03.09.2020. The officials accompanied the Joint Committee are:

1. Mrs. Meenakshi. H.A. Deputy Environment Officer, RO- Ramnagara, KSPCB
2. Mr. A.L. Nagendra, Asst. Executive Engineer, KIADB
3. Mr. Lokesh. K.S. Asst. Engineer, KIADB

Also, the unit representatives present during inspection are:

1. Mr. Sanjay.T.V., Director, MEEPL
2. Mr.Renukaradhya.T.V., Sr. Manager Tech & Operation, MEEPL
3. Mr. Vinod Kumar Yeleri, Site Head, MEEPL

The Joint Committee reviewed the Status of operation of TSDF, Designing of TSDF, Sampling of H. W., Procedure adopted for direct landfilling / landfilling after stabilisation, Operation of Escrow Account, Stabilisation process, Leachate management, Ambient Air Quality Management, Fugitive Dust Emission, Surface run off management, Green cover etc. The proceedings of the Joint Committee meetings dated **17.08.2020** and **03.09.2020** are attached as **Annexure 3 and Annexure 4** respectively.

The Committee with help of CPCB & KSPCB staff carried out water (ground and surface) and wastewater samplings, the samples collected were analysed at CPCB & KSPCB Laboratory, Bangalore. The results of the same are discussed separately at **Point 7.4**

4.0 ABOUT HAROHALLI INDUSTRIAL AREA

The Karnataka Industrial Area Development Board (KIADB) has obtained Environmental Clearance (EC) from State Level Environment Impact Assessment Authority (SEIAA) – Karnataka vide order dated 22.08.2013

for development of Harohalli 2nd Stage Industrial Area at Harohalli, Medamaranahalli, Hulgondanahalli, Bannikuppe, Devarakaggalahalli Villages of Ramnagara District for providing "Hassle free production environment" for the manufacturing of IT/BT precision, electronic industries, garments and food processing /chemical industries, rubber, plastic, foundry and other/ general industries on Plot Area of 371.90 ha. (919.19 acres). The copy of the EC is enclosed as **Appendix 1**. The 2nd phase land use details (**Appendix 1A**) are:

Table 2: Details of 2nd Phase Land Use

S. No.	Description	Area (Acres)	%
A1	Road (90 m Wide)	32.83	
A2	Sy. No. 748 & 747/1	9.83	
A3	Tank Area	17.67	
A4	Not acquired area	8.02	
	Subtotal (A)	**68.35**	
B1	Industrial	637.51	75.82
B2	Utility (CETP/STP etc.)	23.07	02.74
B3	Park	50.27	05.98
B4	Buffer	29.49	03.51
B5	Parking	18.89	2.25
	Subtotal (B)	**840.86**	100
A.	Total Industrial Area (A+B)	909.21	-

In continuation, the KIADB has obtained Environmental Clearance from MoEF & CC vide order dated **21.09.2017** for developing combined Harohalli Phase II and Phase III industrial area at Ramnagara District to provide hassle free production environment for industries like Machine components & fabrication, plastic bags & packing accessories, textiles and readymade garments, granite cutting & polishing, corrugated boxes and allied products, electronics / telecommunication, general engineering, automotive, aerospace, agro and food processing / chemicals, media &

entertainment, rubber & plastic units, handicrafts etc. The total area earmarked for this combined industrial area is 904.86 ha. which includes Phase II area of 371.92 ha. and Phase III area of 532.94 ha. The copy of the EC is enclosed as **Appendix 2**.

The important components of the above said EC are:

- Total water requirement (11360 KLD) will be sourced through Vrishabhavati Treatment Plant and Cauvery River Water from BWSSB.

- Wastewater generation (5282 KLD) will be treated in CETP/ CSTP for recycling and reuse.

- Solid Waste (5 TPD) will be disposed to nearest Municipal bins.

- Individual industries will develop their own Rain Water Harvesting structures in their respective plot and storm water drains will be developed all along the road.

- Common parking area of 7.84 ha. (Phase II) and 39.24 ha. (Phase III) will be provided for the heavy industrial trucks and heavy vehicles.

The important conditions of EC are:

- ❖ To achieve Zero Liquid Discharge, wastewater generated from different industrial operations should be properly collected, treated to the prescribed standards and then recycled or reused for the identified uses.

- ❖ The Green Belt of adequate width and density preferably with local species along the periphery of the plot shall be raised so as to provide protection against particulates and noise.

- ❖ Rain water harvesting for roof runoff and surface runoff to be implemented. Before recharging the surface run off, pre-treatment must be done to remove suspended matter, oil & grease.

- ❖ The ground water level and its quality should be monitored regularly in consultation with Central Ground Water Authority.

5.0 ABOUT M/s MOTHER EARTH ENVIRON TECH PVT LTD (MEEPL)

M/s Mother Earth Environ Tech Pvt Ltd, a Transport, Storage and Disposal Facility (TSDF) operating at KIADB Industrial Area, Harohalli, Ramnagara District is having the total area of 4 acres in which 1.71 acres (43%) are earmarked for secured landfill (SLF) consists of 2 cells, planned for 10 Years. This facility is coming under category of small size landfill, which is < 5 hectare area. This is the Second facility in Karnataka and started its operation in April 2016 and presently having 335 member industries.

5.1 KIADB ALLOTMENT & CHANGE OF ACTIVITY

The Karnataka Industrial Areas Development Board (KIADB) allotted 4 acres land vide letter dated **05.10.2009** for setting of industry to manufacture Drip / Micro Irrigation system in the name of M/s Chaitra Irrigations at Plot No. 217, Harohalli Industrial Area (**Appendix 3**). Subsequently, the State Level Single Window Clearance Committee (SLSWCC) approved the change of activity from drip / micro irrigation system to hazardous waste landfill site with an investment of ₹ 5.03 Crores vide order dated 28.03.2011 (**Appendix 4**). Later, in the 308th Meeting of KIADB dated **25.07.2011** approved the change of name from M/s Chaitra Irrigation to M/s Mother Earth Environ Tech and also with change of activity from drip/ micro irrigation system to hazardous waste landfill site, subject to the condition that the applicant should obtain prior clearance from KSPCB & MoEF. Accordingly, the KIADB issued allotment letter dated 06.08.2011 for change of name & activity and granted 50% concession on prevailing rate i.e. 60 Lakhs per acre, in respect of 4 acres land, vide order dated 06.08.2011 (**Appendix 5**).

5.2 ENVIRONMENTAL CLEARANCE BY SEIAA

As per the Environmental Impact Assessment (EIA) Notification, 2006, the Common Hazardous Waste Treatment, Storage and Disposal Facility (TSDF) having landfill only is considered as Category B and required to obtain prior environmental clearance at State level from the State Environment Impact Assessment Authority (SEIAA). Accordingly the project proponent i.e. M/s Mother Earth Environ Tech Private Limited obtained Environmental Clearance (EC) from the SEIAA vide order dated **28.08.2015** for a total capacity of 95,000 Tons i.e. Cell 1 of 50,000 Tons and Cell 2 of 45,000 Tons (**Annexure 5**). The important conditions are:

- Green belt of 15 meters shall be provided all along the periphery of site/ at least 33% of the total project area.

- Regular online monitoring of all the ambient air quality and water quality shall be carried out.

As per the Classification of Industrial Sector, the Common Treatment and Disposal Facilities (CETP/TSDF, E-Waste recycling, CBWTF, Effluent Conveyance, Incinerator, Solvent / Acid recovery Plant, MSW sanitary landfill site) are classified as RED but special category projects as these are part of pollution control facilities. ***The same is not spelled in the EC granted by SIEAA and EC was issued without / exempting public consultation stating that "The project is located within the notified industrial area and hence does not require Public Consultation".***

5.3 CONSENT AND AUTHORISATION BY KSPCB

Based on the EC, the KSPCB has issued consent for establishment vide order dated **04.11.2015** for establishing Hazardous Waste Landfill at KIADB Industrial Area, 2nd Phase, Kanakapura, Ramanagara District for total capacity of 95,000 Tons / 10 Years (Consisting of 2 cells with capacity of 50,000 Tons and 45,000 Tons). Subsequently, KSPCB issued the

combined consent for discharge of effluents under Water Act and emission under Air Act vide order dated **13.04.2016 & 14.06.2016** for carrying out hazardous waste landfill for 95,000 Tons/ 10 Years and CFL dismantling activity as per the CPCB Norms, with a validity up to 30.06.2021 (**Annexure 6**). The important conditions are:

- Domestic effluent (0.4 KLD) shall be treated in septic tank and soak pit.

- Leachate from cells, tyre wash water (2KLD) shall be handed over to CETP of M/s Govind Solvents Pvt Ltd. for further treatment and disposal.

- Shall install Multiple Effect Evaporator (MEE) for disposing of leachate generated from the waste within 6 Months.

- Shall install web camera at the entrance of the gate, finger print sampling station, and treatment area.

- Shall install hood ducting and air pollution control equipment with chimney to the waste stabilization / processing area to control smell nuisance.

- Plant three rows of high plantations on the periphery and adequate greenery.

- All the drums and machinery shall be placed within the shed and floor shall be impervious.

The H.W. Authorization issued by the KSPCB for handling of hazardous waste under Hazardous and Other Wastes (Management and Trans-boundary Movement) Rules, 2016 issued on 12.06.2019 expired on 30.06.2020 (**Annexure 7**), and the facility has applied for renewal of the same on 07.03.2020 to KSPCB.

5.4 EC & CFO FOR EXPANSION OF TSDF

Subsequently, the State Level Environment Impact Assessment Authority – Karnataka has accorded Environmental Clearance for TSDF expansion i.e. enhancing the Cell 1 from 50,000 MT to 1,00,000 MT and Cell 2 from 45,000 MT to 51,000 MT, with a total capacity of 1,51,000 MT, vide order dated **11.06.2018** (**Annexure 8**). Accordingly, M/s MEEPL has obtained Consent for Operation to the enhanced capacity i.e. 1,51,000 MT from KSPCB on **23.03.2019**, but the KSPCB has not mentioned / changed the operation period and kept the same i.e. 10 years (**Annexure 9**).

5.5 HAZARDOUS WASTES HANDLED

The total quantity of Hazardous Waste handled since commissioning is tabulated below as per information submitted by M/s MEEPL:

Table 3: Quantity of Hazardous Waste Handled

Year	Landfilled H.W. Quantity (MT)		
	Direct	After Treatment	Total
2016 - 2017	2043.74	20350.2	22393.9
2017 - 2018	2925.78	30234.4	33160.2
2018 - 2019	3220.66	37175.6	40396.2
2019 - 2020	2570.38	33755.3	36325.6
2020 – 02.09.2020	851.163	9992.55	10843.7
Total	**11611.73**	**131508**	**143119.7**

The above table revels that out of total quantity landfilled, the direct landfilled accounts to 8.1% and the remaining 91.9% accounts to after treatment. As per permitted total capacity of 1,51,000 MT, the facility has completed 94.8% and remaining left is 7880.3 MT (5.2%), the same may be completed in two to three months.

5.6 LEACHATE DISPOSED TO CETP

As per combined consent conditions, the MEEPL shall install Multiple Effect Evaporator within six months (i.e. by October 2016) for disposing of leachate generated. But, the leachate generated is handed over to CETPs i.e. M/s Govind

Solvents and M/s Bangalore Eco Park Pvt. Ltd., whereas in the consent there was no permission to handover to M/s Bangalore Eco Park Pvt. Ltd. The total leachate quantities disposed to these CETPs as per record provided are as follow:

Table 4: Quantity of Leachate Disposed to CETPs

Sl. No	Year	Total Quantity (MT)
1	2016 - 2017	552.24
2	2017 - 2018	689.53
3	2018 - 2019	1024.52
4	2019 - 2020	1225.14
5	2020 - 2021*	812.32
Total Quantity		**4303.75**

Note: * up to 03.09.2020

The above table reveals that the generation of leachate is doubled during 2017 – 2020 and the total leachate disposed by MEEPL was 4303 MT to CETPs.

5.7 CHANGE OF LAYOUT (HISTORICAL IMAGINARY)

The committee studied the Google Earth to see the historical imaginary of the KIADB land allotted to MEEPL. The historical image downloaded from Google Earth from 2014 is shown below with observations:

No activity as on 06.04.2014

No activity as on 28.05.2014

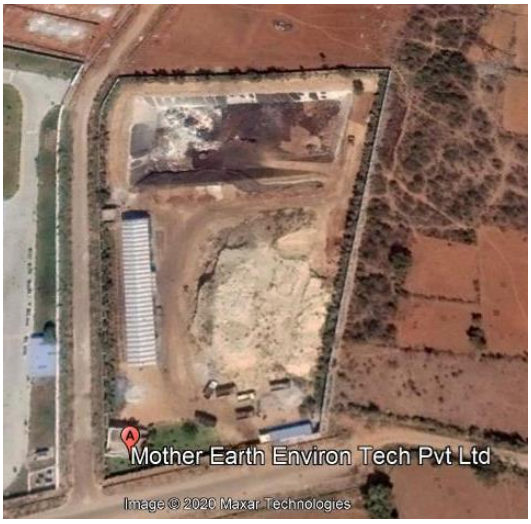
Cell 1 & Storage shed under construction, compound wall on all four sides noticed as on 03.02.2016

Cell 1 & storage shed completed as on 16.04.2016, there was no buffer left for green belt

No other infrastructures provided, landfilling started as on 08.11.2016. Plantation visible all around the compound wall.

Cell 1 landfilling was in progress as on 09.01.2017. No surface runs off management structure visible.

Cell 1 landfilling was in progress as on 15.01.2017. Excavated soils are stored inside TSDF.



Cell 1 landfilling was in progress as on 08.02.2017. No surface runoff management.

Cell 1 landfilling was in progress As on 18.12.2017 and Cell 2 development in progress

Cell 1 landfilling was in progress as on 05.01.2018 and Cell 2 development in progress

There is major change noticed that storage shed is relocated and infrastructure developed is visible as on 23.10.2018. Eastern side compound is removed and extended further covering for green belt development

Plantation done at the earlier shed area, Cell 1 is in the completion stage and Cell 2 is ready. There is no surface run off collection tank developed as on 14.12.2018.

Plantation visible on earlier shed area, plantation started on extended land as on 17.02.2019

Cell 1 is covered, and cell 2 started filling. Surface runoff collection tanks are constructed as on 01.11.2019

It is observed from above historical images that, MEEPL started landfilling in Cell 1 before developing all infrastructures in place to handle Hazardous wastes and subsequently relocated the storage / stabilisation area, extended / shifted the boundary on Eastern side to develop green belt. Weighbridge, tyre wash, surface run off collection, green belt, storage & stabilisation area, etc. are developed at later stage of the project, not having the same from the start of the project resulted in causing serious environmental pollution to the surroundings. MEEPL has not obtained layout approval before commencing of project.

5.8 COMPLIANCE OF ESCROW ACCOUNT

After post closure of TSDF, it is required to be monitored at least for a period of 30 years from the closure of the facility so as to ensure that no adverse impact on the environment as well as health of the public living in the vicinity of the facility. For undertaking such activities, adequate funds would be required which need to be deposited in a common account called "**Escrow Account".**

In view of this, MoEF& CC issued Office Memorandum vide No. 23-1/2008-HSMD dated April 16, 2009, requesting all the SPCB/PCC to create Escrow Account recommending to deposit 5% of the annual turnover of land fillable waste towards the Escrow Account. This account would be a tripartite agreement between Operator of the facility, Respective SPCB/PCC and the Public Sector Bank acting as Escrow Agent. Afore said provisions of Escrow Account shall be implemented w.e.f. commencement of the operation of common secured landfill site or April 16, 2009, the day of the O.M. was issued by MoEF& CC, whichever is later.

According to above, the KSPCB and MEEPL made an agreement on 23.12.2017, as per agreement MEEPL should deposit an amount equal to 5% of the annual turnover of the secured landfill facility into Escrow account. The details of Escrow Amount statement submitted by MEEPL as follow:

ESCROW AMOUNT STATEMENT

Period	User Charges (in ₹)			Escrow Amount (in ₹)	Paid by MEEPL (in ₹)
	DL	LAT	Total		
2016 -17	1941555.7	21367711.8	23309267.5	1165463.4	0
2017-18	2779490.1	31746114.8	34525604.8	1726280.2	1700000
2018- 19	3059626.1	39034360.6	42093986.6	2104699.3	2000000
2019- 20	2441862.0	35443017.2	37884879.2	1894244.0	3500000
2020 to 3/9/2020	959990.1	12691857.2	13651847.2	682592.4	0
Total	**11182523.8**	**140283061.5**	**151465585.3**	**7573279.3**	**7200000**

Note: DL: Direct Landfill**, LAT:** Landfilling After Treatment

The above table reveals that MEEPL has collected total user charge about ₹ 15.14 crores and accordingly the estimated Escrow amount to be deposited is about ₹ 75.73 lakhs, whereas the MEEPL has deposited ₹ 72.00 lakhs and remaining balance of ₹ 3.73 lakhs yet to be paid.

6.0 LOCATION OF TSDF AND ITS SURROUNDINGS

The TSDF site located about 1.2 km away from the Kanakapura Road (South side) and 1.9 km away from Siddapura Bidadi Road (North East side). The TSDF is surrounded by industrial plots on three sides and private open agricultural lands on Eastern side. There are two villages located near the vicinity of TSDF i.e. Girenahalli (> 500 m) and Ganaludoddi (about 200 m – Honnur Swamy Temple of village).

There are different kinds of industries established and operating around the TSDF site viz.., Bulk drug and Pharmaceutical, Common Hazardous Waste Incinerator, H.W. Recyclers, etc. The industrial area is provided with normal open storm water drains, which by natural course may reach downstream lakes during rainy and any intentional discharge by industries. The nearby surface water bodies are as follow:

a) Surface Water body Opp. Pagariya Food Products Pvt Ltd. – 512 meters away from TSDF (West side)

b) Banikupe Lake – About 1.9 km on south west direction

c) Gannaludoddi Lake – 980 meters on South East direction

d) Mallaiahna Kere – 2.4 km (North Western direction)

The Joint Committee collected water samples of above mentioned lakes to assess the surface water quality; the same is discussed at **point 7.4.4.**

7.0 INSPECTION OF JOINT COMMITTEE

On the day of Joint Committee Inspection **i.e. 03.09.2020**, M/s Mother Earth Environ Tech Pvt Ltd, (TSDF) was found not in operation, there was no waste been received by the facility and handled. The unit operation such as receiving of Hazardous wastes, unloading, direct land filling or stabilization, functioning of leachate treatment all found non –operating due to rain. The Joint Committee could not able to envisage the actual operation and associated activity and related issues. Both the cells (Cell 1 and Cell 2) are completely covered temporarily with Tarpaulin sheets to avoid entry of rain water in to the Cells.

The Joint Committee has verified the compliances w.r.t to Sitting criteria, EC of TSDF, EC of KIADB, CFO conditions and various directions issued by MoEF & CC, CPCB and KSPCB to the TSDF. The various compliances are as follow:

7.1 COMPLIANCE OF TSDF SITTING CRITERIA

The sitting criteria developed by CPCB shall apply to owners and operators of TSDF that dispose Hazardous Waste in landfills. Hazardous Waste landfills shall not be located within a certain distance of the following: Lakes, Ponds, Rivers, Wetlands, Flood plains, Highways, Habitations, Water Supply wells, Air ports, and Coastal Zone.

Secondly, as per the Criteria for Hazardous Waste Landfills, the Hazardous Waste Landfills should preferably be located in areas of low population density, low alternative land use value, low groundwater contamination potential and at sites having high clay content in the subsoil. And the Hazardous Waste landfill site selection shall be done earmarking 5 to 250 km as search radius / area to minimize the number of HW landfills in any region or state. The search area will be so chosen that it minimizes the number of H.W. Landfills in any region or state. Also, the MoEF & CC vide O.M. No. 23-122/2016-HSMD, dated **29.08.2016** issued clarification on distance criteria for setting up TSDF that "the additional criteria in terms of distance between TSDF as prescribed by Ministry's O.M. No.12-30/2013-HSMD dated **20.06.2013** shall also be adhered to for setting up new project of Common TSDF for Hazardous Waste in the country (**Appendix 6**). The O.M. mandates that new project of Common treatment facilities within a distance of 400 km radius of the existing TSDFs of hazardous waste is not permissible. ***According to Guidelines and MoEF & CC order, this facility is not complying with search radius criteria.*** Accordingly, the compliance of location criteria is as follow:

Table 5: Compliance to TSDF Location Criteria

S. No.	Location Criteria	Compliances
a.	**Lake & Pond:** No landfill shall normally be constructed within 200 m of any lake or pond.	A small Lake (Nerekere as referred by Local People) is located about 185m from the Boundary of TSDF and remaining

S. No.	Location Criteria	Compliances
	Because of concerns regarding runoff of waste contaminated water. A surface water monitoring network with approval of SPCB shall be established.	other lakes is located beyond 500 m from TSDF. The runoff water TSDF may not reach the Nerekere Lake, since it is located on upstream side towards NE. **May be considered as complying with the sitting criteria.** The KSPCB is regularly conducting monitoring of identified Lakes located in and around Harohalli Industrial Area.
b.	**River :** No landfill shall be constructed within 100 m of a navigable river or stream	Vrishabawathi River (Check dam is located at a distance of 4.16 km and other streams joining Vrishbawathi starts at a distance of about 2.3 km. Hence, **complying with the sitting criteria.**
c.	**Flood Plain:** No landfill shall be constructed within 100 years flood plain.	There is no record of flood plain of Vrishabawathi River for this landfill site. Hence, **complying with the sitting criteria.**
d.	**Highway:** No landfill shall be constructed within 500 m of the right of the way of any State or National Highway (NH).	There is no State or NH passing within 500 m, the NH 948 (previously NH 209) which connects Dindigul, Tamil Nadu with the Bengaluru is passing at a distance of 1.2 km. Hence, **complying with the sitting criteria.**
e.	**Habitation:** Landfill shall be at least 500 m from a notified habituated area. A Zone of 500 m around a landfill boundary should be declared a no-development buffer zone after landfill location is finalized.	500 m around the landfill boundary is not declared as non-development buffer zone till date. There are two villages located near the vicinity of TSDF i.e. Girenahalli (>500 m) and Ganaludoddi (about 200 m – Honnur Swamy Temple of village).

S. No.	Location Criteria	Compliances
		Only KIADB has provided 15 m wide buffer for a total length of 175.52 m to the Eastern side of TSDF. **Hence, Not complying with the sitting criteria.**
f.	**Public parks:** No landfill shall be constructed within 500 m of a public park.	No public park exists within 500 m distance. Hence, **complying with the sitting criteria.**
g.	**Critical Habitat Area:** No landfill shall be constructed within critical habitat areas (one or more endangered species live) including reserve forest areas.	Not constructed within critical habitat area including reserve forest area. Hence, **complying with the sitting criteria.**
h.	**Wet lands:** No landfill shall be constructed within wetlands.	Not constructed within /on wetlands. Hence, **complying with the sitting criteria.**
i.	**Air Port Zone:** No landfill shall be constructed within a zone around Air ports, as notified by the aviation authority.	Not falling under Air Port Zone. Hence, **complying with the sitting criteria.**
j.	**Water supply well:** No landfill shall be constructed within 500 m of any water supply well	There are 2 public water supply bore wells located in Ganalu Doddi village The aerial distance of bore wells from TSDF gate are 707m and 600 m respectively. The locations of bore wells are 12°40'13.29"N 77°27'1.88"E and 12°40'29.43"N 77°27'18.16"E. **Hence, complying with the sitting criteria.**
k.	**Coastal Regulation zone:** No landfill shall be sited in a	Not falling under Coastal Regulation Zone. Hence, **complying with the sitting**

S. No.	Location Criteria	Compliances
	coastal regulation zone.	**criteria**
l.	**Ground Water Table Level:** No landfill shall be located in area where ground water table will be less than 2 m below the base of landfill.	As per the landfill drawing, the landfill base is located at 15 m from the Ground Level; whereas the ground water level was found at 17.5 m in piezometer well No. 5 during monitoring. The approximate Depth of the water Table in Harohalli area varies between 180 - 250 m, as per the information provided by GWD. Hence, **complying with the sitting criteria**
m	**Search Radius:** The Common treatment facility within a distance of 400 km radius of the existing TSDFs of hazardous waste is not permissible.	This facility is located at distance of about 80 km from the existing facility of M/s Karnataka Waste Management Project (Ramky Enviro Engineers Ltd.) located at KIADB Industrial Area, Dabaspet setup in 93 acres land, commissioned during 2008, having landfill capacity of 40,000 MT per Annum for 20 years (Total capacity 8,00,000 MT/ 20 years). **Hence, not complying with sitting criteria.**

The above table revels that the TSDF site is not complying with the criteria of Lake/Pond, non-development of buffer zone and Search radius. KIADB/ Govt of Karnataka shall declare 500m around the landfill boundary as no-development zone. In case of increase in Ground Water level further, due attention is required to be given on base of landfill Cells to ensure its stability.

7.2 NOTIFICATION OF TSDF, DESIGN & LAYOUT APPROVAL

7.2.1 NOTIFICATION OF TSDF SITE

As per Rule 21 & Schedule VII: List of Authorities and Corresponding duties of the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016, the TSDF site has to be notified by State Government. Similar provision also prevailed under the Rule 23 of HWM Rules, 2008.

However, the site of M/s Mother Earth Environ Tech Pvt Ltd, a Transport, Storage and Disposal Facility (TSDF) operating at KIADB Industrial Area, Harohalli, Ramnagara District in the total area of 4 acres is not yet notified by the Govt. of Karnataka. **Hence, it is recommended to notify all TSDF sites of Karnataka as per the Rule 21 of HW Rules.**

7.2.2 TSDF DESIGN AND LAYOUT APPROVAL

As per Section 16(2) of the said Rule, the operator of the facility or occupier of a captive facility shall design and set-up the treatment, storage and disposal facility as per technical guidelines issued by CPCB and shall obtain approval from SPCB for design and layout in this regard. Similar provision prevailed under the Rule 18(2) of HWM Rules, 2008. The facilities such as (a) access roads, (b) equipment shelters, (c) weighing scales, (d) office space, (e) location of waste inspection facility (f) temporary waste storage and / or disposal sites for special wastes, (g) demarcation of the landfill areas and areas for stockpiling cover material and liner material, (h) location of surface water drainage facilities, (i) location of landfill leachate management facilities, (j) location of gas management facilities, (k) location of monitoring wells/ environment monitoring facilities, (l) fencing and green belt along the peripheral boundary and (m) emergency exit has to be located in the layout.

With respect to Layout approval, the Committee observed that CPCB has issued direction under Section 5 of the Environment (Protection) Act, 1986 to the Chairman, KSPCB vide order dated **November 14, 2018** to ensure the compliance of above. The copy of direction is given as **Annexure 10**. Accordingly, the KSPCB approved the Layout of TSDF as per Rule 16(2) of the Hazardous and Other Waste (Management, Handling & Trans boundary) Rules, 2016 vide letter dated **27.10.2018**. The copy of the approved layout plan is given as **Annexure 11.** ***The Joint Committee reviewed the approval of the Layout plan and noticed that the M/s Mother Earth Environ Tech Pvt Ltd has submitted a layout plan vide letter No. MEEPL/LAB/18-19/017 dated 26.09.2018 to the Regional Office, KSPCB, Ramnagara including the buffer area of 15m x 175.5m (2632.5 m^2) belong to KIADB, accordingly without verification KSPCB has approved layout plan including KIADB land, which need be withdrawn and reissued.***

KIADB official clarified to the Joint Committee on 03.09.2020 that permission was given to MEEPL only to maintain the additional buffer area adjacent to MEEPL site on their East side i.e. 15m x 175.5m , but, they can't claim any ownership or as their green belt and can't include in their layout plan. ***Also, observed that there is no plantation / green belt developed in the additional buffer area till date neither by KIADB nor by MEEPL***

As per the Directions of CPCB issued u/s 5 of EPA 1986 to KSPCB on 20.03.2018, KSPCB vide lr. no. PCB/WMC/2800/HWM/2018/ 1094 dated 15.05.2019 requested Indian Institute of Science (IISc) to inform their willingness to take up the work i.e. Evaluation of Design and Layout of TSDF. IISc has submitted their willingness to KSPCB on 13.06.2019. But, ***the assigned task of evaluation of Design and Layout of TSDF is not yet complied.***

The MEEPL is not having designated equipment shelters, disposal site for special wastes, and lack in fencing and green belt along the peripheral boundary and emergency exit. Gas management facility is yet to be developed along with closure plan.

7.3 GROUND WATER AVAILABILITY & NOC FOR EXTRACTION

7.3.1 GROUND WATER AVAILABILITY

As per the decision of the Joint Committee, the Nodal Agency, CPCB has addressed a letter to the Senior Geologist, Ground Water Directorate (GWD), Khanija Bhavan, Race Course Road, Bengaluru on **28.08.2020** to obtain information about Ground Water Availability, NOC issued and action taken in case of violation, if any. Accordingly, the information submitted by the Senior Geologist, District ground water office, Ground Water Directorate based on the Dynamic Ground Water Resources Estimation for Ramnagara and Kanakapur Taluks of Ramnagara District is as follow:

Table 6: Details about Ground Water Availability

1.	Annual extractable ground water resources (A) in MCM	:	13462
2.	Existing gross ground water extraction for irrigation (B)	:	13057
3.	Existing gross ground water extraction for domestic and industrial water supply	:	637
4.	Existing gross ground water extraction for all uses	:	13694
5.	Allocation for domestic and industrial use for next 25 years	:	661
6.	Net ground water availability for future irrigation development	:	498
7.	Stage of ground water extraction (B /A %)	:	103 %
8.	Categorization	:	Over Exploited

The above table reveals that existing stage of Ground water extraction as per Dynamic Ground Water Resources Estimation is 103%, Hence

Ramnagara and Kanakapura taluks of Ramnagara District is categorized as Over Exploited.

7.3.2 NOC FOR GROUND WATER UTILIZATION

M/s Mother Earth Environ Tech Pvt Ltd (TSDF) has not obtained NOC for use of ground water. The Ground Water Directorate (GWD) issued a Notice by for illegal extraction of Ground Water to MEEPL. The registered / un-registered bore well operating in Ramnagara District is as follow, as per GWD information:

Table 7: Registered / un-registered bore wells in operation

S. No.	Details	Number of Units	Number of Bore wells
1	Registered Bore wells and NOC issued for G.W. extraction	17	24
2	Registered Bore wells	6	10
3	Registered Bore wells & NOC to be issued	6	07
4.	Not Registered & illegal extraction of GW	104	Not available

Above table reveals that there are total 104 units operating in Ramnagara District are illegally extracting ground water and those units were issued with Notice for illegal extraction of ground water by Ground Water Directorate.

GWD has to take appropriate action immediately on the industries those have not obtained NOC as per the "Guideline to regulate and control ground water extraction in India with immediate effect" notified on 24.09.2020 by Ministry of Jal Shakti and to impose Environmental Compensation.

7.4 WATER / WASTEWATER SAMPLING

The Joint Committee carried out ground water, surface water (Lakes and River) and Leachate (Raw & Treated) sampling to ascertain the water quality in and around the M/s Mother Earth Environ Tech Pvt Ltd and compliance of leachate discharge standards.

The Central Pollution Control Board (CPCB) along with an assistance of Karnataka State Pollution Control Board (KSPCB) carried out water and wastewater sampling on 03.09.2020 and the samples collected have been analysed at CPCB Laboratory, Bengaluru. The following samples were collected by Joint Committee by giving Notice to M/s MEEPL as per Rule 7 of The Environmental (Protection) Rules, 1986.

Table 8: Details of Samples Collected

S. No.	Location of Samples	Type
A.	**Within MEEPL**	
1	Raw Leachate from TSDF Cell 1	Wastewater
2	Treated Leachate from Primary Treatment	Wastewater
3	Surface runoff from rainwater collection tank	Wastewater
4	Bore well located near office	Ground Water
5	Bore well located near security office	Ground Water
6	Bore well located on North West side-I near Leachate Collection tank	Ground Water
7	Bore well located on North West side-II Corner	Ground Water
8	Bore well on North East side	Ground Water
B	**Outside MEEPL**	
9	Bore well of M/s. Big Drum India P Ltd	Ground Water
10	Bore well of M/s. DKP Engineers Pvt Ltd	Ground Water
11	Bore well of M/s. Pragathi Control	Ground Water
12	Hanumegowdanu doddi lake	Surface Water
13	Banikupae Lake	Surface Water

S. No.	Location of Samples	Type
14	Hanumegowdanadoddi Lake	Surface Water
15	Mallaiahnakere Inlet	Surface Water
16	Ganaludoddi lake	Surface Water
17	River Suvarnamukhi	Surface Water
18	Bore well – T. Bannikupae Village	Ground Water
19	Bore well – Ram Sagar Village	Ground Water
20	Bore well – Ganaludoddi Village	Ground Water
21	Bore well – Medamarana Halli Village	Ground Water

In addition to above samples, three more samples (2 surface water and one Ground water sample) were collected on 12.10.2020 by Regional office, KSPCB, Ramnagara and the details are:

Table 9: Location of additional samples

S. No.	Location of Samples	Type
1	Lake sample (12°40'48.6"N 77°27'43.4"E)	Surface water
2	Lake Sample (12°40'52.4"N 77°27'19.5"E)	Surface water
3.	Ganaludoddi Bore well (12°40'29.43"N 77°27'18.16"E)	Ground water

The analysis results of leachate, surface water, and ground water are as follow:

7.4.1 LEACHATE MANAGEMENT AND ITS QUALITY

The combined consent for discharge of effluents under Water Act & emission under Air Act and Authorisation for generation, storage and disposal of Hazardous Waste issued by KSPCB vide order dated 13.04.2016 specified the following:

- Leachate from cells, tyre wash water (2KLD) shall be handed over to CETP of M/s Govind Solvents Pvt Ltd., Kunigal for further treatment and disposal.

- Shall install integrate Flow Measuring / recording devices on the effluent line and a record of daily effluent discharge shall be maintained.

- Shall install Multiple Effect Evaporator (MEE) for disposing of leachate generated from the waste within 6 Months i.e. by October 2016.

- Shall provide tank in tank system for leachate collection tank to identify any leakage.

The Joint Committee observed that the leachate generated is being handed over to CETPs i.e. M/s Govind Solvents and M/s Bangalore Eco Park Pvt Ltd., whereas in the consent there was no permission to handover to M/s Bangalore Eco Park Pvt Ltd. Also the MEEPL has not installed MEE as per consent order and provided the elevated leachate tank having capacity of about 78 M^3 (6.5 * 2.1* 5.7) in place of tank in tank system. The raw leachate tank is not provided with any top cover and raw leachate is being treated in pre-treatment plant before disposing to CETP. The pre-treated leachate is lifted /transferred to vehicles by providing temporary hose and pump and provided with flow meter.

The unit has provided Garland drain around the Cell 1 and Cell 2, the surface run off from the landfills are routed to the tanks of 4 Nos to collect the surface run off etc. The surface run off are being pre-treated along with raw leachate to dispose to CETP, however, there is no separate flow meter to record the same. The facility has not taken necessary precautions (***auto level switch / controller***) measures to handle the situation during rainy periods.

Primary Leachate Treatment Plant of 8 KL on batch process was commissioned on 20.01.2020 by MEEPL. The treatment plant is designed based on Fentron – advanced treatment process. Fentron's reagent is a solution of H_2O_2 with $FeSO_4$ as catalyst that is used to oxidise the wastewater, which is followed with coagulation, aeration and settling process.

The leachates & surface run-off water samples were collected by the Joint Committee to verify the characteristics and status of compliance with respect to CETP inlet norms i.e. M/s Bangalore Eco Park Pvt Ltd. ***On the day of inspection, the leachate treatment plant was not in operation, the treated water stored in a tank was collected for analysis.*** The analysis results are as follow:

Table 10: Analysis Results of Wastewater

S. No	Parameters	A1	A2	A3	Inlet Std. of CETP*
1	pH at 25˚C	7.9	7.6	7.4	5 - 9
2	EC at 25˚C µs/cm	>20000	19230	2890	-
3	COD, mg/L	125798	4182	325	42600
4	BOD_{3d}, 27˚C , mg/L	>75000	2016	62	28300
5	TDS at 180˚C, mg/L	>100000	14041	1521	22700
6	TSS at 103-105˚C, mg/L	186	112	312	650
7	Chloride, mg/L	>10000	4579	552	-
8	Sulphate, mg/L	-	>1000	175	-
9	Nitrate Nitrogen, mg/L	1.52	BDL	BDL	-
10	Total Kjeldahl Nitrogen as N, mg/L	33.0	35.0	44	-
11	Total Hardness as $CaCO_3$ mg/L	-	-	120	-
12	*Cyanide ,mg/L	BDL	BDL	-	-
13	Copper, mg/L	0.30	0.06	BDL	-
14	Cadmium, mg/L	BDL	BDL	BDL	-
15	Total chromium, mg/L	2.40	0.70	BDL	-
16	Iron, mg/L	45.54	1.41	6.92	-
17	Manganese, mg/L	2.10	0.24	0.38	-
18	Nickel, mg/L	27.90	0.20	0.06	-
19	Lead, mg/L	3.40	0.26	1.51	-
20	Zinc mg/L	13.90	3.60	0.35	-
21	Cobalt mg/L	BDL	BDL	BDL	-
22	Arsenic mg/L	1.00	BDL	BDL	-

***** - M/s Bangalore Eco Park Inlet Standard

Where,

A1 - Raw Leachate

A2 - Primary Treated wastewater (leachate & surface runoff)

A3 - Surface runoff from rainwater collection tank

The above table reveals that the raw leachate is having very high TDS and COD load, and the pre – treated wastewater is complying with inlet standard of CETP. However, the reductions in pollution load w.r.t BOD, COD are uncertain, may be due to rainwater dilution and old sample. The surface runoff water was having COD > 250 mg/L needs treatment for disposal. The unit dispose the same along with raw leachate to CETPs.

7.4.2 GROUND WATER QUALITY WITHIN TSDF PREMISES

There are 5 numbers of ground water monitoring wells (bore wells) located within the TSDF premises to monitor the ground water quality and for source of water. On the day of Joint Committee inspection, the ground water level was found at 17.5 m in piezometer well No. 5. KSPCB is regularly carrying out the analysis of Ground water at TSDF.

The ground water sampling locations and its analysis results of samples collected on the day of inspection by the Committee around the TSDF landfill are shown below:

Table 11: Analysis Results of Ground Water

S. No	Parameters	GW1	GW2	GW3	GW4	GW5	Standards*
1	pH at 25˚C	6.7	6.8	6.4	6.3	7.2	6.5 – 8.5
2	EC at 25˚C µs/cm	714	863	1131	890	781	-
3	COD, mg/L	BDL	7.0	17	20	**65**	-
4	BOD3d , 27˚C , mg/L	BDL	BDL	BDL	BDL	8.0	-
5	TDS at 180˚C, mg/L	538	527	644	469	360	2000
6	TSS at 103-105˚C, mg/L	BDL	BDL	8	97	31	-
7	Chloride, mg/L	71	67	119	85	95	1000
8	Sulphate, mg/L	36	31	40	BDL	BDL	400
9	Nitrate Nitrogen, mg/L	0.11	0.19	BDL	BDL	BDL	45
10	Total Hardness as $CaCO_3$, mg /L	290	315	437	314	232	600
11	Total Kjeldahl Nitrogen as N, mg/L	3.2	3.3	4.5	7	25	-
12	Copper, mg/L	BDL	BDL	BDL	BDL	BDL	1.5
13	Cadmium, mg/L	BDL	BDL	BDL	BDL	BDL	0.003
14	Total chromium, mg/L	BDL	BDL	BDL	BDL	BDL	0.05
15	Iron, mg/L	0.14	0.09	18.49	68.21	6.35	0.3
16	Manganese, mg/L	BDL	BDL	1.603	0.12	0.30	0.3
17	Nickel, mg/L	BDL	BDL	BDL	BDL	BDL	0.02
18	Lead, mg/L	BDL	BDL	BDL	BDL	0.05	0.01
19	Zinc mg/L	BDL	0.105	BDL	BDL	BDL	15
20	Cobalt mg/L	BDL	BDL	BDL	BDL	BDL	-
21	Arsenic mg/L	BDL	BDL	BDL	BDL	BDL	0.05

Note: * IS 10500-2012, permissible limit

Where,

GW1 – Bore well located near office (12°40'36.2"N 77°26'58.2"E)

GW2 - Bore well located near security office (12°40'36.6"N 77°26'59.6"E)

GW3 - Bore well located on NW side I- near Leachate tank (12°40'39.2"N 77°26'57.2"E)

GW4 - Bore well located on NW side-II Corner (12°40'40.8"N 77°26'57.3"E)

GW5 - Bore well on North East side (12°40'39.7"N 77°27'00.4"E)

The above table reveals that the ground water quality is meeting the Drinking Water Standards i.e. IS 10500-2012, permissible limit. However, there is increase in pollutant concentration (COD) in Bore wells No. 3, 4

& 5 while comparing with other Bore wells. These bore wells are located close to TSDF – Cells.

7.4.3 GROUND WATER QUALITY OUTSIDE TSDF

The ground water quality of bore wells located in the surrounding Villages of TSDF was assessed at 8 locations in addition to the samples collected within the TSDF site by the Committee. The map showing the location of samples collected and its analysis results are as follow:

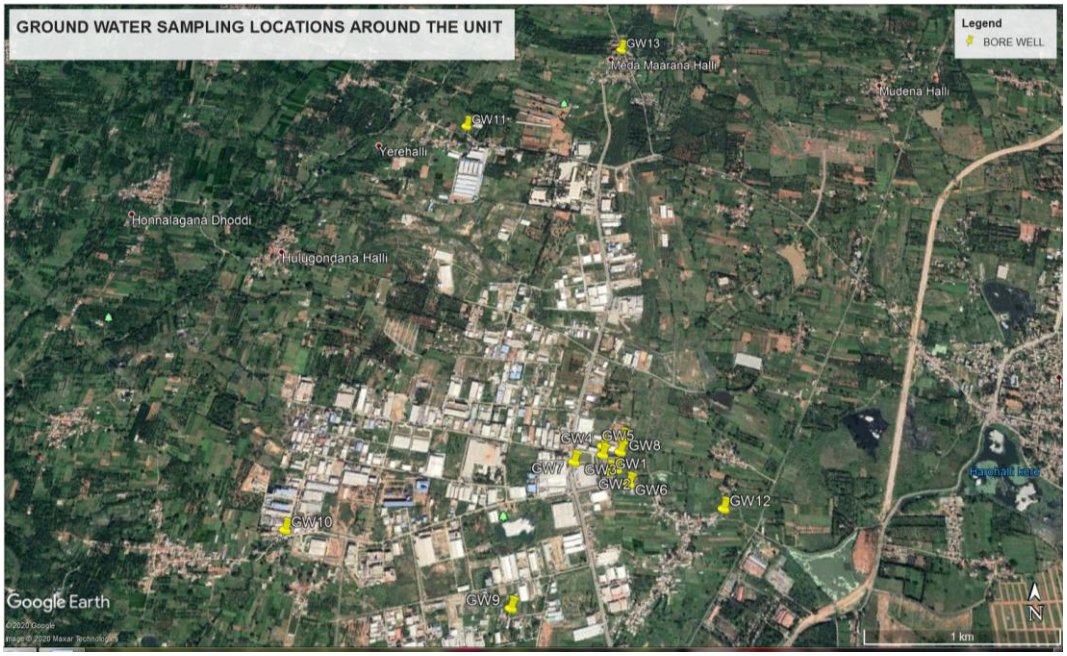


Table 12: Analysis Results of Ground Water

S. No	Parameters	GW6	GW7	GW8	GW9	Standards*
1	pH at 25˚C	6.7	6.6	6.9	6.6	6.5 – 8.5
2	EC at 25˚C µs/cm	804	1243	877	2680	-
3	COD, mg/L	10	4	BDL	BDL	-
4	BOD_{3d} , 27˚C , mg/L	BDL	BDL	BDL	BDL	-
5	TDS at 180˚C, mg/L	507	737	529	1567	2000
6	TSS at 103-105˚C, mg/L	7	9	BDL	5	-
7	Chloride, mg/L	69	165	65	455	1000
8	Sulphate, mg/L	32	53	41	104	400

9	Nitrate Nitrogen, mg/L	0.29	0.22	BDL	0.26	45
10	Total Hardness as $CaCO_3$, mg /L	278	460	341	839	600
11	Total Kjeldahl Nitrogen as N, mg/L	BDL	3.9	2.8	BDL	-
12	Copper, mg/L	BDL	BDL	BDL	BDL	1.5
13	Cadmium, mg/L	BDL	BDL	BDL	BDL	0.003
14	Total chromium, mg/L	0.07	BDL	BDL	BDL	0.05
15	Iron, mg/L	2.94	0.06	0.30	0.49	0.3
16	Manganese, mg/L	BDL	BDL	0.18	0.08	0.3
17	Nickel, mg/L	BDL	BDL	BDL	BDL	0.02
18	Lead, mg/L	BDL	0.14	BDL	BDL	0.01
19	Zinc mg/L	BDL	BDL	BDL	BDL	15
20	Cobalt mg/L	BDL	BDL	BDL	BDL	-
21	Arsenic mg/L	BDL	BDL	BDL	BDL	0.05

Note: * IS 10500-2012, permissible limit

Where,

GW6 - Bore well of M/s Big Drum India Pvt Ltd (12°40'34"N 77°26'58"E)

GW7 - Bore well of M/s DPK Engineers Pvt Ltd (12°40'38"N 77°26'52"E)

GW8 -Bore well of M/s Pragathi Controls Unit 2 (12°40'42"N 77°27'01"E)

GW9 – Bore well of Hanume gowdanudoddi (12°40'13.5"N 77°26'40.5"E)

Table 13: Analysis Results of Ground Water

S. No	Parameters	GW10	GW11	GW12	GW13	Stands*
1	pH at 25˚C	6.5	6.8	7.4	6.6	6.5 – 8.5
2	EC at 25˚C µs/cm	1933	1493	926	2720	-
3	COD, mg/L	BDL	BDL	BDL	BDL	-
4	BOD_{3d} , 27˚C , mg/L	BDL	BDL	BDL	BDL	-
5	TDS at 180˚C, mg/L	1260	985	591	1632	2000
6	TSS at 103-105˚C, mg/L	BDL	15	BDL	BDL	-
7	Chloride, mg/L	321	249	92	434	1000
8	Sulphate, mg/L	110	106	22	130	400
9	Nitrate Nitrogen, mg/L	3.08	0.52	BDL	2.15	45
10	Total Hardness as $CaCO_3$, mg /L	620	482	347	828	600
11	Total Kjeldahl Nitrogen as N, mg/L	BDL	2.2	BDL	3.4	-

S. No	Parameters	GW10	GW11	GW12	GW13	Stands*
12	Copper, mg/L	BDL	BDL	BDL	BDL	1.5
13	Cadmium, mg/L	BDL	BDL	BDL	BDL	0.003
14	Total chromium, mg/L	BDL	0.15	BDL	BDL	0.05
15	Iron, mg/L	0.14	0.05	BDL	BDL	0.3
16	Manganese, mg/L	0.08	BDL	BDL	BDL	0.3
17	Nickel, mg/L	BDL	BDL	BDL	BDL	0.02
18	Lead, mg/L	BDL	BDL	BDL	BDL	0.01
19	Zinc mg/L	BDL	BDL	0.07	BDL	15
20	Cobalt mg/L	BDL	BDL	BDL	BDL	-
21	Arsenic mg/L	BDL	BDL	BDL	BDL	0.05

Note: * IS 10500-2012, permissible limit

Where,

GW10 - Bore well of T. Bannikupae (12°40'26.9"N 77°26'00.8"E)
GW11 - Bore well of Ramsagar (12°41'47.8"N 77°26'31.6"E)
GW12- Bore well of Ganalu doddi (12°40'29.43"N 77°27'18.16"E)
GW13 – Bore well of Medamaranahalli (12°42'6.06"N 77°27'4.80"E)

The above tables reveals that the ground water quality of bore wells located outside TSDF (i.e. in industrial area and villages) are found complying with the Drinking Water Standards i.e. IS 10500-2012, permissible limit.

7.4.4 SURFACE WATER (LAKES) QUALITY

The KIADB has provided the storm water drains and finally join the surface water bodies located in and around the industrial area. However, the KIADB has reserved 12.8 acres of land in Plot No. 139 and 8.43 acres of land in Plot 472 for setting up STP and CETP, but the same is not yet established. The committee identified such water bodies and carried out water quality analysis in 7 locations, the locations of surface water samples collected and its analysis results are as follow:

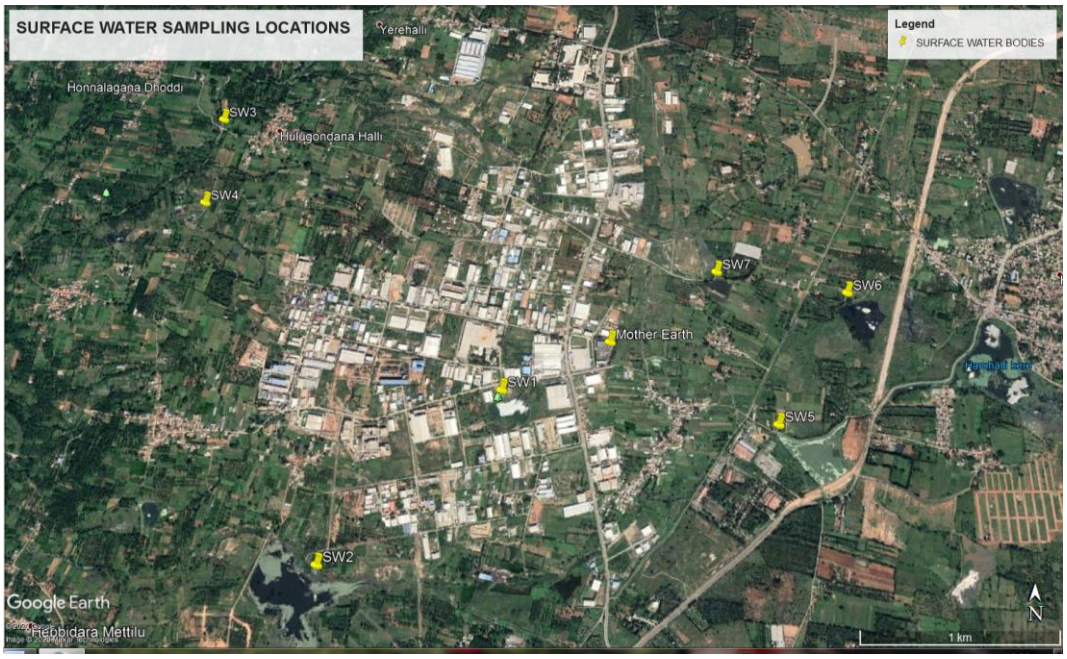


Table 14: Analysis Results of Surface Water

S. No	Parameters	SW1	SW2	SW3	SW4	SW5	SW6	SW7	Stands*
1	pH at 25˚C	7.1	7.3	7.5	7.1	7.6	7.0	7.1	6.5 – 8.5
2	EC at 25˚C µs/cm	862	492	735	858	248	1211	1173	-
3	COD, mg/L	27	8	69	18	9	-	-	-
4	BOD_{3d} , 27˚C , mg/L	4.1	BDL	3	BDL	BDL	5.0	5.0	-
5	TDS at 180˚C, mg/L	536	348	443	543	164	840	810	2000
6	TSS at 103-105˚C, mg/L	18	10	32	10	12	6	4	-
7	Chloride, mg/L	143	65	110	104	16	166	164	1000
8	Sulphate, mg/L	5.0	12	33	81	21	33	29	400
9	Nitrate Nitrogen, mg/L	BDL	BDL	0.05	BDL	BDL	5.77	3.12	45
10	Total Hardness as $CaCO_3$, mg /L	292	102	189	193	101	276	260	600
11	Total Kjeldahl Nitrogen as N, mg/L	6	6	3	BDL	BDL	-	-	-
12	Oxygen dissolved, mg/L	1.3	6.9	5.4	2.2	7.0	4.1	4.4	-
13	Copper, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	1.5
14	Cadmium, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.003
15	Total chromium, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.05

S. No	Parameters	SW1	SW2	SW3	SW4	SW5	SW6	SW7	Stands*
16	Iron, mg/L	0.2	0.89	0.82	1.15	0.27	0.65	BDL	0.3
17	Manganese, mg/L	0.25	0.15	0.06	0.25	BDL	0.27	BDL	0.3
18	Nickel, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.02
19	Lead, mg/L	BDL	BDL	BDL	BDL	BDL	BDL	BDL	0.01
20	Zinc mg/L	BDL	BDL	BDL	BDL	BDL	-	0.27	15
21	Cobalt mg/L	BDL	BDL	BDL	BDL	BDL	-	-	-
22	Arsenic mg/L	BDL	BDL	BDL	BDL	BDL	-	-	0.05

Note: * IS 10500-2012, permissible limit

Where,

SW1 – Hanumegowdanu Doddi Lake (12°40'30"N 77°26'40"E)

SW2 – Bani Kuppe Lake (12°40'0"N 77°26'9"E)

SW3 – River Sornamukki (12°41'22.5"N 77°25'44.2"E)

SW4 – Malliahnakere (12°41'05.2"N 77°25'42.5"E)

SW5 – Ganaludoddi near BWSSB (12°40'24.4"N 77°27'29.2"E)

SW6 – Hodakekere, Kulume Beemasandara Village Lake sample (12°40'48"N 77°27'43"E)

SW7 – Soothakatte, Girenahalli Lake sample (12°40'52"N 77°27'18"E)

The above tables reveals that the surface water quality of lakes are found complying with the Drinking Water Standards i.e. IS 10500-2012, permissible limit. The lakes water quality w.r.t TDS is on higher side while comparing with other surface water body in SW6: Hodakekere and SW7: Soothakatte, which are located on the downstream of TSDF, may be due to discharge of contaminated surface runoff from TSDF.

7.5 MANAGEMENT OF SURFACE RUN OFF

The TSDF supposed to divide the area into dark zone (contaminated area like roads where the trucks with waste moves, near treatment and storage area, near drying yard, etc.,) and white zone where there is no contamination of waste like the green belt area, garden, other open spaces away from the movement of waste. But, being a small site, M/s MEEPL could able to do the same.

The unit has provided Garland drain around the Cell 1 and Cell 2, the surface run off from the landfills are routed to the tanks of 4 Nos to collect the surface run off etc. One the day of committee inspection, it is noticed the run off collections tanks (4 Nos) are partially filled and provided with pump to lift the same. But, there is no separate flow meter and level switch to record the same, informed that disposed along with leachate to CETPs.

The analysis results of surface run off water of TSDF shown at Point 7.4.1 is having COD of 325 mg/L and TDS of 1521 mg/L confirms the contamination due to TSDF activities and need of treatment and safe disposal. In case of discharge of the same will lead to the surface water pollution of Lakes located in its downstream i.e. SW6: Hodakekere and SW7: Soothakatte.

8.0 DESIGN VERIFICATION OF TSDF

Based on the Joint Committee meeting held on 17.08.2020, the TSDF was requested to provide the following details vide letter dated 18.08.2020 by CPCB, Nodal Agency.

- Copy of Design and Layout of TSDF
- Status of Compliance of various Directions by Authorities
- Location showing Ground Water Monitoring map and its analysis results
- Details about Leachate Management System and its disposal records
- Details about stabilisation of Hazardous Waste (H.W) and its control measures
- Quantity of H.W. disposed into landfill since its inception with year wise break up
- State of operation of TSDF

The above requested information's were submitted by MEEPL vide their letter No. MEEP/LAB/20-21/049 dated 25.08.2020. Subsequently, the Joint

Committee inspected the facility on 03.09.2020 and requested the Member from NIT-K to verify the design aspects of TSDF with respect to planning and design criteria, landfill liner criteria, construction and submit his observation to the Committee.

In view of above, the MEEPL was requested to furnish the following additional information w.r.t. Design of Landfills (Cell 1 & Cell 2) vide letter dated 21.09.2020 by CPCB, Nodal Agency.

a) Official letters to IISc regarding the request to design TSDF with its capacity.

b) Preliminary reports on Soil testing, Topographical survey, etc. for collecting design data.

c) Preliminary design report submitted by IISc.

d) Report and Photographic / Video evidence to show the liner, Leachate collection pipe network and collection well details and also WAPCOS/third party report certifying that execution is done as per design provided by IISc.

e) Official communication to IISc regarding the increase in capacity of Cell 1 from 50,000 MT to 1,00,000 MT and Cell 2 from 45,000 to 51,000 MT.

f) Inspection and assessment report of IISc on the increased capacity certifying the earlier design can handle this additional capacity.

g) Slope stability analysis report done before rising the embankment height especially Cell 1, which is very close to the adjacent site.

h) At the end of the TSDF facility, the distance between the compound wall and the fill is very less and in case of unforeseen incidents, there is no proper approach to address it. : Justification for this.

i) Cells, Phase and Lift details of the landfill.

j) Documentary evidence to justify the act of rapid filling of the landfill site within half its design period. Official permit/permission letter from the concerned authorities to increase the rate of filling needs to be enclosed.

The above requested information's were submitted by MEEPL vide their letter No. MEEP/LAB/20-21/057dated 06.10.2020. The submitted information was reviewed by NITK, and the remarks on submitted information are:

Table 15: Committee Observation on TSDF Design & Execution

S.No.	Query	Observation & Remarks
1.	Official communication to IISc regarding the request to design TSDF. To check what capacity was requested to design.	✓ Letter from M/s MEEPL to IISc intimating about land allocation and request to provide the Preliminary Plan for hazardous waste Landfill, design and Construction Plan for Landfill. ✓ Letter from IISc to MEEPL dt. 12.06.2012 regarding the acceptance of work [Scope: Plan for various units of Hazardous landfill drawings for different units] ✓ MEEPL pays IISc consultancy Fee for the work on 21.06.2012 and same is acknowledged by IISc on 25.06.2012. ✓ IISc informs MEEPL regarding the

S.No.	Query	Observation & Remarks
		Technical Project Report and estimate for Civil Works on 03.12.2020 and places an offer to monitor during its operation and provide technical guidance. From the above replies it is observed that nowhere it is mentioned about the project details and the capacity of the TSDF actually designed.
2	Preliminary reports on soil testing, topographical survey, etc., for collecting design data	• MEEPL submitted an Extract of EIA report conducted during January to March 2018 (pg. 53 to 79), but not clear who did it. • Samples collected in March 2018 – 5 ground water + 2 surface water + 5 soil sample+1Air sample. • All samples (water) were collected within 5 km radius and as per soil sampling results. It is noted that the required critical Engineering parameters have not been analysed / not presented.
3	Preliminary design report submitted by IISc	➢ Only two drawings prepared by IISc are submitted without any Design details. So cannot confirm for which capacity the landfill was designed.

S.No.	Query	Observation & Remarks
		➢ As per drawing, there is a clearance of 6.5 m between Cell-1 and compound wall. This is not enough to develop a green belt of 15 M around the periphery.
4	Report and Photographic / Video evidence to show the liner, Leachate collection pipe network and collection well details and also WAPCOS / third party report certifying that execution is done as per design provided by IISc.	From the data / information submitted, it is not clear that who has done the design and analysis. Was it done by M/s Yashaswini Engineering Consultant / IISc / WAPCOS?
5	Official communication to IISc regarding the increase in capacity of Cell 1 from 50000 MT to 100000 MT and Cell 2 from 45000 to 51000 MT.	No information on the same is submitted.
6.	Inspection and assessment report of IISc on the increased capacity certifying the earlier design can handle this additional capacity.	Submitted again a drawing prepared by IISc in January 2017 with additional Cell i.e. Cell 2 and also showing the Maximum height of final cover above the base as 5 m.
7	Slope stability analysis report done before rising the embankment height especially Cell 1 (which is very close to the adjacent site].	The slope stability carried out by M/s Yashaswini Engineering Consultants was submitted. But it is not clear that it is carried out under the supervision of IISc / WAPCOS?
8	At the end of the TSDF facility, the distance between	No proper Justification provided to manage in case of any unforeseen

S.No.	Query	Observation & Remarks
	the compound wall and the fill is very less and in case of unforeseen incidents, there is no proper approach to address it.: Justification for this.	incidences. In case of collapse of embankment there is a possibility of hazardous waste coming on the road or adjacent industry.
9	Cell, Phase and Lift details of the landfill.	Details provided are only photographs taken during landfill construction phase. The details asked are about Cell, Phase and Lift. However, looking at the rate it was land filled, it is evident that MEEPL has not planned for these things (phase and lift) properly / rather it was filled unscientifically.
10	Documentary evidence to justify the act of rapid filling of the landfill site within half its design period, Official permit / permission letter from the concerned authorities to increase the rate of filling.	Permission / corrigendum issued by KSPCB on 21.11.2016 waiving off the condition of filling rate i.e. 792 MT / Month to 95000 MT / 10 year. However, KSPCB hasn't given consent to fill the landfill at (100000+51000) MT / 4 year. The TSDF has completed its 94.8% capacity in four and half years. The remaining left is 7880.3 MT (5.2%), the same could be completed by two to three months.

The observation / remarks of NITK were communicated to MEEPL by Mail on 15.12.2020 to clarify and submit information as per remarks. But, MEEPL failed to provide the same until so far.

The above table reveals that there are three agencies IISc, WAPCOS and M/s Yashaswini Engineering Consultants involved in design and execution of Landfill, but each of their roles is not clearly specified. The

communication between MEEPL and IISc did not mention about the project details to verify the capacity of TSDF. The EIA extract submitted is not having any analysis on Engineering Parameters. As per drawing the clearance given between Cell-1 and compound wall is not complying with the EC condition requirement to develop 15 m Green belt development, serious violation during design stage itself.

The MEEPL failed to produce official communication to IISc regarding increase in capacity design of Cell 1 and Cell 2. The drawing submitted is showing the maximum height of final cover only, not exactly the design capacity. The MEEPL failed to address any unforeseen, since the land fill embankment starts from the compound wall without leaving adequate buffer, in case of collapse of embankment, there is a possibility of hazardous waste coming on the road or adjacent industry. The existing compound wall would not able to withstand such load.

It is clear indication that looking at the rate of H.W. land filling happened to achieve its 94.8% in less than half of its permitted period i.e. 10 years and with increase in filling rate than the operation capacity, MEEPL has not planned for phase and lift properly / rather it was filled unscientifically, which is serious violation against the Criteria for Hazardous Waste Landfills.

9.0 COMPLIANCE TO ENVIRONMENTAL CLEARANCE (EC) CONDITIONS

The Joint Committee Member from MoEF & CC, Regional Office, Bangalore informed the Committee that the compliances of Environmental Clearance conditions issued by SEIAA was verified by MoEF &CC on 24.10.2017 and observed many non-compliances accordingly issued notice on 07.11.2017 to comply the same. On the compliance status submitted by M/s MEEPL, the MoEF & CC further issued addendum on 14.02.2018 to comply. The major non-compliances noticed by MoEF & CC are verified by

the Joint Committee on Environmental Clearance conditions, the present status is tabulated below:

Table 16: Major Non-compliances / Violation on EC conditions

No.	EC Conditions	Compliance Status
1.	Necessary provision shall be made for firefighting facilities within the complex.	Additional fire extinguishers (four) have been provided, as per MoEF Notice. **Hence, it is complied.**
2.	The green belt shall be developed in at 33 % of the total project area. Planting aromatic and flowering climbers to cover the compound shall be under taken.	As per the conditions 14 & 34 of EC, green belt of 15 m all along the boundary / 33 % of total area should be provided. The unit has not maintained / developed 15m all along the boundary of TSDF and the total green belt cover is not complying with the conditions. **Hence, it is not complied**.
3	The proponent should obtain necessary clearance from the ground water authority.	The unit has not obtained permission for drawl and use of ground water. **Hence, the condition is not complied.** In view of, the Ground Water Directorate (GWD) issued a Notice for illegal extraction of Ground Water to MEEPL.
4.	The project proponent should prepare and implement an Onsite Emergency Management Plan.	It is noted that the role of different officers / team after hearing the emergency siren has been elaborated; however, it does not identify the possible failures and emergencies, its types, likely damages, method of management of different

No.	EC Conditions	Compliance Status
		emergencies etc. MoEF issued notice to upgrade the Onsite Emergency Management Plan. M/s MEEPL has not updated the Onsite Emergency Management Plan. **Hence, conditions / notice not complied.**
5	The Project proponent will set up separate Environmental Management Cell for effective implementation of the stipulated environmental safeguards under the supervision of a senior executive.	MoEF & CC vide letter dated 14.02.2018 instructed to appoint a person qualified in the field of 'Environment' within six months and inform. Also, SEIAA in EC dated 11.06.2018, stipulated a condition that M/s MEEPL shall comply with the suggestions / comments made by MOEF&CC. Accordingly, M/s MEEPL has submitted the details of the staff with qualification, copy of their certificate working in Environmental Management Cell. **Hence, it is complied.**
6	Regular online monitoring of the ambient air quality	Not yet established Online Continuous Ambient Air Quality Monitoring Stations (CAAQMS), conducting manual monitoring through third party laboratories. **Hence, it is not complied.**
7.	The PA shall undertake eco-developmental measures including community welfare	MoEF & CC requested the details of activities with budget and supportive documents, payments, bills etc., however,

No.	EC Conditions	Compliance Status
	measures in the project area for the overall improvement of the Environment.	the same is not yet submitted. **Hence, it is not complied.**
8	Advertisement of EC for expansion	MoEF & CC requested the copy of Advertisement, which is not yet submitted. **Hence, it is not complied.**

The above table reveals that there are noncompliance's observed w.r.t. green belt development, NOC from Ground Water Authority, On site emergency plan, Online monitoring of Ambient Air Quality, Eco developmental measures, and Advertisement of Expansion project, since from inception.

In view of above, the Committee decided to take the Environmental Clearance conditions noncompliance period also as Number of days of violation took place to Estimate Environmental Compensation.

10.0 COMPLIANCE OF CPCB DIRECTIONS

The Central Pollution Control Board, Delhi has issued following directions under Section 5 of the Environmental (Protection) Act, 1986 w.r.t. non – compliance of M/s MEEPL :

10.1 STABILISATION OF HAZARDOUS WASTE & MANAGEMENT OF LEACHATE GENERATED MANAGEMENT OF SURFACE RUN OFF

Central Pollution Control Board (CPCB), Delhi, vide order No. B-29016 (SC) 1 (52-II)/18 / HWMD/2786 – 92 dated June 13, 2018 issued direction to the Common TSDFs under Section 5 of the Environmental (Protection) Act, 1986 with respect to installation/ up gradation of facility for management of leachate generated from secured landfill and stabilization of hazardous waste with air pollution control (APC) measures by **15.10.2018**.

a) **STABILISATION OF HAZARDOUS WASTE**

Options:

i. ***Mechanized cover system having arrangement of waste conveyor system, mixing unit with mechanized mixing arrangement, suction duct / hood, scrubber system and stack*** **(or)**

ii. ***Stabilization in pit by mixing with excavator / backhoe loader having hood over the pit with adequate suction arrangement to arrest dust / fumes followed by scrubber and stack.***

The facility is following the ***Option (ii)*** for stabilization of Hazardous Waste for secured landfilling. The Observations are:

- The TSDF has provided / constructed shed for storage and stabilization of hazardous waste in an area of 10.5 M x 51.0 M i.e. 535 M^3, which includes the stabilization pits having total area of 53 M^2. The storage and stabilization area is provided with concrete flooring and 3 number of stabilization pits of same size. The size of the each stabilization pit is about 6.2mx 2.8m x 2m i.e. 34.72 M^3. The total capacity of 3 stabilization bins is about 104 M^3. During the committee inspection, there was no stabilization operation noticed and the entire storage shed found empty. Out of 3 bins, two bins are found empty and the one is found partially get collected with rain water & leachate generated from the storages.

- There were no separate storage / designated areas for storing direct landfilling wastes and waste requires stabilization treatment, before going for landfilling. ***Also the shed is not covered by three sides and due to which the rain water enters to the storage area and increase the leachate generation from the storages. There is no peripheral drainage and spillage / leachate collection pit at the storage area.***

- The facility had placed order for purchase of Fume Extraction System consists of Control panel, Ducting, Damper, Venturi Scrubber, I D Fan etc. to M/s Yanons Engineers Pvt Ltd., J26, MID Bhosari, Pune – 411 026 vide Buyer order No. MEEPL/19-20/001 dated April 24, 2019. Accordingly, the facility has received the goods on October 09, 2019 and

the commissioning was communicated to CPCB vide letter Dated 27.01.2020. ***Hence there is delay in compliance of more than 15 months.***

b) MANAGEMENT OF LEACHATE GENERATED

Options:

i. ***Solar Evaporation Pond:*** *May be used / provided suitable sized pond be installed considering evaporation loss Vs. Leachate generation. Further such pond shall have double liner system with leachate pumping system;* ***(or)***

ii. ***Multiple Effect Evaporator (MEE)*** *and the residue of MEE to be disposed into secured landfill after proper encapsulation and the condensate water to be managed as per the conditions stipulated in the consent to operate issued by the concerned SPCB under the Water Act;* ***(or)***

iii. *Adequate* ***treatment Facility for treating leachate*** *so as to achieve concentration of COD < 250 mg/L prior to its use in Spray Dryer of common hazardous waste incinerator for quenching of flue gases from secondary chamber of the incinerator;* ***(or)***

iv. ***Effluent Treatment Plant*** *having advance oxidation technology or adopting other suitable technology and manage as per the conditions stipulated in the consent issued by the concerned SPCB under Water Act.*

The facility is not following any of the ***above Options*** and the leachate generated is being disposed after pre – treatment to CETPs i.e. (i) M/s Govind Solvents Pvt Ltd, Kunigal and (ii) M/s Bangalore Eco Park Pvt Ltd., Dobaspet.

- M/s MEEPL Primary Leachate Treatment Plant of 8 KL per batch process was commissioned by M/s Panvi Enviro Renovators, Bengaluru on 20.01.2020. The treatment plant is designed based on Fentron – advanced treatment process. Fentron's reagent is a solution of H_2O_2 with $FeSO_4$ as catalyst that is used to oxidise the wastewater, which is followed with coagulation, aeration and settling process.

- The commissioning of Leachate Pre-treatment plant was communicated to CPCB vide letter. Dated 27.01.2020. ***Hence there is delay in compliance of CPCB direction of more than 15 months.***

10.2 TO STOP THE COLLECTION AND DISPOSAL OF H.W. IMMEDIATELY BY MEEPL

Based on complaint from M/s Society for Sustainable Development and KSPCB inspection report dated 04.10.2017, CPCB issued directions u/s 5 of the EPA, 1986 to KSPCB on 20.03.2018 to examine compliances and in case of non-compliances of provisions of the Rules and Guidelines, to stop the collection and disposal of hazardous waste by M/s MEEPL.

Subsequently, based on the meeting held with stakeholders on 20.09.2018 at CPCB, Delhi issued Modified Directions on 14.11.2018 u/s 5 of the EPA 1986 to KSPCB directing to ensure compliance of the following:

1) Not to allow collection and disposal of hazardous waste by M/s MEEPL into their common SLF unless State arrives sitting is absolutely essential in the State and upon compliance with the following:

   (a) *Appropriate design measures adopted for sitting the common TSDF within the restricted distances and approval of design of the TSDF has been granted by KSPCB in compliance with Rule 16 (2) of the HOWM Rules 2016.*

   (b) *Layout of the common TSDF approved by KSPCB w.r.t. green belt requirement and all requisite infrastructures prescribed in the CPCB guidelines;*

   (c) *Verification by KSPCB that M/s MEETPL has set up the common TSDF in accordance with approved design and layout, as above;*

2) Maintenance of manifest system for movement of leachate from the TSDF to authorised CETP by M/s MEEPL;

3) To levy and collect financial penalty from M/s MEEPL for each violation (i.e. Rule 6(2), Rule 16(2), 16(4), Rule 19, etc.) in accordance with Rule 23 (2) of the HOWM Rules, 2016

4) Coordinate with Karnataka State Forest, Ecology and Environment Department and SEIAA, Karnataka for notification of all the Common TSDFs in Karnataka and expansion granted to M/s MEEPL by SEIAA despite of non-compliances w.r.t. non-development of requisite green belt, location criteria and non-availability of infrastructure.

In compliance to above, KSPCB vide letter. No. PCB/WMC.2165/2017 /4155 dated 14.11.2018 informed that, KSPCB has approved the design of TSDF and also the layout plan. And requested to withdraw the directions issued to MEEPL and informed that KSPCB will monitor the TSDF. Copy of letter with inspection report of Chairman, KSPCB is given as **Annexure 12.**

CPCB has examined the reply of KSPCB dated. 14.11.2018 and informed that Layout approval by KSPCB does not meet the required green belt as prescribed in the EC and also not having required infrastructure as per CPCB Guidelines. Requested KSPCB to revisit the design and layout approved by them and may like to seek expertise of reputed institute while considering the said approvals including of sizes / capacities of various infrastructures and requested for immediate compliances of directions.

In continuation to above, KSPCB vide letter. No. PCB/WMC.2800/2018 /383 dated 16.01.2019 informed that (**Annexure 13**):

- Operation of MEEPL is essential for management of the Hazardous Waste generated in the State.

- Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty, the project proponent is required to carry out the assessment of damages

through third party and KSPCB addressed letter to MEEPL on 10.01.2018.

- Requested the Karnataka State Forest, Ecology and Environment Department to take action to notify TSDF facilities and communicated CPCB observations on expansion granted despite of non-compliances

In continuation to above, CPCB reminded KSPCB vide letter. No. B-29016/TSDF/ (63) /2019/ WM-II Div/ 2310 dated 07.06.2020 to submit action taken report on or before 15.06.2020. KSPCB proposed to impose ₹. 2,00,000/- (Rupees Two Lakhs only) as financial penalty for violation of provisions vide letter dated 12.06.2020. CPCB further requested to provide the details w.r.t. conditions of authorisation violated to enable CPCB to approve the financial penalty.

The Joint committee reviewed the directions and concluded that the CPCB directions are not yet complied and the MEEPL is allowed to continue their operation in spite of non –compliances. The total hazardous waste handled after the date of Direction by CPCB i.e. April 2018 to 02.09.2020 (until date of inspection) is as follows:

Table 17: H.W. Handled after CPCB Directions

Year	Landfilled H.W. Quantity (MT)		
	Direct	After Treatment	Total
2018 - 2019	3220.66	37175.6	40396.2
2019 - 2020	2570.38	33755.3	36325.6
2020 – 02.09.2020	851.163	9992.55	10843.7
Total	**6642.203**	**80923.45**	**87565.5**

Out of total quantity handled and disposed i.e. 143119.7 MT, the quantity handled after the CPCB directions i.e. *"Not to allow collection and disposal of hazardous waste by M/s MEEPL into their common SLF unless State arrives sitting is absolutely essential in the State*" is 61.18%.

It is noticed that during these three years i.e. 2018 to 2020, TSDF was operated at the rate of 5.79 times than the average consented operating capacity of 15,100 MT/Year. Non implementation of CPCB directions resulted in the additional dumping of 61.8% (87,565 MT) in three years. The CPCB directions are not yet complied fully.

11.0 NON COMPLIANCE OBSERVED BY KSPCB

The Joint Committee requested KSPCB to provide the copies of earlier inspections reports to know the non-compliances and violation caused to the environment by M/s MEEPL. Accordingly, the date of inspection, non-compliances notified by the KSPCB officials are tabulated below from the period of inception based on the reports furnished by Regional Officer, KSPCB, Ramanagara vide letter no. KSPCB/ Ramanagara/ Mother Earth/2020-21/193 dated 27.08.2020.

Table 18: Non-compliances/ violation observed by KSPCB

S. No.	Date of observation	Observations/Non-compliances / Violations noticed by KSPCB
1.	25.02.2015	• Site Inspection report states that the proposed TSDF site by MEEPL is not confirming to the sitting criteria, there is chance that the leachate might enter the adjoining agricultural land and the natural pond located nearby and also may affect the drinking water sources of the nearby villages.
2.	21.03.2016	• To provide tank in tank system for leachate collection • To maintain records of waste received and disposed, submit report to KSPCB. • To monitor ground water quality, soil quality and ambient air quality every month.
3.	06.05.2016	• Have not maintained green belt of 15 mts all

S. No.	Date of observation	Observations/Non-compliances / Violations noticed by KSPCB
		around the TSDF • Not maintained buffer of 15 m on North side of the Cell • Violation of sitting criteria
4.	09.10.2017	• Objections raised by Society for Sustainable Development, Hyderabad w.r.t. violation of sitting criteria, Notification of site by Govt. of Karnataka and inadequate area to maintain green belt.
5.	21.12.2017	• Total quantity of leachate sent to CETP is more than consented quantity of 2 KLD • Leachate is being disposed to CETP –Bangalore Eco Park against CETP – Govind Solvents. • Have not maintained green belt of 15 mts all around the TSDF and the total green belt cover not maintained to 33% as per EC. • Not provided garland drain and rain water collection system. • Smell nuisance and smoke noticed in TSDF.
6.	17.09.2018	• To plant saplings in the lawn area (south side also) to maintain 33% green belt. • Pre-treatment unit for leachate has been dismantled to facilitate the construction of new cell and directed to install pre-treatment unit immediately. • Contaminated storm water was stored in earthen pit. To construct concrete tank for collection of storm water & to check the water quality before use.
7.	24.01.2019	• Housekeeping near the waste stabilization facility was poor. • Not maintaining records for monitoring of storm

S. No.	Date of observation	Observations/Non-compliances / Violations noticed by KSPCB
		water quality and not having permanent pumping arrangement. • Strom water drains are not plastered to prevent seepage in to ground. • Not conducting VOC monitoring. • Not obtained NOC from Ground Water Authority • Not complying to sitting criteria
8.	08.05.2019	• The concrete garland channel provided on the East side was breached. Further, the storm water collection tank provided on the NE corner was also full which indicates that its capacity is inadequate. Physical observations revealed that the leachate contaminated storm water had flown outside the TSDF site. • The compound wall provided towards eastern side is of sheet metal and if this was built by masonry wall, any run off flowing outside the facility would have been prevented. • Dark brown colour water stagnation was noticed in the natural valley. The samples collected were shown pH ranging 9.58 to 9.66 and E.C. ranging 6920 to 14400 µS/cm. • A Show Cause Notice has been issued to the TSDF.

The above table reveals that there is violation from the date of inception of the facility w.r.t sitting criteria, buffer area / green belt development, leachate & surface water management, compound wall, housekeeping, environmental monitoring, record keeping, notification of site & layout and discharge of surface run off to the agricultural land.

12.0 ASSESSMENT OF ENVIRONMENTAL COMPENSATION

In compliance of the Hon'ble NGT order, to assess the Environmental Compensation based on "Polluter Pays Principle" under Section 20 of the National Green Tribunal Act, 2010, the following cases are considered for levying Environmental Compensation as per CPCB guidelines:

a) Discharge in violation of consent conditions, mainly prescribed standards / consent limits.

b) Not Complying with the directions issued, such as direction for closure due to non-installation of OCEMS, non-adherence to the action plans submitted etc.

c) Intentional avoidance of data submission or data manipulation by tampering the online continuous emission/ effluent monitoring systems.

d) Accidental discharges lasting for short durations resulting into damage to the environment.

e) Intentional discharges to the environment – Land, Water and Air resulting into acute injury or damage to the environment.

f) Injection of treated/ partially treated / untreated effluents to ground water.

After considering various factors including the policy implementation issues, CPCB has recommended the following formula for levying environmental compensation in instances as mentioned at a), b) and c) including non-compliances of the environmental standards / violation of directions. Accordingly, the **Environmental Compensation (EC)** is estimated based on the following formula:

$$\mathbf{EC = PI * N * R * S * LF}$$

Where,

PI – Pollution Index of industrial sector,

R – A factor of Rupees for EC

N – Number of days of violation took place

LF – Location Factor

S – Factor for scale of operation

The formula incorporates the anticipated severity of environmental pollution in terms of pollution index, duration of violation in terms of number of days, scale of operation in terms of micro and small / medium / large industries and location in terms of proximity to the large habitations. Accordingly, the non-compliances noticed w.r.t. implementation of EC / Consent / Authorisation/ Directions are tabulated below based on MoEF & CC / CPCB / KSPCB records:

Table 19: Non Compliance Noticed and its period

Sl. No	Non-compliances (NC) noticed	Period	NC Days	Remarks
1	a) Noncompliance to the EC condition i.e. green belt of 15 m all along the boundary / 33 % of total area should be provided. b) NOC from Ground Water Authority c) Onsite Emergency Plan d) Online continuous monitoring of Ambient Air Quality e) Undertake Eco	24.10.2017 -03.09.2020	1045	As per MOEF&CC records

Sl. No	Non-compliances (NC) noticed	Period	NC Days	Remarks
	developmental Measures including community welfare			
2	Non-compliance to CPCB directions issued under Section 5 of EPA dated 13.06.2018 w.r.t. stabilisation and leachate management	15.10.2018 -15.10.2019	469	As per CPCB records
3	Non-compliance to CPCB direction issued under Section 5 of EPA dated 20.03.2018 w.r.t. not to allow operation of TSDF, approval of TSDF Design and Layout, to levy financial penalty, notification of TSDF site etc.	20.03.2018-03.09.2020	898	
4	Leachate contaminated water flown outside the TSDF has resulted in pollution of downstream land & water bodies	8.5.2019 - 1.6.2019	35	As per KSPCB Records
5	Discharge of brown liquid with white scum patches originating from the north eastern periphery of TSDF & flowing towards the northern direction to join a large drain to continue it's flowing	31.5.2019 - 12.06.2019		

Sl. No	Non-compliances (NC) noticed	Period	NC Days	Remarks
	further which will have a serious impact on quality of Arkavathy River water, since the TSDF is located at micro catchment to the River Arkavathy.			
6	TSDF is a chronic violator showing the authorities negligent attitude towards environment & pollution control laws	31.5.2019 - 18.06.2019		
7	Polluting the water & posing danger to the health of flora, fauna & create imbalance of the eco system	31.5.2019 - 18.06.2019		

The above table reveals that the non –compliance period observed by KSPCB, CPCB, and MoEF & CC are overlapping, hence it is decided to take the total non-compliance period from the initial observation i.e. 24.10.2017 to 03.09.2020 (Joint committee inspection), so the total days of violation took place is 1045 days.

The above cases are considered for levying Environmental Compensation as per CPCB guidelines. The estimation of EC is

EC = PI * N * R * S * LF

- **Pollution Index (PI):** The unit is falling under the category of Large Red accordingly the average PI suggested is **80**.

- **Number of Days of violation took place (N):** The details of non-compliance period are: **1045days**

- **A factor of Rupees for EC (R):** As suggested in the report i.e. **₹.250**

- **Factor for scale of operation (S):** Large category and the factor is **1.5**

- **Location Factor (LF):** The total population is < 1Million and the factor is **1.0**

According to above factors: **EC = PI * N * R * S * LF**

= 80* 1045 * 250 * 1.5 * 1.0

= **3,13,50,000/-**

The Environmental Compensation (EC) estimated is ₹.3,13,50,000/- (Rupees Three Crores Thirteen Lakh Fifty Thousand only).

13.0 CONCLUSIONS & RECOMMENDATIONS OF THE JOINT COMMITTEE

The Joint Committee has drawn the following conclusions and recommendations based on the inspection, verification of TSDF Design & Execution, monitoring of Ground water / Surface water in and around industrial areas, Report of Ground Water Directorate, Non-compliance of Guidelines, Directions etc.:

a) As per the Criteria for Hazardous Waste Landfills, the Hazardous Waste Landfills should preferably be located in areas of low population density, low alternative land use value, low groundwater contamination potential and at sites having high clay content in the subsoil. And the Hazardous Waste landfill site selection shall be done earmarking 5 to 250 km as search radius / area to minimize the number of HW landfills in any region or state. The search area will be so chosen that it minimizes the number of H.W. Landfills in any region or state. In addition to above, the MoEF & CC vide O.M. No. 23-122/2016-HSMD, dated 29.08.2016 issued clarification on

distance criteria for setting up TSDF that ***"the additional criteria in terms of distance between TSDF as prescribed by Ministry's O.M. No.12-30/2013-HSMD dated 20.06.2013 shall also be adhered to for setting up new project of Common TSDF for Hazardous Waste in the country. The O.M. mandates that new project of Common treatment facilities within a distance of 400 km radius of the existing TSDFs of hazardous waste is not permissible.*** But this facility is located at distance of about 80 km from the existing facility of M/s Karnataka Waste Management Project (Ramky Enviro Engineers Ltd.) at KIADB Industrial Area, Dabaspet setup in 93 acre land, commissioned during 2008, having landfill capacity of 40,000 MT per Annum for 20 years (Total capacity 8,00,000 MT/ 20 years) and only achieved 37% of its design capacity as on September 2020 in 12 years. ***So, promoting such small facilities or any other facility without complying to search radius criteria shall be stopped by SEIAA / MoEF &CC. Promoting such facility without considering search radius will be a burden to the State Government due to short period of operation /closure, increase in number of TSDFs in a state and complying of post closure criteria's by SPCBs etc.***

In addition to above, recently M/s MEEPL has obtained EC from MoEF &CC for a setting up of integrated TSDF with incineration and landfill facility at Plot No. 667 to 68, Harohalli Industrial Area – Phase III, Ramanagara District coming up in the same Harohalli Industrial Area, Ramnagara District vide order No. 10-39/2020-IA III dated 09.11.2020. ***The committee is of the opinion that the EC granted for new integrated facility is a grave violation of OM and Guidelines issued by MoEF & CC for criteria for Hazardous Waste Landfills w.r.t. search radius & distance between two TSDFs i.e. > 400 kms. Hence it is recommended that, MoEF & CC to relook into the EC issued for setting up integrated facility at Harohalli Industrial Area – Phase III in view of strict adherence to the prevailing OM/Guidelines.***

b) The KIADB has obtained Environmental Clearance (EC) from State Level Environment Impact Assessment Authority (SEIAA) – Karnataka vide

order dated 22.08.2013 for providing "Hassle free production environment" for the manufacturing of IT/BT precision, electronic industries, garments and food processing /chemical industries, rubber, plastic, foundry and other/ general industries on Plot area of 371.90 Ha at Harohalli 2nd Stage Industrial Area at Harohalli, Medamaranahalli, Hulugondanahalli, Bannikuppe, Devrakaggala halli Villages of Ramnagara District. As per the Classification of Industrial Sector, the Common Treatment and Disposal Facilities (CETP/TSDF, E-Waste recycling, CBWTF, Effluent Conveyance, Incinerator, Solvent/ Acid recovery Plant, MSW sanitary landfill site) are classified as RED but special category projects; these are part of pollution control facilities. The same is not spelled in the EC granted by SIEAA. Also, KIADB approved the change of activity from drip/ micro irrigation system to Hazardous Waste landfill site (TSDF), subject to the condition that the applicant should obtain prior clearance from KSPCB & MoEF & CC. The EC was issued without public consultation stating that "The project is located within the notified industrial area and hence does not require Public Consultation" and also KSPCB issued Consent for Establishment (CFE), Combined Consent for Operation (CFO) and Authorization under Hazardous and Other Wastes (Management and Trans-boundary Movement) 2016. ***The committee is of the opinion that the MoEF & CC shall issue clear guidelines on the requirement of separate public consultation for such special category /Red category projects proposed within the industrial area/estates where in these special projects were not part of the proposed activities while obtaining EC for the industrial area.***

c) M/s Mother Earth Environ Tech Pvt Ltd, a Transport, Storage and Disposal Facility (TSDF) is coming under category of small size landfill, which is < 5 hectare area. The total area of the facility is 4 acres in which 1.71 acres (43%) are earmarked for SLF consists of 2 cells. KIADB has issued allotment with change of activity from Drip/ Micro Irrigation to hazardous land fill site and granted 50% concession on prevailing rate i.e. 60 Lakhs per acre for 4 acres of land. ***The committee is of the opinion that KIADB should have obtained clarification either from MoEF & CC or SEIAA***

before changing of activity into the special category project which attracts EC.

d) SEIAA has accorded First EC on 28.08.2015 for the total capacity of 95,000 MT i.e. Cell 1 of 50,000 MT and Cell 2 of 45,000 MT. Subsequently, Second EC was issued for its expansion on 11.06.2018 i.e. enhancing Cell 1 to 1,00,000 MT and Cell 2 to 51,000 MT. *MoEF &CC* circular dated 07.09.2017 mandates that SEIAA / SEAC shall request certified compliance report on the conditions stipulated in the ECs to the existing projects / activities while issuing EC to the expansion projects/activities. SEIAA accorded EC for expansion on 11.06.2018 and stipulated a condition that the "The project proponent shall comply with the suggestions / comments made in the report of the Regional Office of MoEF&CC, Government of India on the compliance report vide letter dated 14.02.2018". Whereas, M/s MEEPL has not complied with all the conditions. ***The committee is of the opinion that, compliance to earlier EC conditions shall be ensured before grant of subsequent EC.***

e) KSPCB has granted consent initially for 95,000 Tons/ 10 Years (Consisting of 2 cells with capacity of 50,000 Tons and 45,000 Tons) and subsequently enhanced with Cell 1 from 50,000 MT to 1,00,000 MT and Cell 2 from 45,000 MT to 51,000 MT, with a total capacity of 1,51,000 MT. There is no change in design life of TSDF that remain as 10 Years. Accordingly, the estimated average consented operating capacity should be 15,100 MT / Year. ***The committee is of the opinion that, in spite of the non-compliances to consent & authorisation conditions of existing activities, issue of CFO to the enhanced capacity by KSPCB has resulted in further non –compliances. Further this facility has almost reached its total capacity within 4.5 years against 10 years by doubling its rate of operation, which is a grave violation.***

f) The H.W. Authorisation issued under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 expired on 30.06.2020. **Presently MEEPL is operated without valid H.W. Authorisation.**

g) The sitting criteria developed by CPCB states that Hazardous Waste landfills shall not be located within a certain distance of the following: Lakes, Ponds, Rivers, Wetlands, Flood plains, Highways, Habitations, Water Supply wells, Air ports, Coastal Zone. **Accordingly, this facility is not complying with criteria of Lake / Pond, non-development of Buffer Zone and Search radius**.

h) The TSDF facility is not yet notified by State Government as per Rule 21 & Schedule VII: List of Authorities and Corresponding duties of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016, also as per similar provision prevailed under the Rule 23 of HWM Rules, 2008. ***The State Government shall notify all such facilities as per Rules.***

i) MEEPL has obtained the Layout plan approval subsequently under Section 16(2) of the said Rule from KSPCB. The captive facility shall be designed and set up TSDF as per technical guidelines issued by CPCB, whereas, M/s MEEPL has submitted layout plan including the buffer area of 15m x175.5m ((2632.5 m^2) which belongs to KIADB to show higher Green belt area. The MEEPL is not having designated equipment shelters, disposal site for special wastes, and lack in fencing and green belt along the peripheral boundary and emergency exit. Gas management facility is yet to be developed along with closure plan. ***KSPCB shall take appropriate action to withdraw the approved layout plan and issue a new approval as per actual layout plan ensuring the compliance of technical guidelines.***

j) KIADB has given permission to MEEPL to maintain additional buffer area adjacent to TSDF on their East Side i.e. 15m x 175.5m, but, MEEPL can't claim any ownership or show as their green belt cover. Also, observed that ***there is no adequate green belt development in the additional buffer area till date neither by KIADB nor by MEEPL. KIADB shall be directed to develop a required green belt all around the Harohalli Industrial Area for***

all phases within a period of 3 months and status shall be reported and reviewed by KSPCB/ SEIAA.

k) The Ground water availability in Ramnagara and Kanakapura taluks of Ramnagara District is categorised as Over Exploited, as per the Dynamic Ground Water Resources Estimation carried out by Ground Water Directorate, Karnataka and the extraction rate is 103%. ***M/s MEEPL has not obtained NOC for ground water extraction and was served with notice by Ground Water Authority for illegal extraction. GWD has to take appropriate action immediately as per the "Guidelines to regulate and control ground water extraction in India with immediate effect" notified on 24.09.2020 by Ministry of Jal Shakti against M/s MEEPL and all other industries (104 units) have not obtained NOC and operating in Harohalli Industrial Area.***

l) As per the KSPCB combined consent issued to MEEPL for discharge of effluents under Water Act & Emission under Air Act and Authorisation for generation, storage and disposal of Hazardous Waste, the unit shall install Multiple Effect Evaporator for leachate generated by October, 2016. The same was not complied and subsequently permitted to dispose to CETP i.e. M/s Govind Solvents Pvt Ltd. But the unit dispose the primary treated leachate to other CETP i.e. M/s Bangalore Eco Park Pvt Ltd too, which is against the conditions. ***MEEPL shall implement the following within a month:***

Measures proposed for Leachate Management

S. No.	To be implemented	Time Line
1.	Independent flow meter shall be installed to record the quantity of leachate generated & treated and also to the surface run-off water.	1 Month
2	To amend the condition including M/s Bangalore Eco Park Pvt Ltd for disposal of pre-treated leachate and contaminated surface run-off etc.	1 Month

S. No.	To be implemented	Time Line
3	To provide top cover to the raw leachate collection tank	1 Month
4	Permanent pipeline with flow meter to transfer pre-treated leachate/ contaminated surface runoff to vehicles for transporting to CETP.	1 Month
5	To install auto level switch / controller in the surface runoff collection tank as precaution measures to handle the situation during rainy period.	1 Month
6	Daily record of flow meters w.r.t Surface runoff, Raw leachate, and pre treated effluent with its characteristics, quantity etc.	1 Month

m) The raw leachate is having high TDS (> 1,00,000 mg/L) & COD (>1,25,000 mg/L) load and the pre-treated wastewater by Fentron – advanced treatment process was complying with inlet standard of CETP. However, the pollution load reduction achieved w.r.t BOD and COD are uncertain, may be due to surface runoff dilution or so***. The surface run off was having COD >250 mg/L needs treatment for disposal, the same shall be ensured by MEEPL.***

n) MEEPL is depending on captive ground water supply from bore wells and the ground water samples of bore wells located within premises reveals that ground water quality is meeting the Drinking Water Standards i.e. IS 10500-2012, permissible limit. However, ***there is increase in pollutant concentration (COD) in Bore wells No. 3, 4 and 5, located close to TSDF – Cells while comparing with other Bore wells. The MEEPL shall regularly monitor these bore wells and submit report to KSPCB.***

o) The ground water quality of bore wells located in the surrounding Villages of TSDF was assessed at 8 locations in addition to the samples collected within the TSDF site and found complying with the Drinking Water Standards i.e. IS 10500-2012, permissible limit. ***The TDS is ranging between 507 to 1632 mg/L and the COD is found BDL, reveals no contaminations.***

p) The KIADB has provided the storm water drains and finally join the surface water bodies located in and around the industrial area. The surface water quality analysis in 7 locations found complying with the Drinking Water Standards i.e. IS 10500-2012, permissible limit. ***The lakes water quality of SW6: Hodakekere, Kulume Beemasandara Village and SW7: Soothakatte, Girenahalli Lake found higher w.r.t EC, TDS, Chloride and sulphate while comparing with other surface water bodies, which are located on the downstream of TSDF, may be due to discharge of contaminated surface runoff from TSDF. MEEPL shall ensure that no surface run off/ leachate is discharged outside their premises.***

q) The TSDF supposed to divide the area into dark zone (contaminated area like roads where the trucks with waste moves, near treatment and storage area, near drying yard, etc.,) and white zone where there is no contamination of waste like the green belt area, garden, other open spaces away from the movement of waste. ***But, being a small TSDF site M/s MEEPL could not be able to do the same. The surface run off water of TSDF was having COD of 325 mg/L confirms the contamination and need of pre-treatment for safe disposal.***

r) Committee observation with respect of TSDF Design and Execution are (See Point 8.0):

- ✓ *There are three agencies IISc, WAPCOS and M/s Yashaswini Engineering Consultants involved in design and execution of Landfill, but each role is not clearly specified. The communication between MEEPL and IISc did not mentioned about the project details to verify the capacity of TSDF. The EIA extract submitted is not having any analysis on Engineering Parameters. As per drawing the clearance given between Cell-1 and compound wall is not complying with the EC condition requirement to develop 15 m Green belt development, serious violation during design stage itself.*

- ✓ *The MEEPL failed to produce official communication to IISc regarding increase in capacity design of Cell 1 and Cell 2. The drawing submitted is showing the maximum height of final cover only, not exactly the design capacity. The MEEPL failed to address to manage any unforeseen, since the land fill embankment starts from the compound wall without leaving adequate buffer, there is a possibility to come on road or adjacent industry in case of collapse of landfill. The existing compound wall would not able to withstand such load.*

- ✓ *It is clear indication that looking at the rate of H.W. land filling happened to achieve its 94.8% in less than half of its permitted period i.e. 10 years and with increase in filling rate than the operation capacity, MEEPL has not planned for phase and lift properly / rather it was filled the hazardous waste hazardously, which is serious violation against the Criteria for Hazardous Waste Landfills.*

In view of above, the committee suggest the following to implement:

S. No.	To be implemented	Time Line
1.	The existing compound walls (cement bricks) around the Cell No.1 shall be completely replaced with reinforced concrete wall having 3 feet height above the storage height of landfills to avoid any unforeseen. (i.e. North side – 125 m and West side – 155 m).	6 Months
2.	The existing metal sheet provided on the Eastern side of TSDF about 176 m shall be replaced with compound wall immediately excluding the buffer area of KIADB, the height shall be maintained 3 feet above landfill height.	3 Months
3	To re- estimate the surface run off generation as per the maximum rainfall of the area and reconstruct the existing surface runoff collection tanks with adequate storage capacity with a holding time of 2 days.	2 Months

S. No.	To be implemented	Time Line
4	Tree plantation made on the embankment of Cell 1 shall be removed, as there is a possibility of causing damage to the liner system of Cell 1.	1 Month.
5	Re-verification of stability of side slopes of the landfills by a reputed organisation to ensure the acceptable factors of safety and submission of the report.	3 Months

s) The Joint committee reviewed the directions of CPCB and concluded that the directions are not yet complied and MEEPL is allowed to continue their operation in spite of non –compliances noticed and communicated to KSPCB by CPCB for implementation of directions. The total hazardous waste handled after the date of Direction by CPCB is 87,565.5 MT, which is 61.18% of its total quantity handled and disposed. ***It is noticed that during these three years i.e. 2018 to 2020, TSDF was operated at the rate of 5.79 times than the average consented operating capacity of 15,100 MT/Year. Non implementation of CPCB directions resulted in the additional dumping of 61.8% (87,565 MT) in three years. The CPCB directions are not yet complied fully.***

t) All the SPCB/PCC to create Escrow Account recommending to deposit 5% of the annual turnover of land fillable waste towards the Escrow Account to monitor the facility at least for a period of 30 years from the closure. Accordingly, MEEPL has collected total user charge about ₹ 15.14 crores and the estimated Escrow amount to be deposited is about ₹ 75.73 lakhs, whereas ***the MEEPL has deposited ₹72 Lakhs and remaining balance of ₹.3.73lakhs yet to be deposited in Escrow Account.***

u) The Hon'ble NGT directed to assess the Environmental Compensation based on "Polluter Pays Principle" under Section 20 of the National Green Tribunal Act, 2010.

- ❖ As per the methodology developed by CPCB, the cases of Non Compliance with EC conditions, Directions of CPCB / KSPCB and Accidental Discharges are considered to estimate Environmental Compensation. Accordingly, the facility has taken 1045 days to comply with various non -compliances observed time to time by MoEF&CC, CPCB and KSPCB. Based on above (Point 12), ***the Environmental Compensation (EC) estimated is ₹. 3,13,50,000/- (Rupees Three Crores Thirteen Lakhs Fifty Thousand only).***

- ❖ ***The estimated EC shall be paid within a month period to CPCB / KSPCB***, in case of non- timely submission of EC, the amount will be exponentially increased (Deterrent Factor) as per Guidelines "Determination of Environmental Compensation to be recovered for Violation of HOWMT Rules 2016".

v) KSPCB shall pursue with IISc to obtain report on "Evaluation of Design and Layout of Hazardous Waste Landfill facility i.e. MEEPL" and implement the findings and recommendations.

w) The Committee is of the opinion that being a small facility after the landfill cover, ***the land cover shall not be allowed / used for any other specific purpose i.e. park or vehicle parking etc. and the same shall be utilized only for establishing Continuous Ambient Air Quality Monitoring Stations (CAAQMS)*** which was the one of the EC conditions not complied by MEEPL. Also for VOC monitoring, Gas and Ground water management, leachate management, surface runoff etc. The existing temporary waste storage shed and industrial shed shall be demolished permanently to develop green belt along with area provided for lawn at the entrance. There shall not any other activity permitted after post closure other than Environmental Monitoring for a period of 30 years or until such time that harmful leachate / gas emission are not produced for 5 continuous years.

x) The Joint Committee is of the opinion that in addition to implementation of above recommendations as per timeline mentioned, ***there is a need to constitute a separate Expert Committee*** to approve & review the post closure plans of TSDF and its execution as per the Criteria. The Expert Committee shall also to review the implementation of Joint Committee recommendations for timely implementation. The Expert Committee may comprise members from NIT-K, IISc, MoEF &CC, CPCB, KSPCB, etc. and KSPCB may be identified as Nodal Agency for the same. The expenditure of Expert Committee shall be met by MEEPL.

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