

Gujarat Pollution Control Board and am otherwise competent to make the present affidavit.

2. I am filing the present affidavit in compliance with order dated 17.07.2025 for clarifying the position regarding levy of environmental damage compensation for non-compliance with solid waste management norms vis-à-vis the deposit already made by the State of Gujarat towards such non-compliance as per directions of this Hon'ble Tribunal in Original Application No. 606 of 2018.

3. It is submitted that this Hon'ble Tribunal in Original Application No. 606 of 2018 (In respect of State of Gujarat) [In re: Compliance of Municipal Solid Waste Management Rules, 2016 and other environmental issues] issued the following directions for calculation of Environmental Damage Compensation for non-compliance of solid waste management norms:

"Our analysis, findings and Directions

26. It is seen from the data presented by the Chief Secretary that there still exist gaps in management of solid and liquid waste. Such gap has increased after last consideration. Thus, there is no benefit of considering mere future promises which have been breached in the past. Current violations are actionable

Dujana



as damage to the victims as a result of pollution is irreversible for which accountability cannot be avoided. Entirety of current solid waste generated is not being processed which requires continuing additions being added to the data of legacy waste. The Chief Secretary, Gujarat submits that there is improved governance on the subject and further initiatives are planned which will soon result in bridging the existing gaps in solid and liquid waste management. He submits that adequate funds are going to be allocated for the purpose, in the light of rate of compensation awarded in such cases. Without commenting of promised improvement in future, on the pattern of compensation awarded in respect of other States, compensation of Rs. 2100 crores may be liable to be levied for the past violations - Rs. 2010 crores for discharge of untreated sewage, Rs. 80 crores for legacy waste shown by data and Rs. 10 crores for continuing unprocessed waste to be also factored in as legacy waste till gap is addressed, hopefully soon. However, in view of statement of the Chief Secretary that a sum of Rs. 2100 crores will be voluntarily credited forthwith to a ringfenced account for being spent within one year to bridge the gaps in waste management as per specific action plan, it may not be necessary to direct levy of compensation on polluter pays principle.

Dejawa



64. In our recent order dated 01.09.2022 in O.A No. 606/2018 (in respect of State of West Bengal), considering scale of compensation adopted in earlier cases including in OA No. 1002/2018, *Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors.*, compensation was determined @ Rs. 2 Crore per MLD for untreated liquid waste and in OA No. 286/2022 for unprocessed legacy waste compensation was fixed @ Rs. 300 per MT to be utilized for restoration measures, including preventing discharge of untreated sewage and solid waste treatment/processing facilities, as per appropriate mechanism for planning and execution that may be evolved, within three months. Operative part of the said order is reproduced below:-

“Conclusion about quantum of compensation 49. In the light of above and considering damage to the recipient environment, we hold that apart from ensuring compliance at the earliest, compensation has to be paid by the State for past violations. The amount of compensation is fixed @ Rs. 2 crore per MLD (at which rate compensation has been levied against Noida and DJB in OA No. 1002/2018, *Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors.*, referred to in para 48 above for detailed reasons mentioned therein). As noted earlier, gap in generation and treatment in West Bengal, as per



Ramesh

Compliance will be the responsibility of the Chief Secretary.

Reasons for not levying compensation on State of Gujarat

65. *The Chief Secretary, Gujarat fairly accepts that there is gap of about 1005 MLD in sewage generation and treatment and legacy waste of 255 Lakh MT as well as 1452 TPD of unprocessed waste. In normal circumstances, the State would be liable to pay compensation of about Rs. 2100 crore at the scale of compensation fixed in other States. However, it is stated that amount of Rs. 2100 crores will be credited to a separate ringfenced account within a month for the purpose to utilize for sewage and solid waste management under the supervision of Chief Secretary.*

66. *In view of the above, we refrain from levying EC on the State of Gujarat for time being. Ring-fenced account may be kept as 'non-lapsable' fund.*



Directions for further follow up

67. *In view of above, we sum up directions as under:*

- i. *Amount of Rs. 2100 crores be credited to a separate ring-fenced account within a month for utilizing for*

Arjave

sewage and solid waste management under the supervision of Chief Secretary (paras 26 & 65).

ii. The State may work out strategy to utilise rejects (inerts, RDF, etc.) arising out of biomining of legacy waste for proper channelization within one month (para 33).

iii. Community compost pits (15725) be properly maintained, ensuring that compost produced is fully utilized (para 31).

iv. CPCB in consultation with some of the States PCBs and Municipal Corporations may work out environmentally safe methods/options for their use within one month (para 35). ...”

As can be ascertained from the above, the State of Gujarat has created a fund of Rs. 2100 crores for sewage and solid waste management. Moreover, out of the said amount a fund of Rs 80 crores has been specifically allotted for dealing with the issue of legacy waste and Rs 10 crores has been allotted for managing the unprocessed daily waste till the gap is addressed by the local authorities. A copy of order dated 23.02.2023 passed by this Hon'ble Tribunal in Original Application No. 606 of 2018 is annexed herewith and marked as **Annexure R-1**.

Arjuna

4. I say that necessity for creating a fund of Rs. 2100 crores contributed by the State of Gujarat was arrived at by considering the available data up to the year 2022. Therefore, the quantum of amount contributed by the State of Gujarat corresponds to the data available for management of solid waste up to the year 2022. On this basis, it is submitted that the compensation for damage caused to the environment on account of non-compliance with solid waste management norms by government authorities in State of Gujarat would stand covered in the fund contributed by the State of Gujarat specifically towards this cause.

It is submitted that the compliance in Original Application No. 606 of 2018 by the State of Gujarat is presently being monitored by the Hon'ble Principal Bench on a regular basis. A copy of the report submitted by the State of Gujarat in compliance with the orders passed in the said application is annexed herewith and marked as **Annexure A-2.**

5. I submit that the issue concerning untreated waste lying across all the authorized and unauthorized waste management sites throughout the State of Gujarat stands

Ajaya

covered under the proceedings of Original Application No. 606 of 2018, as also the aspect relating to payment of environmental damage compensation relating to the untreated solid waste (legacy waste).

6. The orders passed by the Hon'ble Tribunal (Principal Bench) and the Hon'ble Apex Court permit filing of an application concerning legacy waste only if it is accompanied by an allegation of lack of any effort being put in by the concerned authorities for remediation of the said legacy waste. In the present case, no such allegation has been made by the applicant in the letter petition. Without prejudice, it is submitted that the documentary record in the form of statistical data suggests that sincere efforts have been made for processing of the legacy waste in accordance with law. It is a matter of record that out of the 50,422.48 metric tons of legacy waste, majority portion of the legacy waste to the tune of 49,281.2 metric tons has been processed and today only few hundred metric tons of waste remains at site, which too shall be processed in the next 30 days. It is therefore respectfully submitted that the Hon'ble Tribunal may be pleased to record the progress made concerning the legacy waste



Rajendra

lying at the dump site of the Valsad Municipality and close the proceedings.

7. As regards, generation of daily waste it is submitted that approximately 51 metric tons of household solid waste is generated daily in Valsad City. The daily waste generated in the city is presently being processed on a regular basis by 'Matru Energy' who has been awarded the contract for such work by the Municipality. I say that the processing of such waste is happening on a regular basis and no instance of conversion of daily waste into legacy waste has been noticed by the Board.

8. I say that in view of the fact that there is no conversion of daily waste into legacy waste and the old legacy waste which existed at site since the year 2022 having been cleared, no environment damage compensation can now be separately levied, more so, when the State of Gujarat has already contributed a fund of Rs. 2100 crores towards the same cause after considering the quantum of legacy waste which existed at site in the year 2022 and now stands cleared in the year 2025.

Dejane



9. Considering the above, the Board assures to continue regular monitoring of the waste disposal site and ensure strict compliance with the prescribed conditions and directions issued by the Board. In the event any non-compliance is noticed, the Board shall take steps for preservation of environment in accordance with law.

Ajaya

DEPONENT

VERIFICATION

Verified at Gandhinagar on this 29th day of July, 2025 that the contents of the above affidavit are true and correct, nothing stated therein is false and nothing material has been concealed therefrom.

Ajaya

DEPONENT

SOLEMNLY AFFIRMED
BEFORE ME

(Signature)

(C. M. RAVAL)
NOTARY
GOVT. OF GUJARAT
12.9 JUL 2025

Entered in Notary Register at
Serial No. Vol. No.
(Signature)
C. M. RAVAL ADVOCATE & NOTARY
GANDHINAGAR
12.9 JUL 2025



Annexure R-1

Item No. 01

Court No. 1

**BEFORE THE NATIONAL GREEN TRIBUNAL
PRINCIPAL BENCH, NEW DELHI**

(By Hybrid Mode)

Original Application No. 606/2018

(In respect of State of Gujarat)In re: **Compliance of Municipal Solid Waste Management Rules,
2016 and other environmental issues**

Date of hearing: 23.02.2023

**CORAM: HON'BLE MR. JUSTICE ADARSH KUMAR GOEL, CHAIRPERSON
HON'BLE MR. JUSTICE SUDHIR AGARWAL, JUDICIAL MEMBER
HON'BLE PROF. A. SENTHIL VEL, EXPERT MEMBER**Present: Shri Raj Kumar, Chief Secretary, GoG
Shri Mukesh Kumar, Principal Secretary, Urban Housing and Urban
Department
Shri Rakesh Shankar, Secretary (Housing), Urban Housing and Urban
Department
Shri Rajkumar Beniwal, Commissioner of Municipalities Administration,
Urban Housing and Urban Department
Shri Milind Torwane, Commissioner of Rural Development
Shri Sandip Kumar, Development Commissioner
Shri R B Barad, Chairperson, Gujarat Pollution Control Board with Mr.
Parth H Bhatt, Adv for the State of Gujarat**ORDER****The Issue – Monitoring of compliance of waste in terms of orders of
Hon'ble Supreme Court dated 02.09.2014 and 22.02.2017**

1. The issues of solid as well as liquid waste management are being monitored by this Tribunal as per orders of the Hon'ble Supreme Court order dated 02.09.2014 in *Writ Petition No. 888/1996, Almitra H. Patel vs. Union of India & Ors.*, with regard to solid waste management and order dated 22.02.2017 in W.P. No. 375/2012, reported in (2017) 5 SCC 326, *Paryavaran Suraksha vs. Union of India*, with regard to liquid waste management. Other related issues include pollution of 351 river stretches,

124 non-attainment cities in terms of air quality, 100 polluted industrial clusters, illegal sand mining etc. have also been dealt with separately. We propose to limit the proceedings in the present matter to **two issues of solid waste and sewage management.**

ORDERS OF THE HON'BLE SUPREME COURT TRANSFERRING THE ISSUE OF SOLID WASTE MANAGEMENT AND LIQUID WASTE MANAGEMENT TO THIS TRIBUNAL:

Solid Waste Management

2. While transferring the issue of solid waste management vide Order dated 02.09.2014 in *Writ Petition No. 888/1996, Almitra H. Patel Vs. Union of India & Ors.*, the Hon'ble Supreme Court observed **“handling of solid municipal waste is a perennial challenge and would require constant efforts and monitoring with a view to making the municipal authorities concerned accountable, taking note of dereliction, if any, issuing suitable directions consistent with the said Rules and direction incidental to the purpose underlying the Rules such as upgradation of technology wherever possible. All these matters can, in our opinion, be best left to be handled by the National Green Tribunal established under the National Green Tribunal Act, 2010. The Tribunal, it is common ground, is not only equipped with the necessary expertise to examine and deal with the environment related issues but is also competent to issue in appropriate cases directions considered necessary for enforcing the statutory provisions.”**

3. Before transferring the said proceedings, matter was monitored by Hon'ble Supreme Court for about eighteen years and orders passed include *(2000) 2 SCC 679* and *(2004) 13 SCC 538*, directing scientific disposal of waste by setting up of compost plants/processing plants, preventing water percolation through heaps of garbage, creating focused **‘solid waste**

management cells' in all States and complying with the Municipal Solid Waste Management Rules, 2000 (now replaced by SWM Rules, 2016). **It was observed that the local authorities constituted for providing services to the citizens are lethargic and insufficient in their functioning which is impermissible. Non-accountability has led to lack of effort on the part of the employees.** Domestic garbage and sewage along with poor drainage system in an unplanned manner contribute heavily to the problem of solid waste. The number of slums has multiplied significantly occupying large areas of public land. Promise of free land attracts more land grabbers. **Instead of "slum clearance" there is "slum creation" in cities which is further aggravating the problem of domestic waste being strewn in the open.** Accordingly, the Court directed that provisions pertaining to sanitation and public health be complied with, streets and public premises be cleaned daily, **statutory authorities levy and recover charges from any person violating laws and ensure scientific disposal of waste**, landfill sites be identified keeping in mind requirement of the city for next 20 years and environmental considerations, sites be identified for setting up of compost plants, steps be taken to prevent fresh encroachments and compliance report be submitted within eight weeks. Further observations in the judgment of the Hon'ble Supreme Court¹are:

"3. The petitioner has handed over a note in the Court showing the progress that has been made in some of the States and also setting out some of the suggestions, including the suggestion for creation of solid waste management cell, so as to put a focus on the issue and also to provide incentives to those who perform well as was tried in some of the States. The said note states as under:

"1. As a result of the Hon'ble Supreme Court's orders on 26-7-2004, in Maharashtra the number of authorisations granted for solid waste management (SWM) has increased from 32% to 98%, in Gujarat from 58% to 92%

¹ (2004) 13 SCC 538

and in M.P. from NIL to 34%. No affidavits at all have been received from the 24 other States/UTs for which CPCB reported NIL or less than 3% authorisations in February 2004. All these States and their SPCBs can study and learn from Karnataka, Maharashtra and Gujarat's successes.

2. **All States/UTs and their SPCBs/PCCs have totally ignored the improvement of existing open dumps, due by 31-12-2001**, let alone identifying and monitoring the existing sites. Simple steps can be taken immediately at almost no cost by every single ULB to prevent monsoon water percolation through the heaps, which produces highly polluting black run-off (leachate). Waste heaps can be made convex to eliminate standing water, upslope diversion drains can prevent water inflow, downslope diversion drains can capture leachate for recirculation onto the heaps, and disused heaps can be given soil cover for vegetative healing.
3. **Lack of funds is no excuse for inaction. Smaller towns in every State should go and learn from Suryapet in A.P. (population 103,000) and Namakkal in T.N. (population 53,000) which have both seen dustbin-free 'zero garbage towns' complying with the MSW Rules since 2003 with no financial input from the State or the Centre, just good management and a sense of commitment.**
4. **States seem to use the Rules as an excuse to milk funds from the Centre, by making that a precondition for action and inflating waste processing costs 2-3 fold.** The Supreme Court Committee recommended 1/3 contribution each from the city, State and Centre. Before seeking 70-80% Centre's contribution, every State should first ensure that each city first spends its own share to immediately make its wastes non-polluting by simple sanitising/stabilising, which is always the first step in composting viz. inoculate the waste with cow dung solution or bio culture and placing it in windrows (long heaps) which are turned at least once or twice over a period of 45 to 60 days.
5. Unless each State creates a focussed '**solid waste management cell**' and rewards its cities for good performance, both of which Maharashtra has done, compliance with the MSW Rules seems to be an illusion.
6. **The admitted position is that the MSW Rules have not been complied with even after four years.** None of the functionaries have bothered or discharged their duties to ensure compliance. **Even existing dumps have not been improved.** Thus deeper thought and urgent and immediate action is necessary to ensure compliance in future."

4. In this regard, reference may also be made to orders of Hon'ble Supreme Court in *Municipal Council, Ratlam vs. Vardhichand*² and *B.L. Wadhera v. Union of India and Ors.*³ laying down that **clean environment is fundamental right of citizens under Article 21** and it is for the local bodies as well as the State to ensure that public health is preserved by taking all possible steps. **For doing so, financial inability cannot be pleaded.** We note that even after 26 years of monitoring, 18 years by Hon'ble Supreme Court and eight years by this Tribunal, ground situation remains unsatisfactory.

Liquid Waste Management

5. Hon'ble Supreme Court in *Paryavaran Suraksha vs. Union of India*⁴ required this Tribunal to monitor directions for proper treatment of sewage to prevent untreated sewage and other effluents being discharged in water bodies by directing "We are of the view that mere directions are inconsequential, unless a rigid implementation mechanism is laid down. We, therefore, hereby provide that the directions pertaining to continuation of industrial activity only when there is in place a functional "primary effluent treatment plants", and the setting up of functional "common effluent treatment plants" within the timelines, expressed above, shall be enforced by the Member Secretaries of the Pollution Control Boards concerned. The Secretary of the Department of Environment, of the State Government concerned (and the Union Territory concerned), shall be answerable in case of default. **The Secretaries to the Government concerned shall be responsible for monitoring the progress and issuing necessary directions to the Pollution Control Board**

² (1980) 4 SCC 162

³ (1996) 2 SCC 594

⁴ (2017) 5 SCC 326

concerned, as may be required, for the implementation of the above directions. They shall be also responsible for collecting and maintaining records of data, in respect of the directions contained in this order. The said data shall be furnished to the Central Ground Water Authority, which shall evaluate the data and shall furnish the same to the Bench of the jurisdictional National Green Tribunal. To supervise complaints of non-implementation of the instant directions, the Benches concerned of the National Green Tribunal, will maintain running and numbered case files, by dividing the jurisdictional area into units. The abovementioned case files will be listed periodically. The Pollution Control Board concerned is also hereby directed to initiate such civil or criminal action, as may be permissible in law, against all or any of the defaulters.”

6. Extracts from the judgement of the Hon’ble Supreme Court in *Paryavaran Suraksha Samiti Vs. Union of India* are as follows:

“7. Having effectuated the directions recorded in the foregoing paragraphs, the next step would be, to set up common effluent treatment plants. **We are informed, that for the aforesaid purpose, the financial contribution of the Central Government is to the extent of 50%, that of the State Government concerned (including the Union Territory concerned) is 25%. The balance 25%, is to be arranged by way of loans from banks.** The above loans, are to be repaid, by the industrial areas, and/or industrial clusters. We are also informed that the setting up of a common effluent treatment plant, would ordinarily take approximately two years (in cases where the process has yet to be commenced). The reason for the above prolonged period, for setting up “common effluent treatment plants”, according to the learned counsel, is not only financial, but also, the requirement of land acquisition, for the same.

X.....X.....X.....

10. Given the responsibility vested in municipalities under Article 243-W of the Constitution, as also, in Item 6 of Schedule XII, wherein the aforesaid obligation, pointedly extends to “public health, sanitation conservancy and

solid waste management”, we are of the view that the onus to operate the existing common effluent treatment plants, rests on municipalities (and/or local bodies). Given the aforesaid responsibility, the municipalities (and/or local bodies) concerned, cannot be permitted to shy away from discharging this onerous duty. **In case there are further financial constraints, the remedy lies in Articles 243-X and 243-Y of the Constitution. It will be open to the municipalities (and/or local bodies) concerned, to evolve norms to recover funds, for the purpose of generating finances to install and run all the “common effluent treatment plants”, within the purview of the provisions referred to hereinabove. Needless to mention that such norms as may be evolved for generating financial resources, may include all or any of the commercial, industrial and domestic beneficiaries, of the facility. The process of evolving the above norms, shall be supervised by the State Government (Union Territory) concerned, through the Secretaries, Urban Development and Local Bodies, respectively (depending on the location of the respective common effluent treatment plant). The norms for generating funds for setting up and/or operating the “common effluent treatment plant” shall be finalised, on or before 31-3-2017, so as to be implemented with effect from the next financial year. In case, such norms are not in place, before the commencement of the next financial year, the State Governments (or the Union Territories) concerned, shall cater to the financial requirements, of running the “common effluent treatment plants”, which are presently dysfunctional, from their own financial resources.**

11. *Just in the manner suggested hereinabove, for the purpose of setting up of “common effluent treatment plants”, the State Governments concerned (including, the Union Territories concerned) will prioritise such cities, towns and villages, which discharge **industrial pollutants and sewer, directly into rivers and water bodies.***
12. *We are of the view that in the manner suggested above, **the malady of sewer treatment, should also be dealt with simultaneously. We, therefore, hereby direct that “sewage treatment plants” shall also be set up and made functional, within the timelines and the format, expressed hereinabove.***

7. Expression “Common Effluent Treatment Plants” in para 7 may infact refer to the STPs, as the context shows.

8. On this subject, inspite of deadline of 31.3.2018 fixed by Hon'ble Supreme Court for finalizing funding arrangements and February 2020 for all arrangements for preventing discharge of pollutants and rigorous monitoring by this Tribunal for the last five years, ground situation remains unsatisfactory.

Procedural History of present proceedings before this Tribunal

9. In the light of above, the Tribunal has considered the matter in the last eight years as far as solid waste management is concerned and more than five years as far as liquid waste management is concerned. Main orders on the subject include orders dated 22.12.2016, 31.08.2018, 16.01.2019, 28.8.2019, 12.09.2019, 6.12.2019, 07.01.2020, 28.02.2020, 02.07.2020, 14.12.2020, 22.2.2021, 30.11.2021, 14.12.2020 and 31.05.2022. First two orders - dated 22.12.2016 and 31.08.2018 deal only with solid waste management. Orders dated 28.8.2019, 6.12.2019 and 22.2.2021 deal with only liquid waste management while the remaining orders deal with solid waste as well as liquid waste management. Issue of liquid waste has also been separately dealt with in OA No. 593/2017 which was finally disposed of on 22.02.2021 with direction that further monitoring be undertaken by Central Monitoring Committee constituted by the said order. It was held that monitoring by the Tribunal cannot be for indefinite time and State authorities are primarily responsible for such monitoring after adequate monitoring by the Tribunal. By the same order, the Tribunal also dealt with the issue of 351 identified polluted river stretches in OA 673/2018. This is apart from individual cases dealing with solid and liquid waste management. A brief reference of these orders will be made hereafter.

Orders dated 22.12.2016 and 31.08.2018

10. Vide order dated 22.12.2016, (2016) SCC Online NGT 2981, the issue of Solid Waste Management was disposed of requiring strict compliance of Solid Waste Management Rules, 2016 by all the States/UTs making it clear that if violations continue, the State will be liable to pay compensation. Later, matter was taken up to ascertain compliance status and finding that all the States/UTs were still non-compliant in the matter, the matter was again taken up and fresh directions issued for monitoring by the Tribunal constituted Monitoring Committees vide order dated 31.08.2018. Later, continuance of the committees was left to discretion of the States, depending on their own monitoring mechanism.

Order dated 16.01.2019 requiring personal presence of Chief Secretaries of all States and UTs to explore remedial action after interaction with them and further orders

11. In view of continuing non-compliances, vide order dated 16.01.2019, the Tribunal directed personal presence of Chief Secretaries of all States and UTs for interaction to ensure compliance. The Tribunal held that large scale non-compliance of environmental norms was resulting in deaths and diseases and irreversible damage to the environment, without accountability for such failures. Though violation of the Rules as well as orders of this Tribunal is criminal offence, still there was rampant violation by State authorities practically with no accountability and for which unhappy situation was required to be remedied by involvement of highest functionaries of the State in the interest of public health and to uphold rule of law.

12. In terms of order dated 16.1.2019, the Chief Secretaries of all the States/UTs appeared on different dates till 18.07.2019 and the Tribunal, after reviewing the status of noncompliance on most of the issues, directed

further effective steps to be taken for compliance of the Rules and the environmental norms. The Chief Secretary of Gujarat appeared on 09.04.2019 and following directions were issued:

“41. In view of above, after discussion with the Chief Secretary, following further directions are issued:

- i. Steps for compliance of Rules 22 and 24 of SWM Rules be now taken within six weeks to the extent not yet taken. Similar steps be taken with regard to Bio-Medical Waste Management Rules and Plastic Waste Management Rules.*
- ii. Atleast three major cities and three towns in the State and atleast three Panchayats in every District may be notified on the website within two weeks from today as model cities/towns/villages which will be made fully compliant within next six months.*
- iii. The remaining cities, towns and Village Panchayats of the State may be made fully compliant in respect of environmental norms within one year.*
- iv. A quarterly report be furnished by the Chief Secretary, every three months. First such report shall be furnished by July 10, 2019.*
- v. The Chief Secretary may personally monitor the progress, atleast once in a month, with all the District Magistrates. vi. The District Magistrates or other Officers may be imparted requisite training.*
- vii. The District Magistrates may monitor the status of compliance of environmental norms, atleast once in two weeks.*
- viii. Performance audit of functioning of all regulatory bodies may be got conducted and remedial measures be taken, within six months.”*

13. In short, the Tribunal expected three model cities, towns and villages to be made compliant in six months and the remaining State with one year. It was this target for the State by setting up of environmental cells directly under the Chief Secretaries, regular periodical monitoring by the Chief Secretaries at the State level and by the District Magistrates at the District level. Further direction also was to take action for non-compliance by recovery of compensation and

recording adverse ACRs against erring officers. The Tribunal also directed filing of quarterly reports by the Chief Secretaries. Based on such reports, CPCB was to file consolidated status reports. The Chief Secretaries were to appear again after six months with updated status of compliance.

14. The Tribunal has been receiving progress reports from States as well as monitoring Committees wherever functioning which have been considered by further orders.

Further Review after completing round of interaction with all Chief Secretaries by order dated 12.9.2019

15. The matter was then reviewed on 12.09.2019 in the light of report of the CPCB dated 09.09.2019 **showing wide gaps in compliance of solid waste, plastic waste, bio-medical waste management, rejuvenation of identified polluted river stretches, polluted industrial clusters and non-attainment cities.** A fresh schedule for appearance of the Chief Secretaries was issued. Vide order dated 07.01.2020, the Tribunal directed CPCB to ascertain Compliance of Solid Waste Management Rules, 2016 in terms of MSW generated, segregated and treated, gaps in the waste processing, enforcement of statutory timelines and orders of this Tribunal, number of sites remediated, and quantity of legacy waste therein and timelines for completing remediation. It was further directed that on the subject of sewage treatment, CPCB has to ascertain quantity of sewage generated and treated in the State, gap in the sewage treatment and timelines to bridge the gap, including strategy for use of treated water for secondary purpose. CPCB was accordingly directed to redesign its formats for securing relevant quantifiable information.

Order dated 28.02.2020

16. Accordingly, the Chief Secretaries of 18 States/UTs appeared and filed updated status reports. Since there still existed huge gaps in compliance, further directions were issued by way of different orders. Last such order is of 28.2.2020. Other orders are on same pattern. The direction part of the said order is reproduced below:

“41. In view of above, consistent with the directions referred to in Para 29 issued on 10.01.2020 in the case of UP, Punjab and Chandigarh which have also been repeated for other States in matters already dealt with, we direct:

- a. *In view of the fact that most of the statutory timelines have expired and directions of the Hon’ble Supreme Court and this Tribunal to comply with Solid Waste Management Rules, 2016 remain unexecuted, **interim compensation scale is hereby laid down for continued failure after 31.03.2020. The compliance of the Rules requires taking of several steps mentioned in Rule 22 from Serial No. 1 to 10 (mentioned in para 12 above). Any such continued failure will result in liability of every Local Body to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body from 01.04.2020 till compliance. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal. Final compensation may be assessed and recovered by the State PCBs/PCCs in the light of Para 33 above within six months from today. CPCB may prepare a template and issue an appropriate direction to the State PCBs/PCCs for undertaking such an assessment in the light thereof within one month.***
- b. *Legacy waste remediation was to ‘commence’ from 01.11.2019 in terms of order of this Tribunal dated 17.07.2019 in O.A. No. 519/2019 para 28⁵ even*

⁵ The Chief Secretaries may ensure allocation of funds for processing of legacy waste and its disposal and in their respective next reports, give the progress relating to management of all

though statutory timeline for ‘completing’ the said step is till 07.04.2021 (as per serial no. 11 in Rule 22), which direction remains unexecuted at most of the places and delay in clearing legacy waste is causing huge damage to environment in monetary terms as noted in para 33 above, pending assessment and recovery of such damage by the concerned State PCB within four months from today, continued failure of every Local Body on the subject of commencing the work of legacy waste sites remediation from 01.04.2020 till compliance will result in liability to pay compensation at the rate of Rs. 10 lakh per month per Local Body for population of above 10 lakhs, Rs. 5 lakh per month per Local Body for population between 5 lakhs and 10 lakhs and Rs. 1 lakh per month per other Local Body. If the Local Bodies are unable to bear financial burden, the liability will be of the State Governments with liberty to take remedial action against the erring Local Bodies. Apart from compensation, adverse entries must be made in the ACRs of the CEO of the said Local Bodies and other senior functionaries in Department of Urban Development etc. who are responsible for compliance of order of this Tribunal. Final compensation may be assessed and recovered by the State PCBs/PCCs in the light of Para 33 above within six months from today.

- c. Further, with regard to thematic areas listed above in para 20, steps be ensured by the Chief Secretaries in terms of directions of this Tribunal especially w.r.t. plastic waste, bio-medical waste, construction and demolition waste which are linked with solid waste treatment and disposal. Action may also be ensured by the Chief Secretaries of the States/UTs with respect to remaining thematic areas viz. hazardous waste, e-waste, polluted industrial clusters, reuse of treated water, performance of CETPs/ETPs, groundwater extraction, groundwater recharge, restoration of water bodies, noise pollution and illegal sand mining.
- d. The compensation regime already laid down for failure of the Local Bodies and/or Department of Irrigation and Public Health/In-charge Department to take action for treatment of sewage in terms of observations in Para 36 above will result in liability to pay compensation as already noted above which are reproduced for ready reference:

the legacy waste dumpsites. Remediation work on all other dumpsites may commence from 01.11.2019 and completed preferably within six months and in no case beyond one year. Substantial progress be made within six months. We are conscious that the SWM Rules provide for a maximum period of upto five years for the purpose, however there is no reason why the same should not happen earlier, in view of serious implications on the environment and public health.

- i. **Interim measures for phytoremediation/ bioremediation etc. in respect of 100% sewage to reduce the pollution load on recipient water bodies – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per drain by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.**
 - ii. **Commencement of setting up of STPs – 31.03.2020. Compensation is payable for failure to do so at the rate of Rs. 5 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2020.**
 - iii. **Commissioning of STPs – 31.03.2021. Compensation is payable for failure to do so at the rate of Rs. 10 lakh per month per STP by concerned Local Bodies/States (in terms of orders dated 28.08.2019 in O.A. No. 593/2017 and 06.12.2019 in O.A. No. 673/2018) w.e.f. 01.04.2021.**
- e. Compensation in above terms may be deposited with the CPCB for being spent on restoration of environment which may be ensured by the Chief Secretaries' of the States/UTs.
 - f. An 'Environment Monitoring Cell' may be set up in the office of Chief Secretaries of all the States/UTs within one month from today, if not already done for coordination and compliance of above directions which will be the responsibility of the Chief Secretaries of the States/UTs.
 - g. Compliance reports in respect of significant environmental issues may be furnished in terms of order dated 07.01.2020 quarterly with a copy to CPCB."

17. Timelines under the Rules referred to in sub para (a) above are :

“22. Time frame for implementation:- Necessary infrastructure for implementation of these rules shall be created by the local bodies and other concerned authorities, as the case may be, on their own, by directly or engaging agencies within the time frame specified below:

Sl. No.	Activity	Time limit from the date
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		of notification of rules
<i>(1)</i>	<i>(2)</i>	<i>(3)</i>
1.	<i>Identification of suitable sites for setting up solid waste processing facilities.</i>	<i>1 year</i>
2.	<i>Identification of suitable sites for setting up common regional sanitary landfill facilities for suitable clusters of local authorities under 0.5 million population and for setting up common regional sanitary landfill facilities or stand alone sanitary landfill facilities by all local authorities having a population of 0.5 million or more.</i>	<i>1 year</i>
3.	<i>Procurement of suitable sites for setting up solid waste processing facility and sanitary landfill facilities.</i>	<i>2 years</i>
4.	<i>Enforcing waste generators to practice segregation of bio degradable, recyclable, combustible, sanitary waste domestic hazardous and inert solid wastes at source.</i>	<i>2 years</i>
5.	<i>Ensure door to door collection of segregated waste and its transportation in covered vehicles to processing or disposal facilities.</i>	<i>2 years</i>
6.	<i>ensure separate storage, collection and transportation of construction and demolition wastes.</i>	<i>2 years</i>
7.	<i>setting up solid waste processing facilities by all Local Bodies having 100000 or more population.</i>	<i>2 years</i>
8.	<i>Setting up solid waste processing facilities by Local Bodies and census towns below 100000 population.</i>	<i>3 years</i>
9.	<i>setting up common or stand alone sanitary landfills by or for all Local Bodies having 0.5 million or more population for the disposal of only such residual wastes from the processing facilities as well as untreatable inert wastes as permitted under the Rules.</i>	<i>3 years</i>
10.	<i>setting up common or regional sanitary landfills by 3 years all Local Bodies and census towns under 0.5 million population for the disposal of permitted waste under the rules.</i>	<i>3 years</i>
11.	<i>bio-remediation or capping of old and abandoned dump sites.</i>	<i>5 years</i>

Order dated 02.07.2020

18. The matter was then considered on 02.07.2020. Having regard to the pandemic, appearance of remaining Chief Secretaries was deferred.

Order dated 14.12.2020

19. The matter was further considered on 14.12.2020 for review of progress. Scheduled appearance of remaining Chief Secretaries was dispensed with but it was directed that monitoring at the level of Chief Secretaries may continue and quarterly status reports be filed with CPCB so that CPCB may file a consolidated report every six months before the Tribunal. It was further directed that compensation in terms of earlier orders be recovered and credited to a separate account with the Environment Department of concerned State to be used for restoration of environment. It was also observed that in these proceedings Solid Waste Management also will be monitored, other issues being considered in separate proceedings.

Further review on 30.11.2021 – huge gaps still found and hence, another round of interaction with Chief Secretaries proposed

20. The matter was thereafter taken up on 30.11.2021 to consider the report of CPCB dated 25.10.2020 giving compliance status in 32 States/UTs as follows:-

“3.0 SOLID WASTE MANAGEMENT STATUS

xxxxxx.....xxx

Table:1 Overview of quarterly report on SWM submitted by 29 States/UTs

Sl. No.	ITEM	Status	Remarks
1	xxx	xxx	xxx
2	Over all waste management status in Arunachal Pradesh		

2(a)	Quantity of MSW generated (TPD)	Information provided by 29 States/UTs (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)	<ul style="list-style-type: none"> • Total Quantity of MSW generated: 150858.951 TPD • Maximum waste generation is in five (7) States/UTs (>10000 TPD)- <ul style="list-style-type: none"> ➤ Maharashtra ➤ Uttar Pradesh ➤ West Bengal ➤ Tamil Nadu ➤ Karnataka ➤ Delhi ➤ Telangana
2(b)	Xxx	xxx	xxx
2I	Xxx	xxx	xxx
2(d)	Quantity of MSW processed (TPD)	Information provided by 29 States/UTs (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)	<ul style="list-style-type: none"> • Total quantity of MSW processed: 94435.318 TPD • 100% MSW is processing reported in two (2) States: <ul style="list-style-type: none"> ➤ Chhattisgarh ➤ Himachal Pradesh
2I	Xxx	xxx	xxx
2(f)	Gap in Solid Waste Management UTs (TPD) [2(a)- 2(d)- 2(e)]	Information provided by 29 States/UTs (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chandigarh, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)	<ul style="list-style-type: none"> • Gap in Solid Waste Management: 44651.1792 TPD
xxx	Xxx	xxx	xxx
6	Legacy Waste management		
6(a)	Number of dumpsites (No.)	Information provided by 28 States/UTs (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal) Information not provided by 1 State/UTs: (Chandigarh)	<ul style="list-style-type: none"> • Total Number of dumpsites: 2129 • Max in MP: 378

6(b)	Quantity of Waste dumped at dumpsites (Tons)	<p><u>Information provided by 27 States/UTs</u> (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Maharashtra, Meghalaya, Nagaland, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)</p> <p><u>Information not provided by 2 State/UTs:</u> (Chandigarh, Madhya Pradesh)</p>	<ul style="list-style-type: none"> • Quantity of Waste dumped at dumpsites (Tons): 185558287.3 Tons • Max in Maharashtra – 41683186 Tonnes
6l	Number of dumpsites cleared (No.)	<p><u>Information provided by 25 States/UTs</u> (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)</p> <p><u>Information not provided by 4 State/UTs:</u> (Chandigarh, Meghalaya, Odisha, Puducherry)</p>	<ul style="list-style-type: none"> • Number of dumpsites cleared (No.): 498 Chhattisgarh- 160 Maharashtra- 134 Uttarakhand – 60 M.P.-50 Tamil Nadu – 27 H.P-17 Gujarat- 16
6(d)	Number of dumpsites in which biomining has commenced (No.)	<p><u>Information provided by 26 States/UTs</u> (Andhra Pradesh, Arunachal Pradesh, Assam, Bihar, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Meghalaya, Nagaland, Rajasthan, Sikkim, Tamil Nadu, Telangana, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)</p> <p><u>Information not provided by 3 State/UTs:</u> (Chandigarh, Odisha, Puducherry)</p>	<ul style="list-style-type: none"> • Number of dumpsites in which biomining has commenced (No.): 496 Tamil Nadu – 117 Maharashtra-76 M.P-73 West Bengal – 64 Telangana – 52 T.N-117 Rajasthan – 23 Haryana – 16 Karnataka – 15 Uttarakhand – 12 HP – 10
6l	Time frame for clearing all dumpsites	<p><u>Information provided by 24 States/UTs</u> (Andhra Pradesh, Arunachal Pradesh, Assam, Chhattisgarh, Delhi, Goa, Gujarat, Haryana, Himachal Pradesh, J&K, Karnataka, Kerala, Lakshadweep, Madhya Pradesh, Maharashtra, Odisha, Puducherry, Rajasthan, Sikkim, Tamil Nadu, Tripura, Uttar Pradesh, Uttarakhand, and West Bengal)</p> <p><u>Information not provided by 5 State/UT:</u> (Bihar, Chandigarh, Meghalaya, Nagaland, Telangana)</p>	<ul style="list-style-type: none"> • Timeline exceeding December, 2022 in following States/UTs: Delhi, Goa, J&K, Karnataka, Puducherry and Tamil Nadu

xxx.....xxx.....xxx

Solid Waste Management

4.0 SUMMARY & CONCLUSIONS

a. Total No. of ULBs in 29 States/UTs is 4186.

- b. As per information provided by 29 States/UTs – total waste generated is 150858.951 TPD of which 94435.318 TPD is processed, which is 62.6% of the total waste generated in these States/UT. 11772.4538 TPD (7.8%) of the waste is landfilled and the gap in Solid waste management in 29 States is 45071.771 TPD which is 29.8% of the waste generated in these States/UTs.**
- c. Information on MRF has been provided for 28 States/UTs covering 77% of ULBs in these States/UTs.
- d. Information on Recycling facilities have been provided for 22 States/UTs covering 39% of ULBs in these States/UTs
- e. Information on Composting facilities has been provided for all 29 States/UTs covering 70% of ULBs in these States/UTs
- f. Information on WtE has been provided for 25 out of 29 States/UTs covering 1.9% of ULBs in these States/UTs.
- g. Information on RDF has been provided for 24 out of 29 States/UTs covering 12.4% of ULBs in these States/UTs.
- h. Information on Bio-methanation has been provided for 27 out of 29 States/UTs covering 7.1% of ULBs in these States/UTs.
- i. Information on Landfills has been provided in 24 out of 29 States/UTs covering 18.9% of ULBs in the States.**
- j. 498 of 2111 (23%) dumpsites in 25 States/UTs have been cleared and Remediation has been initiated in 23% (496) of the dumpsites.
- k. Model Town/Cities have been identified in 25 States/UTs.
- l. 16 States /UTs have established environmental cells.
- m. 15 States /UTs have standardized rates for procurement of services/equipment required for solid waste management.**
- n. In view of above, States/UTs need to develop of ULB wise action plan for collection, segregation, transportation and processing of waste and lay down an appropriate governance framework at state and district levels.”

12. xxxxxx.....xxx

13. Based on above data, the State-wise and city-wise summary is as follows:-

“State-wise summary

Sl. No.	States	Number of ULBs	Quantity of MSW generated (TPD)	Quantity of MSW collected (TPD)	Quantity of MSW Processed (TPD)	Quantity of MSW disposed in secured land fill site (TPD)	GAP in SWM UTs (TPD)
1.	Andhra Pradesh	124	6898	6830	2180	257.5	4460.5
2.	Arunachal Pradesh	02	67	61	8	55	04
3.	Assam	96	1178	1070	389	0	790
4.	Bihar	142	2240.20	2240.20	681	1559.2	0
5.	Chandigarh	01	512.6	512.6	104.5	442.3	0
6.	Chhattisgarh	166	1650	1650	1650	0	0
7.	Delhi	5	11038.335	11038.335	5262.335	400	5776
8.	Goa	14/ 191(RLBs)	226.67/ 317(RLBs)	218.67/ 258(RLBs)	196.67/ 258(RLBs)	NIL	30/ 59(RLBs)
9.	Gujarat	164	9567	9567	8514.63	1052.37	0
10.	Haryana	89	5523	5287 approx.	2696 approx.	30	2797
11.	Himachal Pradesh	54	370	370	370	0	0
12.	J&K	78	1389.1	1303.52	244	923.7	221.4
13.	Karnataka	316	11085	10198	6817	1250	3018
14.	Kerala	93	3472	1261	2502	Nil	970
15.	Lakshadweep	0 (10 Panchayats are existing)	35	10.48	10.48	Nil	24.52
16.	Madhya Pradesh	378	7980	7193	6431	762	787
17.	Maharashtra	396 ULBs + 07 CBs = 403	24410	23234	20319	1626	2465
18.	Meghalaya	7	229.18	191.19	9.64	50.96	168.58
19.	Nagaland	39	331.49	258.49	163.9	8	159.59
20.	Odisha	114	1951	1951	1569	-	382
21.	Puducherry	5	345	345	71	22.5	262

22.	Rajasthan	196	6523	6450	2718	GAP	3805
23.	Sikkim	7	74.7	74.6	12.56	62.032	0
24.	Tamil Nadu	664	13593	13185	9787	0	3806
25.	Telangana	142	10403	10403	7968	1001	1434
26.	Tripura	20	333.906	317.685	214.063	12.8918	106.951
27.	Uttar Pradesh	651	14468	14468	9705	1095	3668
28.	Uttarakhand	91	1255.77	1255.77	645.54	Landfill functional in Dehradun and Haridwar only	310.23
29.	West Bengal	125	13709	13356	2896	1187	9626

21. The data of sewage as per report dated 12.02.2021 filed by the Central Monitoring Committee, headed by Secretary Jal Shakti, Government of India, titled '**3rd QUARTERLY REPORT OF THE CENTRAL MONITORING COMMITTEE (CMC) IN COMPLIANCE OF THE ORDER DATED 21.09.2020**' in O.A. No. 593/2017, Paryavaran Suraksha Samiti & Anr. v. Union of India & Ors. noted in order dated 22.02.2021 is reproduced below:

“Existing Sewage Infrastructure

48,004 MLD of sewage (from urban settlements) is being generated in 31 States/ UTs and 30,001 MLD capacity of STPs (1249 nos.) is existing which approximates to about 62% of sewage generation. Against the existing capacity, only 56% of the capacity is being utilized for treatment of municipal sewage. This leaves a gap of 17,027 MLD in treatment capacity. The details of sewage generation, existing sewage treatment capacity, its utilization and gap thereof is presented in Table-1.

Table-1: Details of Existing Sewage Infrastructure in the 31 States/ UTs

No.	State	Sewage Generation (in MLD)	Existing STP (capacity in MLD and No.)	Capacity Utilization (In MLD)	Gap in Treatment at present (in MLD)
1	Andhra Pradesh	1463.20	515.85 (43 STPs)	473.77 (91%)	947.35

2	Assam	435.53	0	0	435.53
3	Bihar	651.5	230 (6 STPs)	100 (44%)	421.5
4	Chhattisgarh	600	73.1 (3 STPs)	6 (8%)	526.9
5	Daman, Diu And Dadra Nagar Haveli	21.2	17.21 (2 STPs)	6.1 (35%)	3.9
6	Delhi	3273	2715 (35 STPs)	2432 (90%)	558
7	Goa	112.53	78.35 (9 STPs)	29 (37%)	34.18
8	Gujarat	4003	3485 (73 STPs)	2739 (78%)	518
9	Haryana	1267	1892 (155 STPs)	1189 (62%)	-
10	Himachal Pradesh	163.5	120.5 (65 STPs)	76.8 (64%)	43
11	Jammu & Kashmir	523	139 (15 STPs)	82.9 (60%)	383.08
12	Jharkhand	452	108 (14 STPs)	83%	343.8
13	Karnataka	3356.5	2242 (125 STPs)	1513.5 (67%)	1114
14	Kerala	317	124.15 (13 STPs)	91.12 (73%)	192
15	Madhya Pradesh	2183.65	618.23 (23 STPs)	472.6 (76%)	1565.4
16	Maharashtra	9758	7747 (142 STPs)	4207 (54%)	2011
17	Manipur	115	27 (1 STP)	9 (33%)	88
18	Meghalaya	75	1.85 (8 STPs)	1.82 (98%)	73
19	Mizoram	68	10 (1 STP)	0	58
20	Nagaland	44.3	25.4 (1 STP)	0	18.9
21	Odisha	367	91 (5 STPs)	70 (76%)	276
22	Puducherry	88	56 (5 STPs)	35 (62%)	32
23	Punjab	2111	1628.5 (116 STP)	80%	482.5
24	Rajasthan	1551	999 (80 STPs)	694.5 (69%)	552
25	Sikkim	47.68	19.5 (7 STPs)	60%	28
26	Tamil Nadu	3673.3	1616 (66 STPs)	919 (56%)	1320
27	Telangana	2613	888 (31 STPs)	735.8 (82%)	1724.45
28	Tripura	82.5	8 (1 STP)	3 (37%)	74.5
29	Uttarakhand	329.3	379 (63 STPs)	232.9 (61%)	-

30	Uttar Pradesh	5500	3370 (106 STPs)	2630.6 (78%)	2130
31	West Bengal	2758	776.32 (47 STPs) + 910 MLD addl treatment through EKW	289.89 (37%)	1071.68
Total		48,003.69	30,000.96 (1261 STPs)	55.9%	17,026.58

22. From the above, it is seen that there was gap in generation and processing of solid waste to the extent of about 56400 TPD (about 60,000 TPD) and legacy waste figure was mentioned at 18.55 crore tones. On the issue of liquid waste management, the gap shown was 17,026 (above 20,000). The data was however found to be not conclusive requiring further verification. The Tribunal in its order dated 30.11.2021 observed:-

“1to14....xxx.....xxx.....xxx”

15. We also find that the report does not capture the entire data and correctness of data is not free from doubt. The same needs to be cross-checked. In particular, data for States of Bihar, Chhattisgarh, Himachal Pradesh, Sikkim and UT of Chandigarh, showing zero gap needs verification. The information is not available for all the million plus and State capital cities, as was required in terms of earlier orders. Information needs to be verified particularly with regard to Aizawl, Kalyan Dombivali, Nagpur, Nasik, Navi Mumbai and Pune where the gap is shown to be zero, which does not prima facie appear to be correct.

16 & 17. Xxx.....xxx.....xxx

18. We are of the view that hence forthwith proceedings in this matter need to cover Solid Waste Management and Sewage Management, these issues being crucial and required to be monitored by this Tribunal by the Hon'ble Supreme Court. Absence of management of waste results in adding to air and water pollution in a big way. All the legacy waste dump sites in the country need to be remediated to reduce methane gas, foul smell and leachate and also to release valuable land occupied by such sites which can be used for waste management/plantation or raising funds. Waste collected must be scientifically processed and disposed at the earliest in the interest of hygiene and public health. It needs to be ensured that instead of remediating the legacy waste sites, the garbage is not shifted to new sites which is not a solution to the problem. It only results in shifting the problem from one place to the other without any advancement of environment

protection. What is necessary is that the garbage must be finally disposed of and land reclaimed. The authorities must move towards zero garbage at the end of the day by ensuring that instead of garbage being collected and dumped, it is taken to destination where it is finally processed scientifically and appropriately, except for reused/recycling of such residues as is possible. This is also the mandate of Swachh Bharat Mission, initiated by the Central Government. Similarly, sewage has to be scientifically treated to give effect to the mandate of Water (Prevention and Control of Pollution) Act, 1974 in the interest of availability of clean water in rivers and other waterbodies. Central Governments programmes also provide for initiatives on these subjects. On both aspects, compensation regime has been laid down which is necessary to enforce the rule of law and for protection of environment and public health. The compensation laid down has to be duly collected and utilized for restoration of environment, by being kept in a separate account. Accountability for the failures needs to be fixed by way of ACRs and departmental action as such failures result in crimes under the law of land and damage to public health. Such failure is also breach of Constitutional obligation to uphold the Right to Life. The country is committed to Sustainable Development Goals of providing clean air and safe drinking water.

19. In view of above, continued failure of Rule of Law must be remedied in terms of mandate of orders of the Hon'ble Supreme Court in Writ Petition No. 888/1996, Almitra H. Patel Vs. Union of India & Ors. and Paryavaran Suraksha vs. Union of India,⁶ followed by orders of this Tribunal. It is necessary that Chief Secretaries continue the monitoring and interact with this Tribunal periodically by video conferencing. Accordingly, we lay down following further schedule for personal appearance of the Chief Secretaries, by Video Conferencing, with the status of compliance in respect of each of the States/UTs on the subject of Solid Waste Management and Sewage Management. The data to be furnished should cover all categories of areas in the State – big cities, towns and villages.

20. The hearing on each of above dates will commence at 10:30 a.m. sharp. The Chief Secretaries may not delegate the responsibility. As far as possible, they may adjust other work for which long advance notice is being given. In case adjustment is found difficult for any unforeseen reason, request for change of date may be mailed by e-mail at judicial-ngt@gov.in.

21. All the States/CPCB may undertake process of verification of data after having interaction on video conferencing with the concerned States/Uts within one month. The Secretaries, Environment, Urban Development Department and Irrigation Department may also coordinate with the Member Secretaries of State Legal Services Authorities in all State/Uts in the light of background mentioned in paras 3 and 4 above for the awareness programmes on the subject.”

⁶ (2017) 5 SCC 326

Separate orders dated 28.8.2019, 12.9.2019, 6.12.2019 and 22.02.2021 on the subject of Liquid Waste Management

23. Issue of liquid waste management was separately dealt with in OA 593/2017 on directions of Hon'ble Supreme Court and in suo motu proceedings for restoration of 351 identified polluted river stretches in OA 673/2018. Vide order dated 28.08.2019, the Tribunal directed that 100% sewage treatment must be ensured by all local bodies. Vide further order dated 06.12.2019 in O.A. No. 673/2018⁷, the Tribunal directed that for failure to commence in-situ remediation, compensation will be payable at the rate of Rs. 5 lakh per month per drain after 31.03.2020 and for failure to commence setting up of STPs after 31.03.2020 compensation is to be paid at the rate of Rs. 5 lakh per month per STP. For failure to complete the project, compensation has to be paid at the rate of Rs. 10 lakh per STP per month after 31.03.2021. Relevant part of the order is quoted below:

***“47. (i) 100% treatment of sewage may be ensured as directed by this Tribunal vide order dated 28.08.2019 in O.A. No. 593/2017 by 31.03.2020 atleast to the extent of in-situ remediation and before the said date, commencement of setting up of STPs and the work of connecting all the drains and other sources of generation of sewage to the STPs must be ensured. If this is not done, the local bodies and the concerned departments of the States/UTs will be liable to pay compensation as already directed vide order dated 22.08.2019 in the case of river Ganga i.e. Rs. 5 lakhs per month per drain, for default in in-situ remediation and Rs. 5 lakhs per STP for default in commencement of setting up of the STP.*”**

ii. Timeline for completing all steps of action plans including completion of setting up STPs and their commissioning till 31.03.2021 in terms of order dated 08.04.2019 in the present case will remain as already directed. In default, compensation will be liable to be paid at the scale laid down in the order of this Tribunal dated 22.08.2019 in the case of river Ganga i.e. **Rs. 10 lakhs per month per STP.”**

⁷ News item published in "The Hindu" authored by Shri Jacob Koshy Titled "More river stretches are now critically polluted: CPCB"

24. Both the matters were disposed of vide order dated 22.02.2021 with a direction that further monitoring be continued at the level of the Chief Secretaries in States and Central Monitoring Committee headed by Secretary, Ministry of Jal Shakti at the national level.

Today's hearing in the presence of Chief Secretary, Gujarat to ascertain compliance status and way forward

Compliance status in Gujarat presented

25. The presentation filed by the Chief Secretary, Gujarat on 22.02.2023 shows following data:

SUMMARY OF STATUS

A: Solid Waste Management			
Quantity of waste generation in the State (in TPD)	Waste Processed (in TPD)	Gap in generation and Processing (in TPD)	Quantity of Legacy waste in the State (Tones)
9542	8090	1452 (Unprocessed waste)	Total 255 lakh MT Remediated: 142 lakh MT Unremediated: 113 lakh MT No. of sites: 165 (14 cleared) 1452 TPD is added per day as legacy waste

B): Sewage Management					
Quantity of sewage generation in the State (in MLD)	Utilization of Treatment capacity (in MLD)	Current Gap in treatment (in MLD)	Utilization of treated sewage in		
			Agriculture/ Horticulture purpose	Industrial purpose	Any other purpose
4414	Installed capacity: 4754 Treatment: 3409	1005	800 MLD		

Our analysis, findings and Directions

26. It is seen from the data presented by the Chief Secretary that there still exist gaps in management of solid and liquid waste. Such gap has increased after last consideration. Thus, there is no benefit of considering mere future promises which have been breached in the past. Current violations are actionable as damage to the victims as a result of pollution is irreversible for which accountability cannot be avoided. Entirety of current solid waste generated is not being processed which requires continuing additions being added to the data of legacy waste. The Chief Secretary, Gujarat submits that there is improved governance on the subject and further initiatives are planned which will soon result in bridging the existing gaps in solid and liquid waste management. He submits that adequate funds are going to be allocated for the purpose, in the light of rate of compensation awarded in such cases. Without commenting of promised improvement in future, on the pattern of compensation awarded in respect of other States, compensation of Rs. 2100 crores may be liable to be levied for the past violations - Rs. 2010 crores for discharge of untreated sewage, Rs. 80 crores for legacy waste shown by data and Rs. 10 crores for continuing unprocessed waste to be also factored in as legacy waste till gap is addressed, hopefully soon. However, in view of statement of the Chief Secretary that a sum of Rs. 2100 crores will be voluntarily credited forthwith to a ringfenced account for being spent within one year to bridge the gaps in waste management as per specific action plan, it may not be necessary to direct levy of compensation on polluter pays principle.

27. If necessary, the State may lay down mechanism for raising funds such as by way of user charges by households/contribution of corporate, business sectors, commercial establishments and the tourists who

contribute to waste. Further steps have to be taken in a mission mode to comply with MSW Rules without further delay.

Solid Waste Management

28. Apart from collection, segregation and transportation of waste, scientifically handling of waste (processing and disposal) as per SWM Rules 2016 is required. Thus, while addressing the issue of bridging the gap in management of MSW, segregation of the solid waste at source and its earliest processing nearest to the point of generation with defined destination is imperative. In particular, adequate composting/vermicomposting/bio-methanation centers need to be set up and upgraded nearest to the source of generation of wet solid waste, listing people's involvement. This may also require establishing de-centralized and centralized waste processing facilities. Waste generators can themselves be required to process the waste under guidance and handholding by the Administration, with the assistance of identified empaneled service providers and such details may be posted on State's/Center's GeM portal. This may perhaps reduce planned expenditure.

29. Though as per above data solid waste generated in urban areas is being processed through Composting Facilities (CFs) and Material Recovery Facilities (MRFs), end-users of the compost and the rejects are not given. If adequate waste processing facilities exist, one can expect that no further deposition of fresh waste will take place in any ULB site in the State.

30. We note that waste to energy plant of 450 TPD is in operation at Jamnagar and four more plants at Ahmedabad (2), Rajkot (1) and Vadodara (1) are under construction. Corporations and other Municipalities (156)

need to provide required waste processing and utilization facilities with proper recycling/reuse of rejects to remedy the situation.

31. In case of rural waste, management of waste has to be ensured for all 18346 villages. Community compost pits as proposed numbering 15725 need to be properly maintained and compost produced as per standards and fully utilized.

32. Legacy waste sites are said to be 165 which must be maintained free from fires and other hazards till remediation. Safety of workers engaged should be ensured. Such sites may be fenced with row of trees or wall, as may be viable, for aesthetics, preventing foul smell and safety. Provisions of Schedule-I of the SWM Rules, 2016 may be strictly followed. Water quality in the vicinity of legacy waste dump sites may be periodically monitored. If any contamination is found, remedial action may be taken. Environmental safety aspects associated with legacy waste dump sites be complied with as specified in Schedule I of MSW Rules, 2016.

33. The data shows that out of 255 lakh MT of legacy waste, 142 lakh MT has been remediated leaving 113 lakh MT is yet to be remedied. On one of such sites at *pirana*, Ahmedabad, we observe that out of 84 acres of land 38 acres has been reclaimed by clearing 76 out of 125 lakh MT of waste. 24.88 lakh MT of rejects (which are reported to be inert) have been used for landfill and in building developmental projects like riverfront and Gandhi Ashram redevelopment etc. Further, waste having some calorific value like plastics – with potential for use as Refused Derived Fuel (RDF) have been used in industries like cement production etc. The State may need to have strategy on these aspects for all legacy waste sites.

34. Dump sites in operation as well as the legacy waste dump sites occupy huge area of valuable public lands. They remain source of air, water and land pollution resulting in damage to environment and public health. They emit intolerable smell and cause hazardous and unsafe environment for inhabitants in the vicinity. Their life is hell which is denial of their constitutional and human rights. In terms of money also, huge loss is caused to public health and environment. This situation is not acceptable in a civilized society governed by rule of law. For victims of situation, there is no governance. In recent order of the Tribunal dated 18.08.2022 in RA No. 21/2022 in OA No. 286/2022, two scientific studies on the subject of extent of environmental damage have been referred to. These are reproduced below:

“7. ...Legacy waste dumpsites are serious threat to public health and also source of generation of greenhouse gases. The Tribunal considered the issue of quantification of loss to environment by legacy waste dump sites inter alia in OA 514/2018 and OA 519/2019. Orders passed show that as per expert studies, loss for such failure, due to release of pollutants in air atmosphere, release of leachate into ground / surface water and soil, due to pollution from the landfill site, damage cost associated with climate change due to carbon di-oxide and methane, damage caused due to aesthetics loss, price depreciation due to disamenity cost etc., is huge running in hundreds of crores. Some of the orders showing this are quoted below:

Order dated 23.03.2020 in O.A. No. 519/2019

“xxx.....xxx.....xxx

18. We may observe that non-compliance of rules relating to waste disposal results in damage to the environment and public health. Any failure needs to be visited with assessment and recovery of compensation for such damage from the persons responsible for such failure. **A study was recently got conducted by CPCB, under orders of this Tribunal requiring such a study by a joint Committee comprising CPCB, NEERI and IIT, Delhi about the monetary cost of damage caused to the environment on account of existence of legacy waste dump site at Gurgaon (Bandhewadi) vide order dated 05.03.2019 in O.A. No. 514/2018. The report of the CPCB filed on 13.02.2020 is that damage on account of the said legacy waste dump site was Rs. 148.46 crore, on account of damage to**

the air quality, soil and water quality, climate change and disamenity (aesthetic). The damage has been assessed in terms of impact on health due to release of pollutants in air atmosphere, release of leachate into ground /surface water and soil, due to pollution from the landfill site, damage cost associated with climate change due to carbon di-oxide and methane, damage caused due to aesthetics loss, price depreciation due to disamenity cost etc.

19. Thus, monetary cost of every legacy dump site is expected to be huge depending upon the location, quantity and quality of waste and area covered, its proximity to water body/ stream and human habitation etc. Needless to say that there is huge cost for non-compliance of provisions relating to waste management – Solid as well as Liquid. Loss to the environment and public health is taking place not only on account of delay in clearing legacy waste but also for not complying with other provisions of the Rules resulting in huge gap in generation and processing of waste. It may be necessary to determine such cost for delay in clearing legacy waste at every dump site as well as for delay in complying with other rules and failure to treat sewage and recover the same from the persons responsible for action in the matter. **Let the Committee comprising CPCB, NEERI & IIT Delhi carry out similar study as mentioned in Para 18 above to assess the amount of damage to environment on account of dump sites in Delhi within two months.”**

Order dated 29.01.2021 in O.A. No. 519/2019

“6. Accordingly, status report dated 28.01.2021 has been filed by the CPCB as follows:-

“2.0 Action Taken :-

In compliance of Para 19 of aforesaid Hon'ble NGT's Order, Joint committee comprising of following members has been formed:

- Dr. S. K. Goyal, Chief Scientist and Head, NEERI Delhi Zonal Center
- Dr. G .V .Ramanna, Professor, Department. of Civil Engg., IIT-Delhi
- Ms D. Sinha, DH- UPC-II, CPCB
- Mr. P. Agarwal, Scientist-E, CPCB

Report on "**Assessment of amount of damage to environment on account of dumpsites in Delhi**" as prepared by Joint committee is placed at **Annexure-A**. Amount of Damage to Environment due to three dumpsites of Delhi to be levied on Municipal Corporations of Delhi is given in the following table:

S. No.	Name of Municipal Corporation	Name of Dumpsite	Damage Cost assessed, (Rupees)
1.	NDMC (North Delhi Municipal Corp.)	Bhalswa	155.9 Crore
2.	EDMC (East Delhi Municipal Corp.)	Ghazipur	142.5 Crore
3.	SDMC (South Delhi Municipal Corp.)	Okhla	151.1 Crore

xxx.....xxx.....xxx

7. Report of inspection conducted by the joint Committee comprising of the CPCB, NEERI and IIT Delhi is filed with following summary and conclusion:

“5.0 SUMMARY & CONCLUSION :

- i. Hon'ble NGT in OA No. 519/2019 constituted a Committee comprising of CPCB, NEERI & IIT Delhi to assessment of damage to environment due of dump sites in Delhi within two months.
- ii. Baseline information was collected by Committee through Questionnaire sent to three concerned Municipal Corporations (MCs). As per the information provided by the MCs, bio mining is being carried out at all three sites. **However, about 6% of waste has been bio-remediated at the three sites.** Further, fresh waste is being dumped at all three dumpsites.
- iii. Potential sources of air pollution at the sites include handling of fresh waste, Bio mining of legacy waste, Methane and other Green House gases from the Dumpsite, transportation of fresh waste & screened fractions, Odour & Fire accidents. Potential sources of water pollution at the sites includes Leachate which is being generated at all the three dumpsites
- iv. Air Pollution control measures taken at site includes mainly includes sprinkling of water. It has been informed by the authorities that smog guns are being procured for control of air pollution. **No concrete measures for leachate collection and treatment have being taken at the three dumpsites. Leachate is partially being recirculated for**

stabilization of waste and the remaining is being discharged into nearby surface water drains. Actual details regarding quantity of leachate used/ discharged not provided by the concerned authorities

v. Concentration of TDS, TSS, COD & BOD in leachate exceeds the stipulated norms at all the three dumpsites. Concentration of Heavy metals is within the stipulated norms with the exception of lead which has marginally exceeded the permissible limits at Ghazipur. Assessment of Ambient Air, Surface & Ground Water quality is based on monitoring data of CPCB for the past three years. Zone of impact has been considered to be 5 km and information related to monitored stations located within and beyond this radius has been compiled and analysed. In addition, information provided by Delhi Pollution Control Committee regarding ground water monitoring has been taken into consideration.

vii. **As per air quality monitoring data, PM₁₀ & PM_{2.5} concentrations exceeded the prescribed values at all monitored stations upto 5 km distance & beyond from the Dumpsite sites. SO₂ & NH₃ concentrations are within the prescribed values at all monitored stations. Benzene has exceeded the stipulated limit at one station and NO_x has exceeded the permissible limit at 7 monitored stations.**

viii. **As per the water quality monitoring data, concentration value of Arsenic, Chromium, Copper, Chloride, TDS, Fluoride, Cadmium and Iron exceeded the permissible limits at specified locations of Surface & Ground Water locations. Besides COD was detected at several stations monitored. As heavy metals (except iron) concentration in leachate was within specified norms and Chloride and TDS were within the permissible drinking water limits (BIS 10500) at most stations monitored, further analysis was done in terms of COD & Fe concentration levels and following are the observations:**

- **High level of COD & Fe reported in Ground water at all three sites in**

Ground water which may be due to leachate from the dumpsite

- **Very High level of COD, Chloride, TDS, TSS, Turbidity reported in surface water body (Bhalswa lake) located within a radius of 0-1 km from Bhalswa site, which may be due to leachate from the dumpsite**
 - **High COD values reported in surface water body (Sanjay Lake) located at a distance of 3-5 km from Ghazipur site. Owing to the distance from the site, actual impact due to dumpsite can be confirmed based on the hydrogeology of the region and contaminant transport modelling**
 - **Fluctuating trend in Iron & COD concentration in ground water observed within 5 km radius at the three sites. Overall increase in Iron and COD levels observed with increase in distance from the dumpsites, indicating, marginal impact on ground water quality due to dumpsite within 5 km distance from dumpsite**
 - **Ground water outside 5 km radius have reported higher value of COD & Fe than stations located within 5 km radius, indicating minimal impact of dumpsite on ground water quality. Local factors are contributing in deterioration in water quality at these stations**
 - **As several sources of water pollution including open drains observed in these regions, actual impact of the local sources as well as that of the dumpsite can be confirmed based on the hydrogeology of the region and contaminant transport modelling**
- ix. *There are currently 37 Continuous Air Quality monitoring locations in Delhi, of which 10 are located within a distance of 5 km from the dumpsites.*
- x. *Range in variation in PM2.5 & PM10, NOx & Benzene concentration levels within 5 km overlaps the range observed for stations located at distance greater than 5 km from dumpsites. Fluctuating trend is observed in NOx / Benzene concentration levels vis-a-vis distance from the dumpsite.*

xi. Several local factors such as drains, road dust, vehicular pollution, C&D waste etc. also contribute towards air & water pollution in the region.

As per analysis of air and water quality carried out, deterioration in environmental quality cannot be attributed directly to the various activities happening at the dumpsites. **As further detailed investigations are required to assess actual impact of the dumpsite related activities on the environment (air, water & soil quality), interim cost of damage to environment is based on the Environmental Compensation to be levied for violation of Solid Waste Management Rules, 2016. Cost of damage to environment has been calculated based on the Environmental Compensation to be levied for violation of Solid Waste Management Rules and has been assessed as Rs.155.9 Crore (for Bhalswa), Rs. 142.5 Crore (for Ghazipur) and Rs. 151.1 Crore (for Okhla).**

xii. Source apportionment studies are required to assess the actual impact of air pollution sources at dumpsite on air quality in the region.

xiii. Detailed hydrogeological investigations and containment transport modelling is required to assess the impact of dumpsites on surface / ground water.”

8. As shown above, in O.A. No. 514/2018, damage to the environment was assessed at Rs. 148.46 crores for Air pollution, Water pollution, Soil pollution, Climatic (GHG emissions) and Aesthetics has been taken into consideration in the report and damage cost to environment is estimated at Rs 148.46 crores. The report has following conclusions:-

“7. Results & Conclusion

The report focuses on identifying and estimating monetary losses (in 2019 Rupees) on the environment due to the operation of Bandhwari municipal dumpsite. The damage was assessed with a consideration that there is no major polluting industries existing in nearby vicinity other than the dumpsite. The study estimates a total incurred damage of about ₹ 148.46 Crore due to externalities from Bandhwari dumpsite. The breakup is shown in Table 22. The cost for damages includes drivers of externalities like greenhouse gas emissions, air pollution, water pollution, soil pollution and aesthetic loss.

Table 22: Break Up of Monetary Estimation of Damages (reported in 2019 values)

Environment	Estimated Damage Cost in Lakhs. INR
Air	Nil
Water	2900
Soil	31*
Climatic (for last 5 years)	7,000
Aesthetic	4,946
Total	14,846

*Soil value is not considered in total, to avoid double-counting, as it based on total quantum of heavy metal from leachate which is considered in water as well.

The valuation of damages is done for greenhouse gas emissions using social cost of carbon approach recommended by USEPA. The social cost of carbon is indirect measure of loss in economy due to emission of CO₂ and is contributing by 73% of total damage due to Bandhwari municipal dumpsite. Air pollution damages are not valued as the emissions hardly breach the limits and the area in which emissions are higher, no population exposure is there. Further, the leachate contaminated groundwater and soil damages are valued using cost transfer method and Extern report valuations. Groundwater sample analysis shows lead and nickel exceeding the BIS standards at sampling locations near the dumpsite. Groundwater beneath the dumpsite showed high contamination due to heavy metals such as Cr, Cu, Pb & Ni. Physiochemical characteristics such as BOD, COD, SS, N, P of the treated leachate showed higher concentration and have contributed to half of the total damage cost in water environment. The leachate is valued for the damages which it can cause due to contamination of soil and water. The damages to water are considered as overall damages. The total quantum of heavy metals due to leachate is fixed and is used for valuation for both soil and water, however, higher damages are seen for water and hence considered in total. Aesthetic losses due to dumpsite are valued using hedonic pricing method. GHG emissions are a part and parcel of any dumpsite. If proper control systems are kept in place these emissions can be controlled and may be utilized as well and hence maximum damages can be averted. Leachate also should be controlled and treated scientifically.”

Use of reclaimed land occupied by legacy waste sites

35. As already mentioned earlier, legacy waste dump sites have resulted in huge damage to the environment and population in the vicinity of such dump sites who have suffered in safety, health and comfort. For compensating them for such damage, one third of land occupied by legacy dump sites (on reclamation) needs to be reserved for dense forest and in the process of afforestation, Campa Funds can be utilized in accordance with the provisions of Compensatory Afforestation Fund Management and Planning Authority Act, 2016 (CAMPA Act). One third of reclaimed land out of the said dump site needs to be reserved for integrated waste management facilities. Remaining one third can be used for any other purpose, consistent with the above purposes, including a part of it being utilized for monetizing, if funding is required for tackling the legacy waste. Legacy waste clearance has to be in minimum further time as laid down statutory timelines have already expired and serious damage is taking place. It may be noted that remediation of legacy sites may be one time affair and such situations should not arise in future. Bio-remediation followed by bio-mining has to be executed in accordance with the Guidelines/SoP laid down by CPCB⁸ and the residues/rejects arising out of such processes are to be properly utilized and managed with well-defined destinations. Having regard to the fact that significant quantity of rejects is generated out of biomining processes, CPCB in consultation with other concerned agencies, including some of the States PCBs and Municipal Corporations may work out environmentally safe methods/options for their use. It may elaborate para 4.3 of its guidelines and issue operative directions particularly for such cities having significant quantities of legacy

⁸ <https://mpcb.mizoram.gov.in/uploads/attachments/6e7c1548449702807cb534c7cf89aafe/pages-207-guidelines-for-disposal-of-legacy-waste.pdf>

waste. Once remediation is done at one site, repeated tendering may be avoided and instead standardized rates be worked out for the execution of similar remediation to same time or such execution be done Departmentally. Use for land to be reclaimed be declared in advance so that further steps can be taken in that direction. This is in line with order of this Tribunal dated 11.10.2022 in OA No. 300/2022, *In re: News item published in News 18 dated 26.04.2022 titled "Delhi: Massive Fire at Bhalswa Dump Yard, Fourth This Year; 13 Fire Tenders on Spot"*. Relevant part thereof is quoted below:-

“xxxxxx.....xxx

37. Restoration measures will include scientific disposal of the accumulated garbage as per statutory Rules and environmental norms, fire control and mitigation measures, construction of boundary wall/bio-fencing by trees and shrubs/ afforestation, plantation, leachate treatment facility. Course of action planned and executed at other places⁹ where legacy waste dumpsites are reported to have been remediated may also be studied. Ground Water Authority may examine the extent of leachate flow into the ground water on which remedial action may be taken.

38. It is to be ensured that current waste is not added to legacy waste dumpsites. After collection, the same be taken to the destination such as Integrated Waste Management Facility or stand alone Waste Management Facilities such as Composting Centres, C&D Waste Centres and RDF Units, Waste to Energy Units, Cement Factories, Road Construction and filling up identified low lying areas, as per norms. This requires careful planning and execution with the involvement of senior level officers instead of leaving the task to junior officers as appears to be currently happening. Precautions in light of report of the Committee headed by Justice S.P. Garg, retired Judge, Delhi High Court need to be taken forthwith. To control foul smell and improve aesthetics, turfing of landfill sites must be done forthwith either in the form of a boundary walls with necessary entry and exit gates or fencing by plantations of at least three rows of native fast growing and tall native trees requiring minimum water in the periphery of landfill sites as well as complying with other criteria for development of facilities at such sites following the provisions under the Schedule I of MSW Rules, 2016. A clear action plan with defined course of action needs to be drawn up after brain storming and studying the remediation processes adopted at other places. Consequences of overshooting timeline against identified officers/service providers may be specified and enforced. The Committee may consider undertaking visits to appropriate sites.

⁹ such as Indore and Ahmedabad

39. *One of the crucial links in management of remediation work based on bio-mining and bio-remediation is the utilization and disposal of rejects like inert, RDF, stabilized bio-earth. Segregated fractions and components which are in high quantity be safely utilized and disposed. Bulk users of RDF, three waste to energy projects should utilize the RDF and if required enhance their capacity without compromising environmental norms and public safety.*

40. *To compensate the affected citizens of the area, the authorities are under obligation to develop dense forest in at least on one third of the land occupied by the dumpsite, after the sites are cleared. One third can be utilized for setting up Integrated Waste Management Facilities or other like infrastructure. The remaining one-third can be utilized for any other purpose, including raising of funds consistent with environment concerns without affecting the use of the two-third, as earlier mentioned. The authorities may explore setting up a tourism and recreational centre with the involvement of an appropriate agency on PPP or Hybrid Annuity Model or other mechanism so that investment is made which is allowed to be recovered from the tourists visiting such centres. Creation of an appropriate water body may be considered as part of such recreational centre. Possibility of setting up an Interpretation Centres at all the three sites to facilitate study for creating awareness for the citizens may also be considered.*

41. *Community involvement including the Welfare Associations, Educational Institutions, Volunteers, corporates, charitable and other social organisations and individuals may be explored. Such involvement may be explored for plantation drives also. There is also need to strengthen the Control Room and set up Grievance Redressal Mechanism accessible to the citizens to extend immediate help in emergencies within a month.”*

36. Thus, execution plan relating to management of municipal solid waste for both Urban and Rural areas may include setting up of new facilities and augmentation of existing waste processing plants (centralized and decentralized) for un-processed waste. Bio-remediation/bio-mining process need to be executed as per CPCB guidelines and the stabilized organic waste from biomining as well as from compost plants need to comply with laid down specifications. Other material recovered during such processes be put to use through authorized dealers/handlers /users instead of unorganized disposal. Further, instead of creating more dumping sites for waste generated on day-to-day basis, waste processing plants already set up be fully utilized so that no further legacy waste is generated. Simultaneously, plastic waste and construction and demolition

waste processing plants be also set up ensuring that bio-medical, hazardous and E-waste are not co-mingled and treated with solid waste. It may be worthwhile to take into consideration guidelines on the subject issued by the Ministry of Urban Development, GoI titled “Waste to Wealth” on 2.10.2017 under Swachh Bharat Mission.¹⁰

Sewage Management

37. The data presented shows gap of about 1005 MLD in generation and treatment of sewage. Appropriate treatment of such waste has to be undertaken ensuring that no fecal contaminants are discharged into water streams/ponds/rivers or in coastal or estuarine areas. The STPs set up so far need to be properly operated and to remain compliant with the standards. Treated sewage needs to be utilized for secondary purposes. Immediate efforts need to be made for ensuring connectivity with STPs having treatment capacity of 4754 MLD.

38. Gap in generation and treatment and utilisation of sewage has to be bridged. Compliance status of laid down standards at the outlets of STPs has to be ensured. Timeline for the establishing requisite treatment systems in terms of judgment of Hon’ble Supreme Court in *Paryavaran Suraksha vs. Union of India*, supra has long expired, speedy further action has to be ensured.

39. As already noted and also observed in the judgement of the Hon’ble Supreme Court in *Paryavaran Surakhsha*, supra, quoted earlier, the matter falls in 11th and 12th Schedules to the Constitution. It is constitutional responsibility of the State and the Local Bodies to provide pollution free environment and to arrange necessary funds from

¹⁰ <http://cpheeo.gov.in/upload/5abc86de40012WastetoWealth2Oct.pdf>

contributors or others. Being part of right to life, which is also basic human right and absolute liability of the State, lack of funds or other resources such as land (sites for waste management) cannot be plea to deny such right. Such resources have to be found by the State by its policies and according due priority to the subject. Further, while there may be no objection to any central funds being availed, the State cannot avoid its responsibility or delay its discharge on that pretext. Free ship or other policies involving State resources cannot take priority over basic need for hygiene and pollution free environment.

40. Sewage can be processed by cost-effective methods at least at several identified locations with least expenses. Decentralized and the prefabricated/modular treatment plants can be explored, apart from imposing condition of ZLD on industries, Group Housing Societies etc. Reduced load can be processed partly with the help of water using commercial establishments requiring water for their processes enforcing consent conditions in CTEs and CTOs whereby State's financial burden can be reduced.

41. In this context, the draft Notification of MoEF&CC dated 25.02.2022¹¹ etc. and the relevant part of the draft Notification in context of sewage and solid waste management is reproduced below:

“xxxxxx.....xxx
C. Management of sewage/waste water, Reuse and recycle of treated wastewater by dual plumbing system

10. Dual Plumbing System shall be implemented - one for supplying fresh water for drinking, cooking and bathing etc. and another for supply of treated water for flushing.

11. Only treated water shall be used for flushing.

¹¹<http://www.indiaenvironmentportal.org.in/files/file/Building%20Construction%20Environment%20Regulations%202022.pdf>

12. In no case, sewage or untreated waste water generated within the project area shall be discharged through storm water drains or otherwise into water bodies nor discharged/injected into the ground water by any mode.

13. Subject to Clause (3) of this notification, the project authority may opt or avail to common off-site treatment facility, as feasible, for treatment with reuse & recycle of corresponding quantity of treated water through the dual plumbing system for flushing and other non-potable use.

A. For projects with built up area of 5,000 sq. mtrs. to 20,000 sq. mtrs. –

i. In areas where there is no municipal sewage network,

a. Either Onsite Sewage Treatment Systems with capacity to treat 100% waste water may be installed with appropriate tertiary treatment system with disinfection for black & grey water. Such treated water should be used with dual plumbing system for flushing and other non-potable use;

OR

b. In case of usage of septic tank, only black water shall be discharged in the septic tank. Grey water may be treated through natural treatment systems or other secondary treatment as feasible. Such treated water should be used with dual plumbing system for flushing and other non-potable use;

The excess treated water should conform to the general discharge norms of CPCB/MoEF&CC.

ii. In areas where there is municipal sewage network

a. Either Onsite Sewage Treatment Systems with capacity to treat 100% waste water may be installed with appropriate tertiary treatment system with disinfection for black & grey water. Such treated water should be used with dual plumbing system for flushing and other non-potable use;

OR

- b. *The project authority may opt to discharge only black water in such municipal sewage network subject to availability of trunk sewer line. For this purpose, two separate pipeline network– one for black water discharge and other for collection of grey water shall be installed. Grey water may be treated through natural treatment systems or other secondary treatment as feasible. Such treated water should be used with dual plumbing system for flushing and other non-potable use;*

B. For projects involving built-up area of 20,000 sq. mts. or more –

14. *Subject to Clause (3) of this notification, Onsite Sewage Treatment Plant with capacity to treat 100% waste water generated within the project area through tertiary treatment shall be installed. Treated waste water shall be reused on site for landscape, flushing, HVAC, fire-fighting, and other end-uses.*

15. *The adequacy of the Sewage Treatment Plant (STP) shall be certified by an independent expert and a report in this regard shall be submitted to the authorized agency.*

16. *Discharge of excess treated wastewater outside the premises, after treatment in STP, should meet the discharge standards as notified by CPCB/MoEF&CC from time to time.*

17. *Wastewater and treated water quantification system through metering/sub-metering shall be installed.*

18. *Sludge from the onsite sewage treatment shall be collected, conveyed and disposed as per the Central Public Health and Environmental Engineering Organization (CPHEEO) Manual, Ministry of Housing and Urban Affairs, on Sewerage and Sewage Treatment Systems.*

19. *Where Common Sewage Treatment Plan facility has been availed, it shall be ensured that treated waste water is recycled back to respective building for reuse.*

D. Solid Waste Management

20. *Subject to Clause (3) of this notification, onsite solid waste management facility should be developed and a formal contractual arrangement shall be ensured with authorized recyclers/concerned municipal agency for disposal of all non-biodegradable waste.*

21. *Subject to Clause (3) of this notification, where there is no alternate arrangement for disposal of biodegradable waste, Organic waste composter/Vermiculture pit with a minimum capacity of 1.0 kg/150 sqm. of built-up area/day shall be installed & operated.”*

Maintaining sources of clean water (rivers, storm water drains and water bodies – lakes, wetlands etc.) free from treated or untreated sewage, channelizing treated sewage for non potable purposes

42. We also find that sanctity and significance of natural storm water drains needs to be maintained. Storm water drains, if left unpolluted, can be source of drinking water for humans, birds, animals or aquatic life and discharge of sewage or even treated water which is not of standard of drinking water, seriously affects such drinking water resource adversely affecting their health. They are not to serve as sewage carrier. The Tribunal has comprehensively dealt with this issue on 03.08.2022 in OA No. 1002/2018, *Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors.* Thus, in the State, rivers, streams, ponds and lakes should be maintained for their pristine quality.

43. Efforts are also required on utilization of treated sewage such as by establishments like malls, industrial estates, automobile establishments, power plants, playgrounds, railways, bus stands, local bodies, universities etc. to save potable water for drinking. The treated sewage can be utilized for industrial/agricultural/other non-drinking uses like washing railway wagons/yards, buses, roads, water sprinkling and several such models reportedly exist¹². The State may contemplate with prospective plan to

¹² <https://www.newindianexpress.com/cities/chennai/2019/jul/31/chennai-industries-to-now-use-treated-sewage-water-2011837.html>
<https://timesofindia.indiatimes.com/city/surat/surat-water-reuse-model-goes-global/articleshow/85668103.cms>
<https://www.aninews.in/news/national/general-news/surat-generating-massive-revenue-by-selling-treated-water-to-industries20201217051127/>
<https://swachhindia.ndtv.com/surat-generating-massive-revenue-by-selling-treated-water-of-river-tapi-to-industries-54411/>

utilize treated sewage extensively rather than discharging into natural water courses which are very precious.

44. As already observed, there is need for planning to prevent sewage (treated or untreated) entering the potable water resources. Instead, the same is to be suitably treated and channelized for non-potable purposes – agriculture, industrial or others. By way of illustration, we may refer to certain models which can be considered at appropriate locations. The same have been mentioned in order of this Tribunal dated 11.10.2022 in M.A. No. 43/2022 in OA No. 41/2020, *Pushpendra Kumar vs. Nagarpanchayat, Kadaura & Ors.*, as follows:

“5. In this regard, we have drawn their attention to Seechewal Model¹³, Karnal Technology of sewage treatment and zero discharge and manual on sewerage and sewage treatment systems- 2013 (chapter7), issued by the Central Public Health & Environmental Engineering Organisation (CPHEEO), Ministry of Urban Development, GoI, which provide for inexpensive and simple methods of treatment of waste water, its utilization for irrigation and other secondary purposes. The said models are briefly described as follows:-

Seechewal Model

- *Provides for use of treated waste water for irrigation in order to conserve precious surface fresh water and ground water. The process involves passing waste water through four well for cleaning the waste water and thereafter use of such treated water for irrigation. The process can be undertaken by communities through collective approach.*

Karnal Technology Of Sewage Treatment & Zero Discharge.

https://m.timesofindia.com/city/ahmedabad/amc-offers-rs43/kl-treated-wastewater-for-industries/amp_articleshow/87169850.cms <https://theprint.in/india/governance/nagpur-to-become-the-first-indian-city-to-treat-and-reuse-90-of-its-sewage/180493/>

https://www.business-standard.com/content/press-releases-ani/india-s-1st-and-largest-ppp-on-waste-water-reuse-completed-in-record-time-during-pandemic-bags-ficci-water-award-2020-121022500841_1.html

https://mpcb.gov.in/sites/default/files/focus-area-reports-documents/NMC_%26_KTPS_success_story_28052019.pdf

<https://cpcb.nic.in/success-stories/upload/1501156301.pdf>

http://cpheeo.gov.in/upload/uploadfiles/files/engineering_chapter7.pdf

¹³ <https://www.civildaily.com/news/seechewal-model-of-wastewater-management/>

- *Involves growing trees/plants on ridges with one meter wide and 50 cm height and irrigated by treated effluent in furrow. The technique utilizes entire bio mass present in waste water and provides nutrient to soil and plants. By this method forest plants/trees can be grown which can be used for firewood and timber. By this technique no chance of pathogen, heavy metals or organic compounds enter the food chain. Tree species like Eucalyptus, Leucaena can be grown.*

Central Public Health & Environmental Engineering Organisation (CPHEEO)

Manual on Sewerage and Sewage Treatment Systems – 2013 (Chapter 7)

- *Provides various case studies of utilization of treated sewage and its reuse as cooling water in power plant, in airport, in petroleum refinery, fish culture (like at Mudiali, Kolkata), road washings, ground cooling, boilers and also in agriculture. In agriculture the suitability of treated sewage is dependent upon soil, salt tolerance of the crop, intake of minerals and climate conditions. Sewage conforming to specified norms can be applied to selected species of food crops into soil by strip, basin or furrow irrigation. Sprinkler irrigation could be used with treated sewage. During rainy and non irrigating seasons, the treated sewage can be held in lagoons or undertaking irrigation in additional land/waste land including resorting to artificial recharge of ground water.”*

We have also come across and low cost options for sewage/sullage treatment for less population at village Sultanpur and Village, Kurak Jagir in District Karnal. These grey water management projects based on waste stabilization and system have been executed under Swachh Bharat Mission Gramin and MG NREGA. These systems are designed for intake of waste water less than 100 KLD allowing waste to stable and using wet flow of ponds for irrigation. Such models may help for medium and small towns and the Rural areas as substitute for high cost technology. Central Public Health and Environment Engineering Organization (CPHEEO), Ministry of Housing and Urban Affairs dealt with the matter in its instructions titled

“Municipal Used Water Treatment Technology for Medium and Small Towns”¹⁴ in September 2022.

45. Restoration measures with respect to sewage management need to include identification of sites for setting up of sewage treatment and utilization systems, upgrading systems/operations of existing sewage treatment facilities to ensure utilization of their full capacities, ensuring compliance of standards, including those of fecal coliform and setting up of proper fecal sewage and sludge management in rural areas. STPs need to have co-treatment facilities of septage rather than having isolated FSTPs. Guidelines of SBM - U 2.0 may be referred to in this respect. For urban areas, SBM-U 2.0 provides co-treatment of fecal sludge at STPs with sewage for which exclusive funding provisions are made under ringfenced accounts.

Utilisation of already set up STPs

46. We find that while STPs of 4754 MLD capacity are available, only 3409 MLD is being treated out of 4414 MLD being generated. Further, STPs of 133 MLD installed capacity be made compliant with the prescribed standards. This aspect needs to be looked into on continuous basis by a centralised mechanism which may be set up within a month.

47. Sewage treatment facilities adopted in terms of septic tank/soak pit/FSTP particularly for rural areas and villages may be reviewed in view of health, hygiene and the guidelines of MoUD.

Need to consider change in approach for administrative processes

¹⁴ <https://sbmurban.org/storage/app/media/rr-final-signed.pdf>

48. We have suggested change in approach in realizing that remedial action cannot wait for indefinite period nor loose ended time lines without accountability can be a solution. Responsibility of the State is to have comprehensive time bound plan with tied up resources to control pollution which is its absolute liability. If there is deficit in budgetary allocations, it is for the State alone to have suitable planning by reducing cost or augmenting resources. People must be involved in the problem by appropriate awareness and strategies to encourage public participation and contribution. At the cost of repetition, health issues cannot be deferred to long future. Long future dates breach of which has taken place frequently in the past without accountability is not a convincing solution. It is poor substitute for compliance within laid down timelines for long past. This approach may project lack of concern or not realizing the grim ground situation crying for emergent remedial measures on priority. There is no time for leisure, reflected in timelines proposed for bridging the acknowledged gaps.

49. It is the mindset and determination to act in a mission mode which can produce results.

50. Thus, it may be necessary to brain storm with available experts and other stake holders in the State at different levels, evolve models for both solid and sewage management which can be fast replicated, initiate special campaigns with community/media involvement in the larger interest of protecting environment and public health with determination for prompt action. Such brain storming sessions may enable capacity enhancement of the regulators and the processes. Campaigns and community involvement may result in reducing the financial and administrative load on the administration. The Chief Secretary may also entrust responsibility to

Senior Secretaries to monitor waste management for establishments governed by non-municipal entities-

51. Compliance of environmental norms on the subject of waste management has to be on high on priority. It is high time that the State realizes its duty to law and to citizens and adopts further monitoring at its own level.

52. While reviewing the progress in formulation and implementation of District Environment Plan (DEP), as per Articles 243 W and other provisions of the Constitution read with 11th and 12th Schedule, vide order dated 17.01.2023 in O.A No. 360/2018, *Shree Nath Sharma vs. Union of India & Ors.*, the Tribunal noted that in the State of Gujarat District Environment Plans have been prepared for all the 33 Districts which are to be duly implemented by the District Magistrates through District Level Committees. Waste management is major component of the said plans for all the towns and villages. The operative part of the order is reproduced below:-

*“13. We have considered the reports. We are satisfied that further action needs to be taken by the concerned States/UTs in the light of observations and recommendations in the above report. **It is well known that there is urgent need for upgrading environmental standards in the country - air, water and land in the interest of public health and in the light of Constitutional goal and mandate. This is not possible without planning. Planning should be at all levels - Districts, States as well as national. This has to be part of ongoing exercise for discharge of State’s Constitutional obligation for providing pollution free environment and protection of natural environmental resources under public trust doctrine in the light of applicable statutory regime and earlier orders of the Tribunal. The District Environment plans must contain all relevant data on different thematic subjects, covering each city, town and village, with identified gaps in compliances and set out plan for remedial action in measurable terms with requisite budgetary support to meet estimated cost. It must provide for grievance redressal mechanism with review at higher levels. This can be basis for planning at higher level and also enable monitoring and measurement of progress with reference to***

baseline data. On that basis there can be further policy making and planning. One of the steps is to identify vulnerable districts with respect to specific environmental issues like sand mining, industrial pollution, stone crushers/brick kilns and mining, ground water depletion etc. so as to give due attention to monitor them. The plans may provide for awarding appreciation to best/ model districts/areas which may be then replicated at other places. Plans may also provide for taking on board civil society and creating awareness through educational, social and charitable institutions, including in coordination with Legal Services Authorities. The District Plans as on 31st December of the year must be finalized with respect to remaining 98 districts expeditiously, preferably within three months. CPCB may follow up with concerned States. Progress in implementation of the plan be placed on website by 31st January every year. Likewise, State Environment Plan, taking into account District Environment Plans or any other relevant data may be finalized by 28th February every year and placed on respective State websites. The CPCB may thereafter in coordination with any other Ministry or authority prepare a consolidated plan based on State Environmental Plans by 31st March every year and place the same on its website. Consolidated national plan may also be filed with the Registrar General of this Tribunal by April 30 every year. If found necessary, the same be placed for consideration before the Bench. Let District, State and National Environmental plans be prepared and updated accordingly on continuous basis annually. Subject to such plans being considered as and when necessary and any grievance being separately considered, the application is disposed of.”

53. In order to facilitate expeditious execution of sewage and solid waste management projects, the Chief Secretary may consider suitable orientation/interaction programmes for District Magistrates or other concerned officers to improve environmental governance.

Adhering to the timelines

54. Since the issue has been pending since long and there are adverse effects of continuing delay on environment and public health, it cannot be a matter of satisfaction that some steps are taken till the entirety of the problem is tackled on war footing. Planning has to be to resolve the problem without any further delay, in shortest possible time. Whatever timeline is laid down, it should not be breached. If breached, adverse consequences

for such failures must follow on the designated accountable officers instead of loose-ended processes.

Community involvement

55. Another important subject is community involvement not only for IEC activities but also for planning and execution of waste management activities. Welfare associations, corporates, religious, educational and charitable institutions can play their role. The District Environment Plans must have authentic and updated database which can be helpful for policy making and execution of projects. Regularly monitor of bridging of gaps in sewage and solid waste management in districts is required by the Chief Secretary through a suitable nodal officer, preferably of the rank of Additional Chief Secretary. Status of sewage and solid waste management with respect to each city, town and village be placed on State's portal and be made part of District environment Plan. This may be done in next two months.

Further observations to explore implementation mechanism

56. In the light of above observations, it appears that there is need for paradigm shift in handling of the situation. The nagging problem of waste management stares the administration in the face and remains unresolved to the detriment of environment and public health. First change required is to set up a **centralized single window mechanism for planning, capacity building and monitoring of waste management at the State level**. Of course, local authorities have to do their duty and stocktaking at the district levels may continue but subject to supervision and control of such mechanism. **It should be headed by an officer of the rank of Additional Chief Secretary with representation from concerned departments – Urban Development, Rural Development, Environment**

and Forest, Agriculture, Water Resources, Fisheries and Industries.

The mechanism should be working on fulltime basis. Its functions should include preparing a comprehensive blue print, periodic review of progress in bridging the gaps in sewage and solid waste management and establishing, continuous interaction with the stakeholders, including experts and institutions, concerned departments, community members and all other stakeholders. There must be a continuous training programme for those involved in execution of waste management projects. In this regard reference is made to recent order of the Tribunal dated 23.01.2023 in M.A. No. 98/2022 in OA No. 180/2021, *Mukul Kumar vs. State of Uttar Pradesh & Ors.* It was held that training must be planned for probationers and in service officers, particularly those who have to serve as District Magistrates to implement DEPs including sewage and solid waste management. The operative part of the order is reproduced below:

“17. The Tribunal noted that while DEPs have been prepared and uploaded on websites in about 640 out of 738 districts (about 90%), execution thereof remains a challenge. There are huge gaps in compliance of environmental norms to the detriment of environment and public health. District Magistrates have to provide leadership on the subject at grassroot level. We are not sure whether the subject is part of training imparted in academies for probationers and in-house officers such as LBS National Academy of Administration, Mussoorie, IIPA, New Delhi and other State Academies. It may be desirable that need for such training is considered. National Judicial Academy at Bhopal has included the subject as part of its training to judicial officers. On that pattern, with such further modifications as found necessary, syllabus of Administrative Training Institutes may need to include the subject. We request the Secretary, DoPT, GoI and Chief Secretaries of all States/UTs to consider this aspect in coordination with the Directors of the Academies in question. Such training programs may include not only academic discussion but also undertaking field visits to places where successful environmental compliance models exist. Infact such training may be required in Police Academies/Public Prosecutors also. In the first instance, training may be imparted to all existing District Magistrates and thereafter to others who may have potential to work as District Magistrates or other positions where they may have to deal with such issues.

18. Let the Secretary, DoPT, GoI and Chief Secretaries of all States/UTs consider the issue and file their respective action taken reports with the Tribunal within two months by e-mail at judicial-

ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF. CMC may continue its monitoring and file its further report of compliance status as on 31.03.2023 by April 15, 2023 by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/ OCR Support PDF and not in the form of Image PDF.”

Service Providers

57. Best practices be evolved and followed for selecting service providers and simplifying procedures for fixing terms of engagement. Mechanism be considered to engage service providers by due diligent process who may execute work relating to solid and sewage management simultaneously throughout the State – all districts, cities and towns. Selection of service providers may be done taking into account of his past performance and number of projects and capacity to handle successfully. There is also need for evolving key indicators and its monitoring by independent Social/Environmental Agencies about functioning of STP and solid waste management programs.

58. “Integrated Solid Waste Management for local Governments a practical guide”¹⁵ brought out by Asian Development Bank published in 2017 details out solid waste management, planning and segregation of waste categories, waste collection methods, waste processing, waste to energy and diversion land fill development, operation and its management of landfill and also including contract issues by involving public private partnership. The document has been prepared based on the experience and the practices followed in several Asian Countries. The State of Gujarat may look into and consider this report to handle solid waste generated, particularly the cost effective technologies mentioned in the report.

¹⁵ <https://www.adb.org/sites/default/files/institutional-document/324101/tool-kit-solid-waste-management.pdf>

Need for compliance of statutory duties by specified authorities under SWM Rules and monitoring by NMCG and MoUD for centrally assisted/sponsored schemes

59. Under the Solid Waste Management Rules, 2016, statutory authorities for various actions have been specified. **Under Rule 5**, a Central Monitoring Committee (CMC) is to be constituted headed by the Secretary, MoEF&CC with representation from Ministries of Urban Development, Rural Development, Chemicals and Fertilizers, Agriculture, CPCB, State PCBs/PCCs, Urban and Rural Development Departments, Urban Local Bodies and Towns from the of the States, FICCI, CII and subject experts. The CMC is to meet once in a year.

The Ministry of Urban Development has to coordinate with the States/UTs **under Rule 6** for periodic review and formulation of National Policy and strategies and taking other measures. **Under Rule 7**, the Department of Fertilizers, Ministry of Chemical and Fertilizers have to provide market development assistance for compost and promote marketing of such compost. **Under Rule 8**, Ministry of Agriculture has to evolve mechanism for utilization of compost. **Under Rule 9**, Ministry of Power has to decide compulsory purchase and tariff issues. **Under Rule 10**, Ministry of New and Renewable Energy Sources has to facilitate infrastructure creation and provide for subsidy. **Under Rule 11**, the concerned Secretaries of Urban Development have to prepare State Policy and Management strategies and the Town Planning Department has to ensure setting up waste processing and disposal facilities and take other enumerated actions. **Under Rule 12**, the District Magistrates have to identify suitable lands and review performance of local bodies. **Under Rule 13**, the Secretaries of Panchayats have also to perform similar duties. **Under Rule 14**, CPCB is to coordinate with State PCBs and formulate

standards of ground water, ambient air quality, noise, etc. **Under rule 15**, local authorities have to prepare solid waste management plans, collection of waste and coordination with the other stakeholders for enumerated steps. **Under Rule 16**, the SPCBs/PCCs have to enforce the rules and monitor compliances. **Under Rule 17**, there are duties of private bodies, including the manufacturers to be monitored by the State Bodies. **The timelines are provided in Rule 22** for various steps. Last timeline of 5 years from the Rules expires on 7.4.2021. There is also provision for audit and submitting of annual report **under Rule 24**. Since there has been large scale non-compliances of the said rules, all the concerned authorities need to review the progress and perform their responsibility in accordance with law. The MoEF&CC has to finally monitor compliance, as already mentioned.

60. Based on interaction with 26 States/UTs extensively on the issue of solid and sewage waste management, we are of the view that Central Ministries and Departments need to facilitate States/UTs to effectively execute centrally sponsored projects. This will include utilization of waste for defined purposes involving components of central funding. Some such aspects include (i) utilisation of installed STPs are fully utilized remaining unutilised due to lack of connectivity which can be overseen by MoUD. Utilization for treated sewage should be taken as an integral part of the sewage treatment planning with STPs. (ii) looking into applicability of standards for sewage treatment in Urban and Rural areas, considering the usage of treated sewage and mode of disposal under the Water (Prevention and Control of Pollution) Act. 1974. This can be done by MoUD, MoEF&CC and CPCB under the coordination of MoUD; (iii) maximizing use of treated sewage and the compost made out of municipal solid waste as full or partial substitute of fertilizer and ultimately reviewing subsidy issue which may

be done under joint coordination of MoUD and Ministry of Agriculture and Ministry of Chemical and Fertilizer (iv) process of setting up of waste to energy projects as per applicability in cities and towns with specified technologies and ensuring compliance with environmental norms by Ministry of Power and Ministry of Non-Renewal Energy (MNRE). We have already cleared that such projects may be kept out of the scope of environmental clearances but taking due care based on siting and preventing human health damages (v) specific directions on management of rejects out of biomining processes of legacy waste to avoid haphazard disposal/dumping by CPCB and MoEF&CC.

61. In view of continuing huge gap in solid and liquid waste generation and treatment, it is high time that Ministry of Housing and Urban Development (MoUD) and National Mission for Clean Ganga (NMCG) who have programmes like Swachh Bharat Mission (SBM – Urban 2.0)¹⁶, AMRUT 2.0¹⁷, Swachh Bharat Mission (Grameen)¹⁸ and River Cleaning, appropriately monitor compliance of waste management norms by concerned States/UTs and take remedial action on their part. Central Funding and State budgetary provisions need to be adequately allocated and apportioned keeping in view of environment compensation which is based on the restoration work estimate. While granting/disbursing funds to States/UTs, execution mechanism for centralized tendering at the State level to overcome delays at each city/town level may be considered. This may facilitate timely utilization of funds. MoEF&CC and CPCB may continue monitoring as per MSW Rules and the Water Act. MoUD and NMCG may also note the gaps reported by the States and UTs in solid and

¹⁶ <https://sbmurban.org/storage/app/media/pdf/swachh-bharat-2.pdf>

¹⁷ <https://mohua.gov.in/upload/uploadfiles/files/AMRUT-Operational-Guidelines.pdf>

¹⁸ https://jalshakti-ddws.gov.in/sites/default/files/sbm-ph-II-Guidelines_updated_0.pdf

liquid waste management. MoUD may further consider to render proper financial and technical support to States and UTs and also keeping in view of Environment Compensation (EC) either directed by the Tribunal or States having given statements to ringfenced EC at their own level.

Conclusion

62. **We hope in the light of interaction with the Chief Secretary, the State of Gujarat will take further measures in the matter by innovative approach and stringent monitoring, ensuring that 255 lakh MT of legacy waste as well as 1452 TPD of unprocessed waste and 1005 MLD liquid waste generation and treatment are bridged at the earliest, shortening the proposed timelines, adopting alternative/interim measures to the extent and wherever found viable.** Restoration plans need to be executed at the earliest simultaneously in all districts/cities/towns/ villages in a time bound manner without further delay with well laid monitoring mechanism at State and District level. District Magistrates must take ownership for monitoring of sewage and solid waste management and regularly providing report to Chief Secretary on monthly basis and overall compliance be ensured by Chief Secretary for which regular meetings be conducted.

63. As already observed, it will also be open to the State to plan raising of requisite funds from generators/contributors of waste or by any other legal means.

64. In our recent order dated 01.09.2022 in O.A No. 606/2018 (in respect of State of West Bengal), considering scale of compensation adopted in earlier cases including in OA No. 1002/2018, *Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors.*, compensation was determined @ Rs. 2 Crore per MLD for untreated liquid waste and in OA No. 286/2022

for unprocessed legacy waste compensation was fixed @ Rs. 300 per MT to be utilized for restoration measures, including preventing discharge of untreated sewage and solid waste treatment/processing facilities, as per appropriate mechanism for planning and execution that may be evolved, within three months. Operative part of the said order is reproduced below:-

“Conclusion about quantum of compensation

49. *In the light of above and considering damage to the recipient environment, we hold that apart from ensuring compliance at the earliest, compensation has to be paid by the State for past violations. The amount of compensation is fixed @Rs. 2 crore per MLD (at which rate compensation has been levied against Noida and DJB in OA No. 1002/2018, Abhisht Kusum Gupta vs. State of Uttar Pradesh & Ors, referred to in para 48 above for detailed reasons mentioned therein). As noted earlier, **gap in generation and treatment in West Bengal, as per data furnished is 1490 MLD. Thus, under this head, liability of the State of West Bengal is to pay compensation of Rs. 2980 crores, rounded off to Rs. 3000 crore in view of continuing damage. For failure to process solid waste, unprocessed legacy waste being 1.20 crore MT, compensation is assessed @ Rs. 300 per MT (at which approximate rate compensation has been awarded in OA No. 286/2022 against Municipal Corporation, Ludhiana, for the reasons given therein). This works out to Rs. 366 crore but adding 134 crore for continuing addition of unprocessed waste @ 13469.19 TPD, the total amount is rounded off to Rs. 500 crore. Thus, final amount of compensation under the two heads (solid and liquid waste) is assessed at Rs. 3500 crores which may be deposited by the State of West Bengal in a separate ring-fenced account within two months, to be operated as per directions of the Chief Secretary and utilised for restoration measures, including preventing discharge of untreated sewage and solid waste treatment/processing facilities, as per appropriate mechanism for planning and execution that may be evolved, within three months. If violations continue, liability to pay additional compensation may have to be considered. Compliance will be the responsibility of the Chief Secretary.”***

Reasons for not levying compensation on State of Gujarat

65. The Chief Secretary, Gujarat fairly accepts that there is gap of about 1005 MLD in sewage generation and treatment and legacy waste of 255 Lakh MT as well as 1452 TPD of unprocessed waste. In normal circumstances, the State would be liable to pay compensation of about Rs.

2100 crore at the scale of compensation fixed in other States. However, it is stated that amount of Rs. 2100 crores will be credited to a separate ring-fenced account within a month for the purpose to utilize for sewage and solid waste management under the supervision of Chief Secretary.

66. In view of the above, we refrain from levying EC on the State of Gujarat for time being. Ring-fenced account may be kept as 'non-lapsable' fund.

Directions for further follow up

67. In view of above, we sum up directions as under:

- i. Amount of Rs. 2100 crores be credited to a separate ring-fenced account within a month for utilizing for sewage and solid waste management under the supervision of Chief Secretary (paras 26 & 65).
- ii. The State may work out strategy to utilise rejects (inerts, RDF, etc.) arising out of biomining of legacy waste for proper channelization within one month (para 33).
- iii. Community compost pits (15725) be properly maintained, ensuring that compost produced is fully utilized (para 31).
- iv. CPCB in consultation with some of the States PCBs and Municipal Corporations may work out environmentally safe methods/options for their use within one month (para 35).
- v. Plastic waste and construction and demolition waste processing plants be set up ensuring that bio-medical, hazardous and E-waste are not co-mingled and treated with solid waste (para 36).
- vi. Immediate efforts be made for ensuring connectivity with STPs having treatment capacity of 4754 MLD (para 37).
- vii. The issues relating to compliance of STPs with standards and utilization of treated sewage be monitored and looked into by centralised mechanism at State level (para 46).
- viii. Chief Secretary may immediately set up orientation programme on regular basis at appropriate institutional level to deal with environmental issues (para 53).
- ix. MoUD may review utilisation of capacities of STPs established and utilisation of treated sewage (para 60).

- x. MoUD with MoEF&CC and CPCB may look into applicability of standards for STPs based on mode of disposal (para 60).
- xi. MoUD with Ministry of Agriculture and Ministry of Chemical and Fertilizer may maximize use of treated sewage and the compost and reviewing subsidy policy (para 60).
- xii. Ministry of Power and Ministry of Non-Renewal Energy (MNRE) may hasten the process of setting up of waste to energy projects and lay down rolling plan (para 60).
- xiii. CPCB and MoEF&CC may specifically issue directions on management of rejects out of biomining processes of legacy waste to avoid haphazard disposal/dumping (para 60).
- xiv. Chief Secretary may set up a centralized single window mechanism for planning, capacity building and monitoring of waste management at the State level (para 56) and;
- xv. State level Monitoring Mechanism be set up under Chief Secretary and District level Monitoring Mechanism under District Magistrate for monthly review starting from 1st March, 2023 (para 62).

68. Further, six monthly progress reports with verifiable progress may be filed by the Chief Secretary with a copy to the Registrar General of this Tribunal by e-mail at judicial-ngt@gov.in preferably in the form of searchable PDF/OCR Support PDF and not in the form of Image PDF. Copies thereof may be furnished to the NMCG, MoUD, CPHEEO (MoUD) and CPCB and also be placed on the website of the State Government.

A copy of this order be forwarded for compliance to the Chief Secretary, Gujarat, Secretary, Ministry of Housing and Urban Development, MoEF&CC, GoI, Ministry of Power and Ministry of Non-Renewal Energy, National Mission for Clean Ganga, CPCB, Secretary, Ministry of Chemicals and Fertilizers, GoI, Ministry of Agriculture, GoI, CPHEEO of MoUD, GoI by e-mail.

On report being filed with the Registrar General of this Tribunal, the same may be placed before the Bench, if found necessary.

If any grievance survives, it will be open to the aggrieved parties to take further remedies as per law.

Adarsh Kumar Goel, CP

Sudhir Agarwal, JM

Prof. A. Senthil Vel, EM

February 23, 2023
Original Application No. 606/2018

Annexure A-2

GOVERNMENT OF GUJARAT



NATIONAL GREEN TRIBUNAL

ORIGINAL APPLICATION NO. 606 /2018

COMPLIANCE OF MUNICIPAL SOLID
WASTE MANAGEMENT RULES, 2016 AND
OTHER ENVIRONMENTAL ISSUES

Subject	Compliance to NGT Order (Liquid Waste Management)
Reference	NGT Order (O.A. 606/2018) (I.A. No. 163/2021)

A. Compliance to observations of Hon'ble NGT on hearing dated 21, March 2024:

Sr. No.	Observation Dated 21-03-2024	Compliance
1.	Sewage generation of 3,307 MLD is estimated for eight Municipal Corporation and to treat the sewage, Sewage Treatment Plants (STPs) of 4,324 MLD capacities have been installed. However, there is a gap of 46 MLD in three Municipal Corporations namely, Jamnagar (10 MLD), Junagadh (24 MLD) and Gandhinagar (12 MLD). Performance of STPs may not be effective due to inadequacy of sewage fed in STPs.	Among the eight municipal corporations, only Jamnagar and Junagadh currently have treatment gaps of 10 MLD and 21 MLD, respectively. Both Municipal Corporations have ongoing projects: Jamnagar is constructing a 20 MLD plant, scheduled for completion in June 2025, while Junagadh is building a 30 MLD plant, which will be completed by January 2025.
2.	In case of Municipalities (157 Nagarpalika) falling under 6 Regional Commissioners of Municipalities (RCM) Zones, sewage generation is 1099 MLD of which, only 595 MLD is treated against the total installed treatment capacity of 1113 MLD with a gap of 504 MLD.	Currently, the installed sewage treatment capacity in Nagar Palikas has increased to 1,249 MLD, with 707 MLD of sewage being treated. This achievement has reduced the treatment gap to 392 MLD, a significant improvement from the 808 MLD gap identified in the NGT order in March 2023. To further bridge this gap, plans are underway to develop additional sewage treatment plants across the six zones, targeting a total capacity of 497 MLD.
3.	There are 192 STPs in existence with installed capacity of 5434 MLD treating 3857 MLD but, the performance results of these STPs have not been disclosed with reference to compliance of fecal coliform standards as directed by the Tribunal on 30.04.2019 in O.A. No.	There are currently 199 operational Sewage Treatment Plants (STPs) with an installed capacity of 5,692 MLD, treating 4,107 MLD of sewage. These STPs undergo regular monitoring to ensure they meet the fecal coliform standards set by the Tribunal's order dated April 30, 2019, in O.A. No. 1069/2018. The attached reports in Annexure 1 provide

Sr. No.	Observation Dated 21-03-2024	Compliance
	1069/2018. The next report must include this information.	examples of the ongoing compliance efforts across various STPs. In addition, several municipal corporations have taken proactive steps to upgrade their STPs to meet the National Green Tribunal (NGT) standards (as directed by the Tribunal on 30.04.2019 in O.A. No. 1069/2018). Details of these upgrade projects are provided in Annexure 2 .
4.	We find that 41 STPs with installed capacity of 912 MLD by December, 2025 would be completed. Efforts should be made to squeeze the timelines as disposal of sewage without treatment is violation of Water (Prevention and Control of Pollution) Act, 1974.	The progress of under construction and planned STPs is being closely monitored at various levels, including through monthly reviews chaired by the Hon'ble Chief Secretary and weekly review chaired by Principal Secretary of Urban Development and Urban Housing Department (UD&UHD). To further streamline the construction and commissioning processes of these projects, along with ongoing underground drainage projects, Gujarat Urban Development Company (GUDC) has appointed Project Management Consultants (PMC). The primary responsibility of these consultants is to monitor the progress of all projects rigorously and ensure that they adhere to the established timelines.
5.	We find that still 17 lakhs households are to be connected with sewerage system. This should be done on priority basis to ensure that capacities of STPs are fully utilized.	Since March 2024, 4,77,980 new sewer connections have been made operational. Remaining 12.5 lakh connections have been planned under various schemes. These include centrally and state sponsored schemes. Around 5.8 Lakhs connections are planned under AMRUT 2.0 scheme, 2.07 Lakhs under Janbhagidari scheme and remaining 3.6 Lakhs under SJMMSVY.

Sr. No.	Observation Dated 21-03-2024	Compliance
6.	Along with the utilization of treated sewage, reutilization of treated sewage should also be taken up simultaneously.	Currently, 1,206 MLD of treated wastewater is being reused at both municipal corporations and Nagarpalika. As more and more STPs are being made functional concentrated efforts are being made for identification of potential projects to increase the amount of wastewater reuse and identify potential projects at the Nagarpalika level

ANNEXURE - I																	ANNEXURE - II																		
155 MLD CAPACITY SEWAGE TREATMENT PLANT AT PIRANA SITE OF AMC																	155 MLD CAPACITY SEWAGE TREATMENT PLANT AT PIRANA SITE OF AMC																		
LABORATORY ANALYSIS OF MONTH APRIL - 2024																	LABORATORY ANALYSIS OF MONTH APRIL - 2024																		
DATE	INLET SAMPLE								OUTLET SAMPLE								MLSS - SBR BASIN SAMPLE								SVI - SBR BASIN SAMPLE										
	PH	PH	BOD (mg/l)	COD	TSS	TP	TN	FECAL COLIF ORM	O&G	PH	PH	BOD	COD	TSS	TP	TN	FECAL COLIF ORM	O&G	SBR-1	SBR-2	SBR-3	SBR-4	SBR-5	SBR-6	SBR-7	SBR-8	SBR-1	SBR-2	SBR-3	SBR-4	SBR-5	SBR-6	SBR-7	SBR-8	
	S-1	S-2	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	S-1	S-2	mg/l	mg/l	mg/l	mg/l	mg/l	MPN	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l	mg/l							
01-May-24	2.00	6.00	136	388	250	5.85	54	10*6	BDL	6.00	6.80	9	38	10	1.06	6	≤100	BDL	1660	1470	2255	1780	1380	1860	1075	1295	60	50	70	60	50	60	50	50	
02-May-24	4.50	5.60	122	392	280	6.11	55		BDL	6.20	7.00	8	39	10.5	1.15	6		BDL	1815	2370	1905	1625	1545	1405	1255	1780	60	70	60	50	50	50	40	60	
03-May-24	5.10	6.20	138	329	160	5.72	49		BDL	6.80	7.10	7	30	3.0	1.02	5		BDL	1105	1860	1635	2415	1630	3140	1920	3025	50	60	50	90	80	110	60	100	
04-May-24	5.40	6.50	150	344	275	5.96	43		BDL	6.60	7.00	10	34	8.5	1.11	4		BDL	2405	2305	2475	2365	1770	2620	1955	3620	90	90	90	90	80	90	80	160	
05-May-24	5.90	6.30	158	316	230	5.65	51		BDL	6.70	7.00	10.5	32	6.0	1.3	6		BDL	2210	2575	2680	2350	2020	2720	2030	3345	80	80	90	80	90	80	80	130	
06-May-24	6.40	6.70	160	248	140	5.45	42		BDL	6.90	7.20	5	28	4.5	1.23	5		BDL	2005	2660	2715	2335	2210	2620	2150	3080	80	90	90	80	90	100	80	100	
07-May-24	6.80	6.90	148	320	190	5.64	49		BDL	7.30	7.50	7	31	6.0	1.25	5		BDL	2265	2510	2695	2720	2340	2850	2890	3355	80	80	90	90	100	120	90	130	
08-May-24	3.40	6.10	134	348	185	5.53	42	10*6	BDL	6.60	6.90	6	32	8.5	1.11	4	≤100	BDL	2535	2675	2640	2940	2550	2270	3635	3665	80	90	90	90	110	160	160		
09-May-24	7.10	7.20	54	265	145	5.22	44		BDL	7.40	7.50	4	34	10.0	1.00	5		BDL	2505	2870	2765	2945	2710	2620	2665	3175	80	90	85	90	85	110	100	110	
10-May-24	7.10	7.00	96	328	220	5.02	42		BDL	6.60	7.00	5	50	10.0	0.98	6		BDL	2640	2985	2510	3185	2690	2520	2540	4010	85	90	80	110	90	100	80	200	
11-May-24	6.10	6.40	112	275	205	5.18	45		BDL	7.20	7.50	7	32	9.0	1.08	6		BDL	2260	2535	2740	2925	2850	2620	2285	3515	80	80	90	90	100	100	80	150	
12-May-24	5.50	5.80	124	306	235	5.05	47		BDL	7.00	7.40	8	38	9.5	0.99	6		BDL	1875	2105	3075	2800	3020	2800	2165	3035	70	80	100	90	100	110	80	100	
13-May-24	6.00	6.30	148	296	265	4.96	38		BDL	6.90	7.00	10	40	10.0	0.98	4		BDL	1485	1730	3220	2785	3010	3240	2045	2590	70	70	120	90	90	120	80	80	
14-May-24	4.00	5.70	108	268	175	5.09	39		BDL	7.00	7.20	7	32	8.5	0.97	4		BDL	1410	1850	3500	2980	3420	3250	2420	2515	70	70	150	90	90	110	90	90	
15-May-24	6.30	6.70	110	272	105	4.23	52	10*6	BDL	6.80	7.00	6	34	10.0	0.92	5	≤100	BDL	1545	2030	3065	3580	3675	3595	2770	2325	70	80	100	150	160	150	90	80	
16-May-24	5.60	6.00	112	296	240	4.35	50		BDL	6.40	6.90	7	32	10.5	0.98	4		BDL	1710	2300	3315	2875	1560	2310	2070	2570	70	80	130	90	70	80	80	90	
17-May-24	5.80	6.30	84	228	305	4.10	47		BDL	6.40	7.00	3	34	9.0	0.72	4		BDL	1520	1890	3075	3430	1375	1815	2760	2705	70	70	100	140	60	70	90	90	
18-May-24	3.20	5.50	152	224	85	3.57	37		BDL	6.30	6.70	6	36	3.0	0.59	3		BDL	1540	2150	3355	2845	1595	1960	2375	2745	70	80	130	80	70	70	80	90	
19-May-24	3.70	4.50	144	279	298	3.90	59		BDL	6.80	7.20	7	32	9.0	0.72	6		BDL	1815	2075	3460	3125	1680	2030	3045	3255	70	70	140	110	70	80	100	120	
20-May-24	6.00	6.30	152	268	310	3.98	62		BDL	7.10	7.20	8	30	10.5	0.67	7		BDL	2155	2160	3555	3400	1760	2185	3670	3580	80	80	150	140	70	80	160	150	
21-May-24	4.20	6.90	162	308	190	4.06	58		BDL	7.70	7.60	10	44	9.5	0.82	8		BDL	2035	1775	3730	3865	2315	2990	2080	3105	80	70	170	180	80	90	80	110	
22-May-24	6.90	7.10	94	312	115	3.46	48		BDL	7.60	7.80	9	48	7.0	0.72	6		BDL	1960	2030	2805	2950	1650	2800	2425	3615	70	80	90	90	70	90	80	160	
23-May-24	6.30	6.90	84	348	220	3.75	54		BDL	7.50	7.70	7	50	10	0.67	7	≤100	BDL	1670	1640	3530	2680	2380	2445	2260	2940	70	70	150	90	80	80	80	90	
24-May-24	3.50	6.70	128	372	150	3.88	46		BDL	7.40	7.70	3	54	9.5	0.72	5		BDL	2285	2280	3700	3615	1555	224	3395	3695	80	80	170	160	70	80	130	160	
25-May-24	6.10	6.70	108	256	240	3.67	42		BDL	7.30	7.60	6	40	10.0	0.55	6		BDL	1690	2275	2435	2630	2365	2840	3220	3420	70	80	80	90	80	90	120	110	
26-May-24	6.00	6.30	120	248	215	3.54	47		BDL	7.40	7.60	7	32	7.0	0.44	5		BDL	2470	2365	2735	3140	2585	2955	3550	3610	80	80	90	110	90	90	150	160	
27-May-24	4.90	7.00	96	256	295	3.72	49		BDL	7.80	8.00	5	28	9.0	0.58	6		BDL	3010	2205	3180	3590	2840	3175	3945	3855	100	70	110	150	90	110	190	180	
28-May-24	3.20	6.80	114	444	195	3.61	52		BDL	7.40	7.20	5	28	7.0	0.58	6		BDL	3255	2325	3945	2465	1930	2645	3020	3230	120	80	190	80	70	90	100	120	
29-May-24	7.00	7.1	66	288	100	3.21	57		BDL	7.20	7.30	6	22	0.5	0.49	7		BDL	2435	2530	3270	3670	2380	2950	2650	3540	80	90	120	160	80	90	100	150	
30-May-24	3.80	6.9	150	244	200	3.49	52		BDL	7.50	7.60	8.00	46.00	9.00	0.54	5.00		BDL	2600	2310	3135	3590	3320	2615	2745	3875	90	80	130	150	130	90	90	180	
31-May-24	6.70	7.0	145	348	175	3.68	45		BDL	7.20	7.50	7.00	32.00	10.50	0.70	4.00		BDL	1770	1850	3550	3265	3370	3455	2575	3740	70	70	150	120	130	140	90	170	
AVERAGE	5.1	6.4	122.1	302.2	207.3	4.6	48.4			7.0	7.3	6.9	36.0	8.4	0.9	5.4		2062.3	2228.0	2970.0	2920.0	2270.3	2535.6	2567.0	3133.7	76.8	77.7	110.2	105.3	84.0	93.3	95.7	122.0		
Minimum	2.0	4.5	54.0	224.0	85.0	3.2	37.0			6.0	6.7	3.0	22.0	3.0	0.4	3.0		1105.0	1470.0	1635.0	1625.0	1375.0	224.0	1075.0	1295.0	50.0	50.0	50.0	50.0	50.0	40.0	50.0			
Maximum	7.1	7.2	162.0	444.0	310.0	6.1	62.0			7.8	8.0	10.5	54.0	10.5	1.3	8.0		3255.0	2985.0	3945.0	3865.0	3675.0	3595.0	3945.0	4010.0	120.0	90.0	190.0	180.0	160.0	150.0	190.0			



01/05/2024 TO 31/05/2024

MONTHLY LAB REPORT OF 70 MLD SEWAGE TREATMENT PLANT - JAMNAGAR (MAY- 2024)

SR.	PARAMETER	pH		COD (mg/l)		BOD (mg/l)		TSS (mg/l)		O&G (mg/l)		Total kjeldahl nitrogen (mg/l)		Ammonium Nitrogen (mg/l)		Total Phosphorus (mg/l)		FECAL COLIFORM (MPN/100ml)		TOTAL COLIFORM (MPN/100ml)		REMARKS
		INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	
1	01/05/2024	7.17	7.64	280	48	105.4	9.2	481	17	0.44	0	32.2	4.2	19.88	3.64	0.99	0.47	240	17	350	22	
2	02/05/2024	7.26	7.57	296	48	109.6	9.6	488	19	0.39	0	36.4	5.6	19.04	3.08	1.04	0.43	350	22	540	27	
3	03/05/2024	7.17	7.62	280	48	105.4	9.2	481	17	0.44	0	37.8	7	18.2	3.64	0.88	0.49	180	11	220	14	
4	04/05/2024	7.18	7.84	304	40	115.8	8.7	493	18	0.59	0	36.4	7	18.76	3.36	0.94	0.35	170	22	220	26	
5	05/05/2024	7.43	7.79	296	40	107.3	8.9	481	18	0.64	0	33.6	4.2	20.44	3.92	0.95	0.56	180	11	240	17	
6	06/05/2024	7.29	7.64	280	48	105.2	9.5	489	19	0.58	0	35	4.2	19.88	3.64	1.09	0.59	180	14	540	26	
7	07/05/2024	7.28	7.68	312	40	107.4	9.4	478	18	0.49	0	36.4	7	20.18	3.92	1.08	0.53	350	21	540	26	
8	08/05/2024	7.38	7.74	296	40	111.3	8.9	491	19	0.53	0	37.8	7	18.2	3.64	0.99	0.52	220	21	350	22	
9	09/05/2024	7.30	7.59	296	40	105.2	9.6	486	17	0.41	0	35	4.2	19.88	3.64	0.93	0.36	170	13	280	17	
10	10/05/2024	7.28	7.67	304	40	107.4	9.4	478	18	0.49	0	36.4	7	19.88	3.08	1.08	0.53	350	21	540	26	
11	11/05/2024	7.32	7.74	280	40	103.7	8.9	487	19	0.39	0	25.2	2.8	18.48	3.36	1.08	0.65	220	14	180	17	
12	12/05/2024	7.19	7.55	312	48	107.4	8.6	482	17	0.39	0	26.6	4.2	17.08	3.64	1.04	0.46	140	26	170	27	
13	13/05/2024	7.39	7.76	304	40	105.4	9.4	493	18	0.42	0	36.4	5.6	20.16	3.08	0.99	0.58	350	21	540	26	
14	14/05/2024	7.28	7.73	320	48	117.4	9.0	481	19	0.64	0	32.2	7	18.76	3.36	0.81	0.49	220	23	350	31	
15	15/05/2024	7.19	7.74	304	40	107.4	9.4	491	19	0.59	0	36.4	7	19.88	3.08	0.99	0.53	170	22	220	26	

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Deputy Executive Engineer
Underground Drainage Department
Jamnagar Municipal Corporation



MONTHLY LAB REPORT OF 70 MLD SEWAGE TREATMENT PLANT - JAMNAGAR (MAY- 2024)

SR.	PARAMETER	pH		COD (mg/l)		BOD (mg/l)		TSS (mg/l)		O&G (mg/l)		Total kjeldhal nitrogen (mg/l)		Ammonium Nitrogen (mg/l)		Total Phosphorus (mg/l)		FECAL COLIFORM (MPN/100ml)		TOTAL COLIFORM (MPN/100ml)		REMARKS	
		INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET		
	BID VALUE	6.5-8.5	6.5-8.5	480	<250	250	<20	400	<30	10-15	<10	55	<10	30	<50	10	<5	10 ⁶	<1000	10 ⁷	<1000		
	Date	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET		
16	16/05/2024	7.20	7.68	304	40	123.2	9.6	482	18	0.47	0	37.8	7	20.44	3.36	0.95	0.41	280	13	350	21		
17	17/05/2024	7.29	7.59	312	48	119.7	9.3	492	19	0.63	0	37.8	7	20.16	3.36	1.07	0.38	280	22	350	26		
18	18/05/2024	7.24	7.57	296	48	109.6	9.6	488	19	0.39	0	33.6	4.2	19.32	3.64	0.92	0.38	180	14	220	17		
19	19/05/2024	7.20	7.68	320	48	117.4	9.0	486	19	0.64	0	32.2	7	18.76	3.36	0.85	0.48	220	23	350	31		
20	20/05/2024	7.18	7.59	296	40	103.3	8.9	479	19	0.56	0	29.4	5.6	16.8	3.92	0.92	0.35	350	22	540	27		
21	21/05/2024	7.28	7.66	312	48	121.2	8.8	472	17	0.31	0	36.4	5.6	19.04	3.08	1.13	0.49	350	14	540	17		
22	22/05/2024	7.49	7.77	320	48	117.4	9.0	481	18	0.65	0	32.2	7	18.76	3.36	0.81	0.48	220	23	350	31		
23	23/05/2024	7.34	7.71	328	40	113.3	8.9	474	19	0.56	0	36.4	4.2	19.88	3.36	0.96	0.32	350	27	540	33		
24	24/05/2024	7.17	7.62	280	48	105.4	9.2	481	17	0.44	0	32.2	4.2	19.88	3.64	0.99	0.47	240	17	350	22		
25	25/05/2024	-	-	-	-	109.6	9.6	-	-	-	-	-	-	-	-	-	-	-	180	14	220	17	
26	26/05/2024	-	-	-	-	103.3	8.9	-	-	-	-	-	-	-	-	-	-	-	350	22	540	27	
27	27/05/2024	-	-	-	-	119.7	9.3	-	-	-	-	-	-	-	-	-	-	-	170	22	220	26	
28	28/05/2024	7.32	7.63	320	40	-	-	460	16	0.53	0	25.2	2.8	18.76	3.64	0.82	0.27	220	14	280	17		
29	29/05/2024	7.19	7.81	304	40	-	-	493	19	0.59	0	36.4	7	20.16	3.36	0.91	0.39	-	-	-	-		
30	30/05/2024	7.20	7.72	320	48	-	-	481	19	0.64	0	32.2	7	19.88	3.08	1.08	0.53	-	-	-	-		
31	31/05/2024	7.18	7.68	280	40	115.8	8.7	480	18	0.48	0	36.4	7	18.76	3.36	0.94	0.35	-	-	-	-		
	Monthly Average	7.26	7.68	302	43.71	111	9.16	483	18.18	0.51	0.00	34.00	5.70	19.26	3.45	0.97	0.46	246	18.79	362	23.64		

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(Handwritten Signature)

Deputy Executive Engineer
Underground Drainage Department
Jamnagar Municipal Corporation



01/06/2024 TO 30/06/2024

MONTHLY LAB REPORT OF 70 MLD SEWAGE TREATMENT PLANT - JAMNAGAR (JUNE- 2024)

SR.	PARAMETER	p ^H		COD (mg/l)		BOD (mg/l)		TSS (mg/l)		O&G (mg/l)		Total kjeldhal nitrogen (mg/l)		Ammonium Nitrogen (mg/l)		Total Phosphorus (mg/l)		FECAL COLIFORM (MPN/100ml)		TOTAL COLIFORM (MPN/100ml)		REMARKS	
		6.5-8.5	INLET	OUTLET	480	<250	250	<20	400	<30	10-15	<10	55	<10	30	<50	10	<1000	10 ⁶	10 ⁷	10 ⁷		<1000
	Date	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET		
1	01/06/2024	7.20	7.60	328	40	113.3	8.9	475	19	0.64	0	36.4	5.6	18.76	3.36	0.96	0.39	170	17	180	21		
2	02/06/2024	7.24	7.68	296	40	111.3	8.9	491	19	0.53	0	37.8	7	18.2	3.64	0.99	0.52	280	12	350	21		
3	03/06/2024	7.18	7.64	304	40	119.5	9.1	479	19	0.47	0	33.6	4.2	19.04	3.08	1.04	0.44	180	14	540	27		
4	04/06/2024	7.21	7.68	320	40	115.8	8.7	475	17	0.53	0	29.4	7	18.76	3.64	0.82	0.27	350	21	540	26		
5	05/06/2024	7.29	7.59	312	48	119.7	9.3	492	19	0.63	0	37.8	7	20.16	3.36	1.07	0.38	280	22	350	26		
6	06/06/2024	7.28	7.65	312	40	103.7	8.9	481	16	0.53	0	37.8	7	18.76	3.64	0.95	0.41	180	14	350	21		
7	07/06/2024	7.32	7.74	280	40	103.7	8.9	487	19	0.39	0	25.2	2.8	18.48	3.36	1.08	0.65	350	21	540	26		
8	08/06/2024	7.38	7.68	296	40	123.2	9.6	474	17	0.42	0	37.8	7	20.44	3.36	0.95	0.41	280	13	350	21		
9	09/06/2024	7.22	7.56	312	48	119.3	9.7	480	18	0.63	0	36.4	5.6	19.04	3.64	0.90	0.30	280	26	540	27		
10	10/06/2024	-	-	-	-	111.3	8.9	-	-	-	-	-	-	-	-	-	-	-	220	21	350	22	
11	11/06/2024	7.20	7.70	304	40	119.7	9.3	491	19	0.59	0	36.4	7	20.16	3.36	1.07	0.38	170	22	220	26		
12	12/06/2024	7.28	7.60	312	48	119.3	9.7	480	18	0.63	0	36.4	5.6	18.2	3.64	0.90	0.30	280	26	540	27		
13	13/06/2024	7.30	7.72	296	40	-	-	477	18	0.56	0	35	5.6	20.16	3.92	1.08	0.53	170	22	220	26		
14	14/06/2024	7.44	7.66	312	40	109.1	9.1	480	18	0.58	0	36.4	5.6	20.44	3.92	1.15	0.36	-	-	-	-		
15	15/06/2024	7.16	7.59	296	40	103.3	8.9	479	19	0.56	0	25.2	2.8	18.48	3.36	1.08	0.65	350	21	540	26		

1 OF 2

Deputy Executive Engineer
Underground Drainage Department
Jamnagar Municipal Corporation



MONTHLY LAB REPORT OF 70 MLD SEWAGE TREATMENT PLANT - JAMNAGAR (JUNE- 2024)

SR.	PARAMETER	Date	pH		COD (mg/l)	BOD (mg/l)		TSS (mg/l)	O&G (mg/l)		Total kjeldhal nitrogen (mg/l)	Ammonium Nitrogen (mg/l)		Total Phosphorus (mg/l)	FECAL COLIFORM (MPN/100ml)		TOTAL COLIFORM (MPN/100ml)		REMARKS			
			INLET	OUTLET		INLET	OUTLET		INLET	OUTLET		INLET	OUTLET		INLET	OUTLET	INLET	OUTLET		INLET	OUTLET	INLET
16	16/06/2024	7.32	7.64	320	40	109.4	9.6	480	18	0.39	0	33.6	4.2	19.04	3.08	1.04	0.44	180	14	540	27	
17	17/06/2024	7.38	7.84	304	40	115.8	8.7	493	18	0.65	0	36.4	7	18.76	3.36	0.95	0.39	170	22	220	26	
18	18/06/2024	7.38	7.60	320	40	109.4	9.6	480	18	0.39	0	33.6	4.2	19.04	3.08	1.04	0.44	180	14	540	27	
19	19/06/2024	7.49	7.80	280	48	105.4	9.2	481	17	0.44	0	32.2	4.2	19.88	3.64	0.99	0.47	240	17	350	22	
20	20/06/2024	7.17	7.63	296	40	111.3	8.9	491	19	0.53	0	35	5.6	20.16	3.92	0.96	0.45	180	12	220	14	
21	21/06/2024	7.49	7.84	320	48	117.4	9	492	18	0.64	0	32.2	7	18.76	3.36	0.91	0.49	220	23	350	31	
22	22/06/2024	7.38	7.69	320	40	121.5	9.1	482	18	0.56	0	36.4	5.6	19.04	3.08	1.04	0.43	350	22	540	27	
23	23/06/2024	7.43	7.79	312	48	105.4	9.4	489	19	0.49	0	36.4	5.6	20.16	3.08	0.92	0.38	240	26	540	27	
24	24/06/2024	7.35	7.68	296	40	119.5	9.1	482	17	0.42	0	25.2	2.8	18.48	3.36	0.82	0.27	350	21	540	26	
25	25/06/2024	7.17	7.60	280	48	105.4	9.2	481	17	0.44	0	37.8	7	18.2	3.64	0.88	0.49	180	11	220	14	
26	26/06/2024	7.31	7.69	304	40	119.7	9.3	493	18	0.59	0	36.4	7	20.16	3.36	0.93	0.49	170	22	220	26	
27	27/06/2024	7.34	7.63	320	40	109.4	9.6	480	18	0.39	0	32.2	7	18.76	3.36	0.81	0.49	220	23	350	31	
28	28/06/2024	7.40	7.62	304	40	119.5	9.1	480	19	0.47	0	25.2	2.8	18.76	3.64	1.08	0.65	180	14	350	21	
29	29/06/2024	7.39	7.72	296	40	103.3	8.9	479	19	0.56	0	36.4	5.6	20.44	3.92	1.15	0.36	240	26	540	27	
30	30/06/2024	7.17	7.62	280	48	105.4	9.2	481	17	0.44	0	32.2	4.2	19.88	3.64	0.99	0.47	240	17	350	22	
Monthly Average			7.31	7.67	304.6	42.21	112.8	9.17	482.9	18.10	0.52	0.00	33.89	5.50	19.26	3.48	0.98	0.44	237.2	19.17	395.9	24.52

2 OF 2

Deputy Executive Engineer
Underground Drainage Department
Jamnagar Municipal Corporation



01/07/2024 TO 30/07/2024

MONTHLY LAB REPORT OF 70 MLD SEWAGE TREATMENT PLANT - JAMNAGAR (JULY- 2024)

SR.	PARAMETER	pH		COD (mg/l)		BOD (mg/l)		TSS (mg/l)		O&G (mg/l)		Total kjeldahl nitrogen (mg/l)		Ammonium Nitrogen (mg/l)		Total Phosphorus (mg/l)		FECAL COLIFORM (MPN/100ml)		TOTAL COLIFORM (MPN/100ml)		REMARKS
		6.5-8.5	6.5-8.5	480 mg/l	<250 mg/l	250 mg/l	<20 mg/l	400 mg/l	<30 mg/l	10-15 mg/l	<10 mg/l	55 mg/l	<10 mg/l	30 mg/l	<50 mg/l	10 mg/l	<1000 MPN/100ml	10 ⁵ MPN/100ml	10 ⁷ MPN/100ml	<1000 MPN/100ml		
	Date	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	
1	01/07/2024	7.17	7.68	272	40	119.5	9.4	472	19	0.66	0	35	5.6	20.16	3.92	0.96	0.45	180	12	220	14	
2	02/07/2024	7.28	7.67	304	40	123.2	9.6	474	17	0.42	0	25.2	2.8	18.48	3.36	0.82	0.27	350	21	540	26	
3	03/07/2024	7.40	7.70	296	40	111.3	8.9	491	19	0.53	0	37.8	7	18.2	3.64	0.99	0.52	220	21	350	22	
4	04/07/2024	7.39	7.73	320	48	117.4	9	481	19	0.64	0	32.2	7	18.76	3.36	0.81	0.49	220	23	350	31	
5	05/07/2024	7.18	7.68	304	40	107.4	9.4	491	19	0.59	0	36.4	7	19.88	3.08	0.99	0.53	170	22	220	26	
6	06/07/2024	7.40	7.73	296	40	111.3	8.9	491	19	0.53	0	25.2	2.8	18.76	3.64	0.95	0.41	280	12	350	21	
7	07/07/2024	7.16	7.83	304	40	115.8	8.7	493	18	0.59	0	36.4	7	18.76	3.36	0.94	0.35	170	22	220	26	
8	08/07/2024	7.28	7.67	320	40	109.4	9.6	480	18	0.39	0	33.6	4.2	19.04	3.08	1.04	0.44	180	14	540	27	
9	09/07/2024	7.22	7.61	280	48	113.1	9.5	477	18	0.47	0	35	4.2	18.2	3.08	0.96	0.44	170	22	220	26	
10	10/07/2024	7.48	7.86	320	48	117.4	9	495	19	0.64	0	32.2	7	18.76	3.36	0.91	0.48	220	23	350	31	
11	11/07/2024	7.39	7.68	296	40	103.3	8.9	478	19	0.56	0	35	5.6	20.16	3.92	0.99	0.46	220	11	280	14	
12	12/07/2024	7.43	7.61	304	40	119.5	9.1	480	19	0.47	0	37.8	7	18.2	3.64	0.95	0.41	180	14	350	21	
13	13/07/2024	7.25	7.59	296	48	109.6	9.6	488	19	0.39	0	36.4	5.6	19.04	3.08	1.04	0.43	350	22	540	27	
14	14/07/2024	7.31	7.71	272	40	107.3	8.9	475	19	0.64	0	33.6	5.6	18.2	3.64	0.92	0.34	180	14	280	17	
15	15/07/2024	7.31	7.69	288	48	109.5	9.5	493	17	0.35	0	37.8	5.6	19.32	3.64	0.99	0.44	220	11	280	14	

1 OF 2

Deputy Executive Engineer
Underground Drainage Department
Jamnagar Municipal Corporation



MONTHLY LAB REPORT OF 70 MLD SEWAGE TREATMENT PLANT - JAMNAGAR (JULY- 2024)

SR.	PARAMETER	p ^H		COD (mg/l)		BOD (mg/l)		TSS (mg/l)		O&G (mg/l)		Total kjeldhal nitrogen (mg/l)		Ammonium Nitrogen (mg/l)		Phosphorus (mg/l)		FECAL COLIFORM (MPN/100ml)		TOTAL COLIFORM (MPN/100ml)		REMARKS
		6.5-8.5	INLET	OUTLET	480 mg/l	<250 mg/l	<20 mg/l	250 mg/l	<30 mg/l	400 mg/l	10-15 mg/l	<10 mg/l	55 mg/l	<10 mg/l	30 mg/l	<50 mg/l	10 mg/l	<1000 MPN/100ml	10 ⁵ MPN/100ml	<1000 MPN/100ml	10 ⁷ MPN/100ml	
	Date	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	INLET	OUTLET	
16	16/07/2024	7.29	7.68	320	40	121.5	9.1	482	18	0.56	0	36.4	5.6	19.04	3.08	1.04	0.43	350	22	540	27	
17	17/07/2024	7.21	7.67	296	40	103.3	8.9	479	19	0.56	0	29.4	5.6	16.8	3.92	0.92	0.35	350	22	540	27	
18	18/07/2024	7.17	7.62	280	48	105.4	9.2	481	17	0.44	0	32.2	4.2	19.88	3.64	0.99	0.47	240	17	350	22	
19	19/07/2024	7.31	7.58	304	40	107.4	9.4	478	18	0.58	0	37.8	4.2	20.16	3.92	1.08	0.53	350	21	540	26	
20	20/07/2024	7.26	7.59	296	48	109.6	9.6	488	19	0.39	0	33.6	4.2	19.32	3.64	0.92	0.38	180	14	220	17	
21	21/07/2024	7.31	7.63	304	40	107.4	9.4	478	18	0.49	0	36.4	7	19.88	3.08	1.08	0.53	350	21	540	26	
22	22/07/2024	7.39	7.74	320	48	117.4	9.0	481	19	0.64	0	32.2	7	18.76	3.36	0.81	0.49	220	23	350	31	
23	23/07/2024	7.17	7.59	296	40	103.3	8.9	479	19	0.56	0	29.4	5.6	16.8	3.92	0.92	0.35	350	22	540	27	
24	24/07/2024	7.49	7.64	296	40	111.3	8.9	491	19	0.53	0	37.8	7	18.2	3.64	0.99	0.52	220	21	350	22	
25	25/07/2024	7.39	7.73	320	48	117.4	9.0	486	19	0.64	0	32.2	7	18.76	3.36	0.85	0.48	220	23	350	31	
26	26/07/2024	7.21	7.64	320	40	115.8	8.7	475	17	0.53	0	29.4	7	18.76	3.64	0.82	0.29	350	21	540	26	
27	27/07/2024	7.44	7.74	296	40	111.3	8.9	491	19	0.53	0	37.8	7	18.2	3.64	0.99	0.52	220	21	350	22	
28	28/07/2024	7.49	7.84	320	48	117.4	9.0	492	18	0.64	0	32.2	7	18.76	3.36	0.91	0.49	220	23	350	31	
29	29/07/2024	7.16	7.59	296	40	103.3	8.9	479	19	0.56	0	29.4	5.6	16.8	3.92	0.92	0.35	350	22	540	27	
30	30/07/2024	7.38	7.75	296	40	119.5	9.1	478	18	0.42	0	33.6	5.6	18.2	3.64	0.92	0.34	180	14	280	17	
31	31/07/2024	7.34	7.71	328	40	113.3	8.9	474	19	0.56	0	36.4	4.2	19.88	3.36	0.96	0.32	350	27	540	33	
Monthly Average		7.31	7.68	301.9	42.58	112.2	9.13	482.9	18.48	0.53	0.00	33.74	5.74	18.78	3.51	0.95	0.43	251.9	19.29	387.4	24.35	

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[Signature]
 Deputy Executive Engineer
 Underground Drainage Department
 Jamnagar Municipal Corporation

Checklist for Monitoring of Performance of Sewage Treatment Plants (STPs)

Date:	01-08-2024	Name and Designation:	V.S. RATHORE - DEE GW55B	
RCM Zone	Junagadh	ULB/MC	Junagadh	

Sr No	Details	Observation	Units	Max Limits
1	Name/Location of STP	11.00 MLD STP, ZAHZARADA	1	
2	Year of Commissioning of STP	2023		
3	Ownership of STP (Please note that if the ownership of the STP is not with ULB, Please make sure to furnish all the data from relevant department)	G.W.5.5.B		
4	Design Capacity of STP	11	MLD	
4.1	Present Design Capacity	11	MLD	
4.2	Intermediate Design Capacity	11	MLD	
4.3	Ultimate Design Capacity	11	MLD	
5	Capacity Utilisation (Please Attach SCADA report (Last 3 months report) as supporting, If No then attach details of measurement with sign and stamp of concern authority)	6	MLD	
6	O&M Carried Out By (Agency or ULB)	P.Das Infrastructure PVT. LTD. Ahmedabad		
7	Plant Functioning Timings (no of hours)	24x7x365		
8	Type of STP - Please Mention Process of Sewage Treatment (i) ASP - Activated sludge process (ii) TF - Tricking filter (iii) AL - Aerated lagoon (iv) UASB - Upflow anaerobic sludge blanket (v) OP - Oxidation pond/waste stabilization ponds (vi) EA - Extended Aeration (vii) SBR – Sequential Batch Reactor (viii) MBR – Membrane Bio Reactor (ix) MBBR – Moving Bed Bio Reactor	SBR – Sequential Batch Reactor		
9	Influent Wastewater Characteristics	Observation	Test Dates	
i	pH	7.14	25-07-2024	
ii	BoD ₅ @ 20°C	140	25-07-2024	mg/L
iii	CoD	212	25-07-2024	mg/L
iv	TSS	110	25-07-2024	mg/L
v	TKN	15	25-07-2024	mg/L
vi	Total Phosphorous	2.8	25-07-2024	mg/L
vii	Total Coliform	>1600	25-07-2024	MPN/100 ml
10	Point of treated water Disposal	in nearest river		
11	Bypass arrangements at STP, if any	-		
12	Method of Sludge Disposal & Status	Centrifuge Machine		
13	Volume of Industrial Waste being mixed, if any	No		
14	Treated Sewage Quality @ Outlet of Chlorine Contact Tank	Observation	Test Dates	
i	pH	7.2	25-07-2024	6.5 to 9
ii	BoD ₅ @ 20°C	7	25-07-2024	mg/L Less than 10
iii	CoD	28	25-07-2024	mg/L Less than 50
iv	TSS	7	25-07-2024	mg/L Less than 10
v	NH ₄ -N	2.2	25-07-2024	mg/L Less than 5
vi	N-Total	7	25-07-2024	mg/L Less than 10
vii	Total Phosphorous (PO ₄ -P)	0.5	25-07-2024	mg/L Less than 2
viii	Total Coliform	26	25-07-2024	MPN/100 ml 20% of TC
ix	Fecal Coliform	95	25-07-2024	MPN/100 ml Less than 100
x	Total Residual Chlorine	0.6	25-07-2024	mg/L 1
15	Status of Maintenance of Log Book	Yes		
	- Updated Frequency	Daily		
	- Data availability Period	Last 2 month		

16	Availability of Lab Facility (if Yes, provide last 3 months results of testing of treated waste water performed duly signed by competent authorities)	Yes		
17	Name and Designation of the person carrying out lab tests	Sanjay Naghera-Lab chemist (B.sc chemistry)		
18	Provide lab testing data of last three months			
19	If lab facility is not available in-house, Provide last 3 months results of Testing of Treated Waste Water performed at any private lab/GERI			
20	If no testing is being conducted please provide justification for the same			
21	Any additional comments about the working of STP			

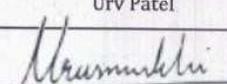
Report Prepared & draught
by P. Das Infra



ENVIRONMENTAL
CONSULTANTS & ENGINEERS

Amendment No: 01	TEST REPORT		Issue No: 04
Amendment Date: 09/08/2022			Issue Date: 10/12/2021
Doc. No: SWA/LAB/PROS/6			Page No: 1 of 1
Company Name	Jay Corporation - Shivam Builders, JV	Sample ID	WQ/405/23
Company Contact Number	7874886393	Condition of sample	Satisfactory
Address	71 first floor, Someshwar mall, Modhera Road, Mahsana, 384002	Sample Drawn By	Customer
		Quantity of Sample	1 L
		Sampling Method	APHA/IS MODE: (GRAB/ COMPOSITE)
Date & Time of Sampling	01-12-2023, 11:00	Date of Sample Received	01-12-2023
Analysis Starts Date	01-12-2023	Analysis Completion Date	06-12-2023
Sample Description	STP Inlet - Kanjari 3.3 MLD	Temperature/ Humidity during testing	Temp.- 25-29 deg C / Humidity <50 %
Report Code:	SWA/LAB/01/12/2023/WQ/405	Report Date:	06-12-2023

S.No.	PARAMETERS	UNIT	RESULTS	Regulatory Limit	Remarks	Testing Method/ Standard
1	pH @27 deg.	-	6.89			APHA 23rd Edition 4500 B: 2017
2	Total Suspended Solids	mg/l	142.68			APHA 23rd Edition 2540 D: 2017
3	Total Kjeldahl Nitrogen	mg/l	24.35			APHA 23rd Edition 4500 NH3 C/Norg B: 2017
4	Total Phosphorous	mg/l	4.35			APHA 23rd Edition 4500 P D: 2017
5	Chemical Oxygen Demand	mg/l	262.42			IS 3025 - Part 58 : 2006
6	Biochemical Oxygen Demand	mg/l	142.62			IS 3025 - Part 44 : 1993
7	Total Coliform *	MPN/100 ml	141.00			IS 1622 - Rea. 2019

Supervised By :	Pankaj Gothi	Authorized Signatory :	Urv Patel
Signature :		Signature :	
Designation :	Technical Manager/COO Lab	Designation :	Quality Manager/CEO

Notes:

- The report shall not be reproduced except in full without approval of the laboratory can provide assurance that parts of a report are not taken out of context.
- The results relate only to the items tested and sampled
- Additions to, deviations, or exclusions from the method- NA
- Results which were outsourced to external providers are marked with ** and results which are performed and not in NABL accreditation scope are marked with * in parameter column
- Disclaimer: When the information is supplied by the customer and can affect the validity of results
- Disclaimer: The report that the results apply to the sample as received in case of the sample has been supplied by customer
- Disclaimer: The laboratory shall be responsible for all the information provided in the report, except when information is provided by the customer
- Regulatory limit reference if any: - NA
- Opinion, Interpretation & Statement of Conformity if provided can be referred in the remarks section as "Permissible" "Below acceptable" or whatever is applicable as per the limit
- BDL : Below Detection Limit

----- End of the Test Report -----

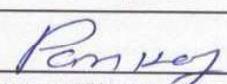
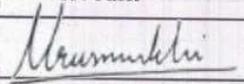


WASTEWATER TREATMENT | ENVIRONMENTAL TESTING | ENVIRO-LEGAL SERVICES

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Amendment No: 01	TEST REPORT		Issue No: 04
Amendment Date: 09/08/2022			Issue Date: 10/12/2021
Doc. No: SWA/LAB/PROS/6			Page No: 1 of 1
Company Name	Jay Corporation - Shivam Builders, JV	Sample ID	WQ/406/23
Company Contact Number	7874886393	Condition of sample	Satisfactory
Address	71 first floor, Someshwar mall, Modhera Road, Mahsana, 384002	Sample Drawn By	Customer
		Quantity of Sample	1 L
		Sampling Method	APHA/IS MODE: (GRAB/ COMPOSITE)
Date & Time of Sampling	01-12-2023, 11:00	Date of Sample Received	01-12-2023
Analysis Starts Date	01-12-2023	Analysis Completion Date	06-12-2023
Sample Description	STP Outlet - Kanjari 3.3 MLD	Temperature/ Humidity during testing	Temp. 25-29 deg C / Humidity <50 %
Report Code:	SWA/LAB/01/12/2023/WQ/406	Report Date:	06-12-2023

S.No.	PARAMETERS	UNIT	RESULTS	Regulatory Limit	Remarks	Testing Method/ Standard
1	pH @27 deg.	-	7.60	6.5-9	/	APHA 23rd Edition 4500 B: 2017
2	Total Suspended Solids	mg/l	6.80	<10		APHA 23rd Edition 2540 D: 2017
3	Ammonical Nitrogen	mg/l	1.24	<5		APHA 23rd Edition 4500 NH3 C: 2017
4	Residual Chlorine	mg/l	0.60	0.5-1		APHA 23rd Edition 4500 CL B: 2017
5	Chemical Oxygen Demand	mg/l	30.84	<50		IS 3025 - Part 58 : 2006
6	Total Nitrogen	mg/l	3.75	<10		APHA 23rd Edition 4500 NH3 C/Norg B/NO3 B/NO2 B: 2017
7	Total Phosphorous	mg/l	0.41	<1		APHA 23rd Edition 4500 CL B: 2017
8	Biochemical Oxygen Demand	mg/l	6.85	<10		IS 3025 - Part 44 : 1993
9	Faecal Coliform *	MPN/100 ml	BDL	<230		IS 1622 - Rea. 2019

Supervised By :	Pankaj Gothi	Authorized Signatory :	Urv Patel
Signature :		Signature :	
Designation :	Technical Manager/COO Lab	Designation :	Quality Manager/CEO

Notes:

- The report shall not be reproduced except in full without approval of the laboratory can provide assurance that parts of a report are not taken out of context.
- The results relate only to the items tested and sampled
- Additions to, deviations, or exclusions from the method- NA
- Results which were outsourced to external providers are marked with ** and results which are performed and not in NABL accreditation scope are marked with * in parameter column
- Disclaimer: When the information is supplied by the customer and can affect the validity of results
- Disclaimer: The report that the results apply to the sample as received in case of the sample has been supplied by customer
- Disclaimer: The laboratory shall be responsible for all the information provided in the report, except when information is provided by the customer
- Regulatory limit reference if any:- NA
- Opinion, Interpretation & Statement of Conformity if provided can be referred in the remarks section as "Permissible" "Below acceptable" or whatever is applicable as per the limit
- BDL : Below Detection Limit

----- End of the Test Report -----



WASTEWATER TREATMENT | ENVIRONMENTAL TESTING | ENVIRO-LEGAL SERVICES

 Registered Address: 7, Silver Plaza, Opp Vishal Tower, Prahladnagar, Ahmedabad 380015
 Mfg. Unit & Laboratory: Survey no. 645, Miroli, Kamod Circle, Ahmedabd-Dholka Road, Ahmedabad-382425
 +91 8828186901 / +91 7874886393  swa@swaenviro.com  www.swaenviro.com

**Checklist for Monitoring of Performance of Sewage Treatment Plants
(STPs)**

Date:	14/06/2024	Name and Designation:	CHIEF OFFICER, VIJAPUR NAGARPALIKA	
RCM Zone	GANDHINAGAR	ULB/MC	VIJAPUR NAGARPALIKA	
Sr No	Details	Observation	Units	Max Limits
1	Name/Location of STP	4.10 MLD STP Near chamunda lake vijapur	1	
2	Year of Commissioning of STP	3/31/2022		
3	Ownership of STP (Please note that if the ownership of the STP is not with ULB, Please make sure to furnish all the data from relevant department)			
4	Design Capacity of STP	4.1	MLD	
4.1	Present Design Capacity	4.1	MLD	
4.2	Intermediate Design Capacity	4.1	MLD	
4.3	Ultimate Design Capacity	4.1	MLD	
5	Capacity Utilisation (Please Attach SCADA report (Last 3 months report) as supporting, If No then attach details of measurement with sign and stamp of concern authority)	2	MLD	
6	O&M Carried Out By (Agency or ULB)	Krishna Construction Co Ahmedabad		
7	Plant Functioning Timings (no of hours)	20		
8	Type of STP - Please Mention Process of Sewage Treatment (i) ASP - Activated sludge process (ii) TF - Trickling filter (iii) AL - Aerated lagoon (iv) UASB - Upflow anaerobic sludge blanket (v) OP - Oxidation pond/waste stabilization ponds (vi) EA - Extended Aeration (vii) SBR - Sequential Batch Reactor (viii) MBR - Membrane Bio Reactor (ix) MBBR - Moving Bed Bio Reactor	SBR - Sequential Batch Reactor		
9	Influent Wastewater Characteristics	Observation	Test Dates	
i	pH	7.38	6/6/2024	
ii	BoD ₅ @ 20° C	105.2	6/6/2024	mg/L
iii	CoD	236.7	6/6/2024	mg/L
iv	TSS	421.9	6/6/2024	mg/L
v	TKN	18.96	6/6/2024	mg/L
vi	Total Phosphorous	10.23	6/6/2024	mg/L
vii	Total Coliform	10 ⁷ -10 ⁸	6/6/2024	MPN/100 ml
10	Point of treated water Disposal	irrigation		
11	Bypass arrangements at STP, if any	yes		
12	Method of Sludge Disposal & Status	centrifuge & used for agricultural land as manure		
13	Volume of Industrial Waste being mixed, if any	no		

14	Treated Sewage Quality @ Outlet of Chlorine Contact Tank	Observation	Test Dates		
i	pH	7.12	6/6/2024		6.5 to 9
ii	BoD ₅ @ 20° C	5.32	6/6/2024	mg/L	Less than 10
iii	CoD	17.09	6/6/2024	mg/L	Less than 50
iv	TSS	9.95	6/6/2024	mg/L	Less than 10
v	NH ₄ -N	2.098	6/6/2024	mg/L	Less than 5
vi	N-Total	3.73	6/6/2024	mg/L	Less than 10
vii	Total Phosphorus (PO ₄ -P)	1.123	6/6/2024	mg/L	Less than 2
viii	Total Coliform	218	6/6/2024	MPN/100 ml	20% of TC
ix	Fecal Coliform	85	6/6/2024	MPN/100 ml	Less than 100
x	Total Residual Chlorine	0.96	6/6/2024	mg/L	1
15	Status of Miantainance of Log Book	Update weekly			
	- Updated Frequency				
	- Data availability Period				
16	Availability of Lab Facility (if Yes, provide last 3 months results of testing of treated waste water performed duly signed by competent authorities)	yes			
17	Name and Designation of the person carrying out lab tests	chemist- vishal patel			
18	Provide lab testing data of last three months				
19	If lab facility is not available in-house, Provide last 3 months results of Testing of Treated Waste Water performed at any private lab/GERI				
20	If no testing is being conducted please provide justification for the same				
21	Any additional comments about the working of STP				


ચીફ ઓફીસર
વિજયપુર નગરપાલિકા

Checklist for Monitoring of Performance of Sewage Treatment Plants

Date:	29-06-2024	Name and Designation:	Mr. D.V.Dobariya - In Charge Chief Officer
RCM Zone	RAJKOT	ULB/MC	Morbi

Sr No	Details	Observation	Units	Max Limits
1	Name/Location of STP	Mahendra nagar chowk (STP-2, 9.3 MLD, Morbi-2)		
2	Year of Commissioning of STP	2021		
3	Ownership of STP (Please note that if the ownership of the STP is not with ULB, Please make sure to furnish all the data from relevant department)	GWSSB		
4	Design Capacity of STP	9.3 MLD	MLD	
4.1	Present Design Capacity	9.3 MLD	MLD	
4.2	Intermediate Design Capacity	9.3 MLD	MLD	
4.3	Ultimate Design Capacity	9.3 MLD	MLD	
5	Capacity Utilisation (Please Attach SCADA report (Last 3 months report) as supporting, If No then attach details of measurement with sign and stamp of concern authority)	6.3	MLD	
6	O&M Carried Out By (Agency or ULB)	Krishna Construction pvt.ltd.		
7	Plant Functioning Timings (no of hours)	24	Day	
8	Type of STP - Please Mention Process of Sewage Treatment (i) ASP - Activated sludge process (ii) TF - Trickling filter (iii) AL - Aerated lagoon (iv) UASB - Upflow anaerobic sludge blanket (v) OP - Oxidation pond/waste stabilization ponds (vi) EA - Extended Aeration (vii) SBR - Sequential Batch Reactor (viii) MBR - Membrane Bio Reactor (ix) MBBR - Moving Bed Bio Reactor	SBR		
9	Influent Wastewater Charachterstics	Observation	Test Dates	
i	pH	8.12	17-06-2024	
ii	BoDS @ 20o C	212.04	17-06-2024	mg/L
iii	CoD	680.24	17-06-2024	mg/L
iv	TSS	303.52	17-06-2024	mg/L
v	TKN	57.13	17-06-2024	mg/L
vi	Total Phosphorous	8.87	17-06-2024	mg/L
vii	Total Coliform	720	17-06-2024	MPN/100 ml
10	Point of treated water Disposal - River - Lake - Irrigation - Land and Disposal - Please mention if any other	Lake		
11	Bypass arrangements at STP, if any	No		

12	Method of Sludge Disposal & Status	Horticulture activities			231
13	Volume of Industrial Waste being mixed, if any	No			
14	Treated Sewage Quality @ Outlet of Chlorine Contact Tank	Observation	Test Dates		
i	pH	8.35	17-06-2024		6.5 to 9
ii	BoD5 @ 20o C	8.31	17-06-2024	mg/L	Less than 10
iii	CoD	43.18	17-06-2024	mg/L	Less than 50
iv	TSS	7.1	17-06-2024	mg/L	Less than 10
v	NH4-N	-	17-06-2024	mg/L	Less than 5
vi	N-Total	8.14	17-06-2024	mg/L	Less than 10
vii	Total Phosphorus (PO4-P)	8.87	17-06-2024	mg/L	Less than 2
viii	Total Coliform	-	17-06-2024	MPN/100 ml	20% of TC
ix	Fecal Coliform	55	17-06-2024	MPN/100 ml	Less than 100
x	Total Residual Chlorine	0.76	17-06-2024	mg/L	1
15	Status of Miantainance of Log Book				
	- Updated Frequency	Daily basis			
	- Data availablity Period	Daily basis			
16	Availablity of Lab Facility (if Yes, provide last 3 months results of testing of treated waste water performed duly signed by competent authorities)	Yes			
17	Name and Designation of the person carrying out lab tests	Mr. Vipul Sindhav - Junior Manager			
18	Provide lab testing data of last three months				
19	If lab facility is not available in-house, Provide last 3 months results of Testing of Treated Waste Water performed at any private lab/GERI				
20	If no testing is being conducted please provide justification for the same				
21	Any additional comments about the working of STP				



[Signature]
Chief Officer,
Morbi Municipality

Incoming Flow Register

Date	Flow Start Time (Hr:Min)	Flow Stop Time (Hr:Min)	Total Inflow Hours (Hr:Min)	Total Flow (Cum)	SBR No. (1 / 2 / 1 & 2)	pH	BOD	COD	TSS
01-05-2024	8:05 AM	11:45 AM	3:40	3888.00	1	7.37	214.04	679.74	301.04
	4:16 PM	6:37 PM	2:21	2970.00	2	7.38	214.05	679.74	301.04
Total			6:01	6858.00					
MLD				6.86					
02-05-2024	8:30 AM	11:59 AM	3:29	4390.00	1	7.40	216.06	678.72	303.06
	2:10 PM	5:05 PM	2:55	3371.00	2	7.43	218.10	679.70	305.09
Total			6:24	7761.00					
MLD				7.76					
03-05-2024	8:43 AM	12:18 PM	3:35	4240.00	1	7.38	215.05	680.75	302.05
	2:35 PM	4:30 PM	1:55	4011.00	2	7.40	215.21	680.67	305.01
Total			5:30	8251.00					
MLD				8.25					
04-05-2024	7:52 AM	11:43 AM	3:51	3570.00	1	7.37	214.04	679.74	301.04
	3:50 PM	5:05 PM	1:15	3159.00	2	7.40	214.09	678.70	301.06
Total			5:06	6729.00					
MLD				6.73					
05-05-2024	8:59 AM	11:26 AM	2:27	3805.00	1	7.14	201.06	525.09	329.08
	2:20 PM	4:38 PM	2:18	4083.00	2	7.20	201.11	525.21	329.12
Total			4:45	7888.00					
MLD				7.89					
06-05-2024	7:45 AM	11:32 AM	3:47	3830.00	1	7.38	195.08	525.09	302.04
	2:35 PM	5:05 PM	2:30	4109.00	2	7.34	195.10	525.20	305.09
Total			6:17	7939.00					
MLD				7.94					
07-05-2024	8:10 AM	11:20 AM	3:10	4520.00	1	7.01	216.09	428.08	368.09
	3:46 PM	6:46 PM	3:00	2516.00	2	7.17	216.20	428.16	316.04
Total			6:10	7036.00					
MLD				7.04					
08-05-2024	8:03 AM	11:14 AM	3:11	3720.00	1	7.19	208.04	530.04	336.05
	4:03 PM	6:26 PM	2:23	3448.00	2	7.18	208.05	530.04	336.05
Total			5:34	7168.00					
MLD				7.17					
09-05-2024	8:10 AM	11:38 AM	3:28	3565.00	1	7.21	211.02	533.01	340.02
	2:02 PM	5:10 PM	3:08	3495.00	2	7.35	210.08	533.18	341.06
Total			6:36	7060.00					
MLD				7.06					
10-05-2024	9:22 AM	12:40 PM	3:18	4058.00	1	7.23	213.08	536.09	344.05
			0:00	0.00	2	0.00	0.00	0.00	0.00
Total			3:18	4058.00					
MLD				4.06					
11-05-2024	8:00 AM	11:00 AM	3:00	3430.00	1	7.30	215.09	540.04	310.05
	3:54 PM	6:12 PM	2:18	3014.00	2	7.25	230.16	520.01	350.04
Total			5:18	6444.00					
MLD				6.44					
12-05-2024	9:00 AM	11:10 AM	2:10	3354.00	1	7.40	232.18	550.18	331.14
	3:50 PM	7:09 PM	3:19	3450.00	2	7.37	215.08	525.09	352.05
Total			5:29	6804.00					
MLD				6.80					
13-05-2024	8:05 AM	11:35 AM	3:30	3534.00	1	7.48	236.03	562.18	361.05
	3:23 PM	6:15 PM	2:52	3636.00	2	7.41	218.06	531.09	356.02
Total			6:22	7170.00					
MLD				7.17					
14-05-2024	8:25 AM	11:26 AM	3:01	3078.00	1	7.06	216.09	510.06	368.09
	2:30 PM	5:25 PM	2:55	3260.00	2	7.10	219.12	516.14	370.11
Total			5:56	6338.00					
MLD				6.34					
15-05-2024	7:55 AM	11:35 AM	3:40	3730.00	1	7.12	218.05	516.03	361.07
	3:57 PM	6:55 PM	2:58	3670.00	2	7.19	209.01	508.06	352.14
Total			6:38	7400.00					
MLD				7.40					
16-05-2024	7:55 AM	11:50 AM	3:55	4184.00	1	7.22	240.08	542.14	334.14

2817

	4:18 PM	6:50 PM	2:32	3150.00	2	7.10	220.03	521.06	354.01
Total			6:27	7311.00					
MLD				7.81					
05-2024	7:48 AM	11:05 AM	3:17	3225.00	1	7.36	220.04	556.14	358.24
	4:23 PM	6:24 PM	2:01	3818.00	2	7.18	210.02	528.06	361.08
Total			5:18	7043.00					
MLD				7.04					
18-05-2024	8:28 AM	11:40 AM	3:12	3528.00	1	7.50	210.08	565.06	355.04
	4:50 PM	7:00 PM	2:10	3622.00	2	7.24	204.03	535.02	368.03
Total			5:22	7150.00					
MLD				7.15					
19-05-2024	8:27 AM	11:37 AM	3:10	3154.00	1	7.71	209.01	542.18	308.04
	4:46 PM	7:03 PM	2:17	3536.00	2	7.88	220.04	556.08	316.05
Total			5:27	6690.00					
MLD				6.69					
20-05-2024	7:39 AM	10:35 AM	2:56	3502.00	1	7.60	219.14	639.70	321.29
	4:23 PM	6:30 PM	2:07	2928.00	2	7.30	210.00	670.73	300.00
Total			5:03	6430.00					
MLD				6.43					
21-05-2024	9:13 AM	11:25 AM	2:12	3678.00	1	7.37	214.09	675.73	301.12
			0:00	0.00	2	0.00	0.00	0.00	0.00
Total			2:12	3678.00					
MLD				3.68					
22-05-2024	7:53 AM	11:25 AM	3:32	4318.00	1	7.40	217.03	678.70	304.01
	4:16 PM	6:16 PM	2:00	2942.00	2	7.51	221.06	670.31	310.05
Total			5:32	7260.00					
MLD				7.26					
23-05-2024	7:19 AM	11:52 AM	4:33	4160.00	1	7.46	229.09	652.61	315.09
	4:34 PM	6:30 PM	1:56	3128.00	2	7.42	220.03	678.70	307.03
Total			6:29	7288.00					
MLD				7.29					
24-05-2024	7:13 AM	11:17 AM	4:04	3460.00	1	7.62	202.06	435.18	321.04
	4:02 PM	6:00 PM	1:58	2640.00	2	7.46	195.08	428.07	310.07
Total			6:02	6100.00					
MLD				6.10					
25-05-2024	7:22 AM	11:12 AM	3:50	4472.00	1	7.38	199.05	430.07	312.01
	1:50 PM	4:35 PM	2:45	3042.00	2	7.41	199.12	430.18	314.12
Total			6:35	7514.00					
MLD				7.51					
26-05-2024	9:44 AM	11:04 AM	1:20	3234.00	1	7.76	209.16	460.17	327.15
	4:35 PM	6:31 PM	1:56	2632.00	2	7.39	205.08	432.08	314.07
Total			3:16	5866.00					
MLD				5.87					
27-05-2024	7:23 AM	10:26 AM	3:03	3236.00	1	7.45	210.04	435.01	316.06
	4:10 PM	6:45 PM	2:35	2660.00	2	7.49	206.02	521.02	311.01
Total			5:38	5896.00					
MLD				5.90					
28-05-2024	8:33 AM	11:58 AM	3:25	4514.00	1	7.59	214.01	438.09	318.04
			0:00	0.00	2	0.00	0.00	0.00	0.00
Total			3:25	4514.00					
MLD				4.51					
29-05-2024	7:58 AM	11:07 AM	3:09	3770.00	1	7.81	220.04	559.07	316.04
	2:49 PM	4:58 PM	2:09	2760.00	2	7.89	235.06	556.08	321.08
Total			5:18	6530.00					
MLD				6.53					
30-05-2024	8:25 AM	11:35 AM	3:10	4626.00	1	7.01	216.09	510.06	368.09
	2:45 PM	5:20 PM	2:35	4110.00	2	7.06	221.15	514.17	370.19
Total			5:45	8736.00					
MLD				8.74					
31-05-2024	9:05 AM	12:14 PM	3:09	4072.00	1	7.44	199.01	430.20	305.07
	3:35 PM	6:03 PM	2:28	3712.00	2	7.38	195.07	428.08	302.04
Total			5:37	7784.00					
MLD				7.78					

Note: Please enter time in 24 Hrs format

Total of this Month		168:50	210717.00
Avg. MLD			6.80



[Signature]
Chief Officer,
Morbi Municipality

TEST REPORT

Customer's Name and Address

M/S. Krishna Construction Co.
 A/905, Empire Business Hub, Opp. Shakti
 Arcade, Science City Road, Sola, Ahmedabad-
 380060.

FORMAT NO.	F/LID/57
REPORT DATE	17/06/2024
REPORT NO.	EET/2024

Description of sample	Waste Water (9.3 MLD-Morbi)	Lab ID Code	WE/10/754- STP Inlet WE/10/755- STP Outlet
Date of sampling	11/06/2024	Sampling time	--
Sample collected by	Client	Sampling method	--
Quantity and no. of sample/s	2 ltr in plastic carboys (2 Nos.)	Packing/seal	Satisfactory
		Date of starting of test	12/06/2024
		Date of completion of test	17/06/2024

RESULT TABLE

Sr	Parameter	Unit	Test method	Result		GPCB Norms
				STP Inlet 9.3 MLD	STP Outlet 9.3 MLD	
1	pH	mg/L	IS 3025 (part-11) – 1983/ Reaffirmed 2017	8.12	8.35	6.5-9.0
2	Total Suspended Solids	mg/L	IS 3025 (part-17) 1984/ Reaffirmed 2017	303.52	7.1	Less Than 10.0
3	Chemical Oxygen Demand	mg/L	IS 3025 (part-58)- 2006/ Reaffirmed 2017	680.24	43.18	Less Than 50.0
4	Biochemical Oxygen Demand (3 day 27°C)	mg/L	IS 3025 (part-44) -1993/ Reaffirmed 2019	212.04	8.31	Less Than 10.0
5	Residual Free Chlorine	mg/L	IS 3025 (part-26) -1986/ Reaffirmed 2019	Nil	0.76	1.0
6	Ammonica Nitrogen	mg/L	IS 3025 (part-34) -1988/ Reaffirmed 2019	32.59	3.47	Less Than 5.0
7	Total Nitrogen	mg/L	APHA 23 rd Edition 2017 4500- N B	57.13	8.14	Less than 10.0
8	Total Phosphate	mg/L	IS 3025 (part-31) -1988/ Reaffirmed 2019	8.87	1.78	Less than 2.0
9	Fecal Coliform	MPN/ 100ml	IS 1622:1981/ Reaffirmed 2019	720	55	Less than 100

B. J. 2 Analyzed By	H. Testi Authorized Signatory
Source of Prescribed Norms: GPCB Norms	Field report

End of The Test Report

Page 1 of 1



Checklist for Monitoring of Performance of Sewage Treatment Plants (STPs)

Sr No	Details	Observation	Units	Max Limits
1	Name/Location of STP	Mandvi, district-Surat		
2	Year of Commissioning of STP	2022		
3	Design Capacity of STP	3.5	MLD	
4	Actual Treatment	2.00	MLD	
5	Type of STP - Please Mention Process of Sewage Treatment (i) ASP - Activated sludge process (ii) TF - Trickling filter (iii) AL - Aerated lagoon (iv) UASB - Upflow anaerobic sludge blanket (v) OP - Oxidation pond/waste stabilization ponds (vi) EA - Extended Aeration (vii) SBR - Sequential Batch Reactor (viii) MBR - Membrane Bio Reactor (ix) MBBR - Moving Bed Bio Reactor	SBR - Sequential Batch Reactor		
6	Influent Wastewater Characteristics			
	i pH	7.2		
	ii BoD ₅ @ 20° C	198	mg/L	
	iii CoD	360	mg/L	
	iv TSS	315	mg/L	
	v TKN	29	mg/L	
	vi Total Phosphorous	1.45	mg/L	
7	Point of treated water Disposal - River - Lake - Irrigation - Land and Disposal - Please mention if any other	River		
8	Bypass arrangements at STP, if any	Yes		
9	Method of Sludge Disposal & Status			
10	Volume of Industrial Waste being mixed, if any	Not Applicable		
11	Treated Sewage Quality @ Outlet of Chlorine Contact Tank			
	i pH	7.7		6.5 to 9
	ii BoD ₅ @ 20° C	8.1	mg/L	Less than 10
	iii CoD	32	mg/L	Less than 50
	iv TSS	6.89	mg/L	Less than 10
	v NH ₄ -N	1.5	mg/L	Less than 5
	vi N-Total	7.5	mg/L	Less than 10
	vii Total Phosphorus (PO ₄ -P)	0.8	mg/L	Less than 2
	viii Fecal Coliform	BDL	MPN/100 ml	Less than 100
	ix Total Residual Chlorine	BDL	mg/L	1
12	Status of Maintenance of Log Book - Updated Frequency - Data availability Period			
13	Availability of Lab Facility	Yes		


Chief Officer
Mandvi Nagarpalika,
Dist. Surat.

Ref No.: RJT/SEW/APRIL/2024-25/64

Date: 09/04/2024

REPORT OF WATER ANALYSIS

Name of Company : Madhapar STP (80 MLD)

Source of Sample : STP Inlet

Sr. No.	Parameters	Unit	Result
1	Date Of Sampling	----	03/04/2024
2	pH	pH Units	7.00
3	Suspended Solids	mg/L	350
4	Chemical Oxygen Demand	mg/L	448
5	Biochemical Oxygen Demand @ 20 C	mg/L	142
6	TKN	mg/l	28
7	Total Coliform	MPN/100 ml	368
8	Total Phosphorus	mg/L	3.2

Reference Standard Methods for the Examination of Water & Waste Water - Prepared & Published jointly by American Public Health Association., American Water Works Association & Water Env. Federation (23rd Edition - 2017)



CCS Enviro Control LLP




Analyst

Ref No.: RJT/SEW/APRIL/2024-25/65

Date: 09/04/2024

REPORT OF WATER ANALYSIS

Name of Company : Madhapar STP (80 MLD)

Source of Sample : STP Outlet

Sr. No.	Parameters	Unit	Permissible Limit	Result
1	Date Of Sampling	-----	-----	03/04/2024
2	pH	pH Units	6.5 - 7.5	7.36
3	Suspended Solids	mg/L	10	07
4	Chemical Oxygen Demand	mg/L	50	28
5	Biochemical Oxygen Demand @ 20 C	mg/L	10	08
6	Ammonical Nitrogen	mg/l	10	4.9
7	Total Nitrogen	mg/l	10	5.8
8	Total Phosphorus	mg/L	02	0.7
9.	Fecal Coliform	MPN/100 ml	230MPN/100ml	48
10	Total Coliform	MPN/100 ml	230MPN/100ml	56
11	Residual Chlorine	mg/L	0.5 – 1.0	0.6

Reference Standard Methods for the Examination of Water & Waste Water - Prepared & Published jointly by American Public Health Association., American Water Works Association & Water Env. Federation (23rd Edition - 2017)



CCS Enviro Control LLP




Analyst

Statement showing the results of RAW sewage & Treated sewage :

DATE	RAW SEWAGE PARAMETERS						FINAL TREATED SEWAGE PARAMETERS						
	TEMP	PH	TDS	TSS	COD	BOD	TEMP	PH	TDS	TSS	COD	BOD	FECAL COLIFORM
	(°C)	UNIT	PPM	(mg/l)	(mg/l)	(mg/l)	(OC)	UNIT	PPM	(mg/l)	(mg/l)	(mg/l)	MPN/100 ML
01-02-2024	28.60	7.18	755.00	104.00	446.88	157.80	29.10	7.30	720.00	4.00	39.20	4.20	46.00
02-02-2024	28.90	7.08	839.00	316.00	497.84	196.40	28.90	7.30	797.00	4.00	47.04	2.00	42.00
03-02-2024	30.30	7.10	786.00	226.00	537.68	156.80	30.20	7.35	773.00	2.00	48.88	2.60	44.00
04-02-2024	28.50	7.01	816.00	220.00	356.12	168.80	28.00	7.40	721.00	4.60	32.00	3.80	46.00
05-02-2024	26.30	7.02	760.00	230.00	485.04	174.50	26.50	7.32	730.00	4.00	45.12	2.60	40.00
06-02-2024	23.30	7.21	969.00	226.00	500.08	156.00	23.60	7.32	701.00	2.00	33.84	3.00	38.00
07-02-2024	24.20	7.13	925.00	272.00	552.72	187.40	24.00	7.26	777.00	4.00	22.56	3.10	32.00
08-02-2024	26.30	7.12	795.00	250.00	492.56	168.30	26.40	7.36	815.00	4.00	15.04	3.20	46.00
09-02-2024	26.90	7.18	755.00	314.00	529.92	210.40	26.80	7.35	720.00	4.60	30.72	4.30	42.00
10-02-2024	26.20	7.02	765.00	316.00	447.44	183.90	26.30	7.32	720.00	4.20	11.28	3.70	46.00
11-02-2024	25.80	7.00	980.00	308.00	400.00	145.90	26.20	7.45	708.00	4.80	16.00	4.70	48.00
12-02-2024	26.30	7.12	795.00	318.00	473.76	154.80	26.40	7.36	815.00	4.00	48.88	3.90	42.00
13-02-2024	26.30	7.12	780.00	258.00	439.92	187.20	26.40	7.35	820.00	4.00	22.40	3.80	52.00
14-02-2024	24.20	7.13	925.00	272.00	624.16	164.40	24.00	7.26	777.00	4.60	15.04	4.20	54.00
15-02-2024	24.40	7.03	945.00	276.00	612.88	210.40	24.60	7.20	787.00	4.00	37.60	4.00	42.00
16-02-2024	25.90	6.93	657.00	204.00	454.96	162.40	26.00	7.11	732.00	5.00	22.40	2.10	36.00
17-02-2024	24.60	7.02	842.00	220.00	432.40	178.30	24.40	7.30	729.00	4.60	18.80	4.60	48.00
18-02-2024	25.50	6.90	896.00	210.00	400.00	158.30	25.50	7.38	688.00	4.80	24.00	4.20	54.00
19-02-2024	26.00	6.98	681.00	269.00	443.68	140.60	26.30	7.20	639.00	4.00	37.60	4.80	54.00
20-02-2024	27.20	6.83	688.00	144.00	436.16	138.40	27.50	7.15	650.00	5.00	48.88	4.40	56.00
21-02-2024	27.00	7.11	782.00	184.00	398.50	176.00	27.50	7.44	640.00	4.60	46.40	4.20	58.00
22-02-2024	26.90	7.09	815.00	213.00	413.60	170.00	26.70	7.53	705.00	4.80	48.88	4.00	46.00
23-02-2024	26.80	6.95	942.00	244.00	436.16	217.60	26.50	7.25	810.00	4.00	37.60	3.90	48.00
24-02-2024	26.20	6.89	842.00	212.00	424.80	201.80	26.50	7.32	770.00	5.01	26.32	4.50	44.00
25-02-2024	26.30	7.18	928.00	200.00	416.00	156.80	26.30	7.42	630.00	4.00	40.00	4.20	46.00
26-02-2024	27.20	7.03	932.00	278.00	406.80	173.70	27.00	7.39	786.00	4.00	18.80	4.10	50.00
27-02-2024	27.80	6.90	940.00	268.00	454.96	164.60	27.80	7.25	835.00	4.50	45.12	4.00	48.00
28-02-2024	27.80	7.05	920.00	242.00	500.00	163.80	28.00	7.25	789.00	5.00	36.00	4.30	46.00
29-02-2024	28.00	6.78	1039.00	264.00	568.00	159.40	28.10	7.49	816.00	4.00	28.00	4.00	40.00
AVERAGE	26.54	7.04	844.62	243.38	468.38	171.89	26.60	7.32	744.83	4.21	32.57	3.81	46.00
MINIMUM	23.30	6.78	657.00	104.00	356.12	138.40	23.60	7.11	630.00	2.00	11.28	2.00	32.00
MAXIMUM	30.30	7.21	1039.00	318.00	624.16	217.60	30.20	7.53	835.00	5.01	48.88	4.80	58.00

GPCB VISIT

GECPL

08.02.2024 26.30 7.12 795.00 250.00 492.56 168.30 26.40 7.36 815.00 4.00 15.04 3.20 46.00

CPCB VISIT

SMC LAB

LABORATORY CHEMIST
GECPLSUPERVISOR
GECPLPLANT INCHARGE
GECPL

50 MLD CHHANI NEW SEWAGE TREATMENT PLANT - MADHARA

DATE	RAW SEWAGE WATER										TREATING SEWAGE AFTER TERTIARY TREATMENT (OUTLET)									
	INLET FLOW (MLD)	PH	TSS (mg/l)	B.O.D (mg/l)	C.O.D (mg/l)	TKN (mg/l)	TP (mg/l)	Faecal Perm (10 ³ MPN/100 ml)	OUTLET FLOW (MLD)	PH	TSS (mg/l)	BOD (mg/l)	COD (mg/l)	TKN (mg/l)	TP (mg/l)	Faecal Perm (10 ³ MPN/100 ml)	TRTATED SEWAGE (FLOW)	SOLUBLE MATR (FLOW)	SILT MATR (FLOW)	SOLID MATR (FLOW)
01/07/2024	39.71	7.25	180	170	296	12.88	2.30	>10 ⁷	38.90	7.38	5	38	1.12	0.40	>10 ⁷	38.90	1.50	3.90	3.90	6.33
02/07/2024	39.95	7.30	196	170	286	12.32	2.40	>10 ⁷	40.27	7.40	5	32	1.68	0.30	>10 ⁷	39.95	1.50	3.90	3.90	6.33
03/07/2024	41.09	7.29	192	179	288	11.76	2.20	>10 ⁷	38.26	7.42	4.0	36	1.68	0.30	>10 ⁷	41.09	1.50	3.90	3.90	6.33
04/07/2024	33.53	7.21	204	173	288	13.44	2.50	>10 ⁷	38.85	7.37	5.0	40	1.12	0.40	>10 ⁷	33.53	1.50	3.90	3.90	6.33
05/07/2024	41.63	7.30	194	166	240	12.32	2.40	>10 ⁷	40.72	7.40	6.0	28	1.12	0.30	>10 ⁷	41.63	1.50	3.90	3.90	6.33
06/07/2024	37.93	7.28	210	173	248	12.88	2.20	>10 ⁷	36.74	7.45	6.0	32	2.24	0.30	>10 ⁷	37.93	1.50	3.90	3.90	6.33
07/07/2024	36.77	7.27	216	176	268	12.88	2.30	>10 ⁷	36.90	7.38	6.0	36	2.80	0.20	>10 ⁷	36.77	1.50	3.90	3.90	6.33
08/07/2024	36.30	7.25	192	170	296	13.44	2.40	>10 ⁷	33.28	7.45	6.0	44	3.36	0.30	>10 ⁷	36.30	1.50	3.90	3.90	6.33
09/07/2024	39.67	7.35	204	173	240	13.44	2.40	>10 ⁷	27.53	7.47	5.0	38	2.24	0.20	>10 ⁷	39.67	1.50	3.90	3.90	6.33
10/07/2024	32.12	7.32	240	176	228	12.32	2.30	>10 ⁷	35.35	7.50	6.0	40	3.36	0.30	>10 ⁷	32.12	1.50	3.90	3.90	6.33
11/07/2024	36.67	7.32	240	176	228	13.44	2.40	>10 ⁷	29.60	7.40	6.0	40	2.80	0.30	>10 ⁷	36.67	1.50	3.90	3.90	6.33
12/07/2024	32.12	7.25	204	173	240	12.88	2.30	>10 ⁷	31.18	7.40	5.0	32	1.68	0.30	>10 ⁷	32.12	1.50	3.90	3.90	6.33
13/07/2024	26.18	7.25	180	173	296	12.88	2.40	>10 ⁷	27.91	7.37	6.0	40	2.24	0.20	>10 ⁷	26.18	1.50	3.90	3.90	6.33
14/07/2024	30.67	7.30	196	176	260	12.32	2.40	>10 ⁷	29.49	7.40	6.0	40	2.24	0.20	>10 ⁷	30.67	1.50	3.90	3.90	6.33
15/07/2024	30.46	7.29	192	170	288	11.76	2.30	>10 ⁷	28.47	7.38	6.0	36	3.92	0.20	>10 ⁷	30.46	1.50	3.90	3.90	6.33
16/07/2024	28.12	7.34	210	166	240	12.88	2.40	>10 ⁷	28.08	7.36	3.0	32	2.24	0.50	>10 ⁷	28.12	1.50	3.90	3.90	6.33
17/07/2024	28.91	7.30	204	173	288	13.44	2.30	>10 ⁷	29.93	7.41	4.0	40	1.68	0.40	>10 ⁷	28.91	1.50	3.90	3.90	6.33
18/07/2024	28.02	7.27	194	173	208	12.88	2.30	>10 ⁷	30.32	7.42	6	36	3.92	0.20	>10 ⁷	28.02	1.50	3.90	3.90	6.33
19/07/2024	27.12	7.30	196	176	260	15.12	2.30	>10 ⁷	30.87	7.40	4.0	40	4.48	0.40	>10 ⁷	27.12	1.50	3.90	3.90	6.33
20/07/2024	26.05	7.25	186	173	300	15.88	2.50	>10 ⁷	33.56	7.42	5.0	36	2.80	0.30	>10 ⁷	26.05	1.50	3.90	3.90	6.33
21/07/2024	32.22	7.32	186	170	300	16	2.50	>10 ⁷	37.25	7.45	6.0	44	3.36	0.30	>10 ⁷	32.22	1.50	3.90	3.90	6.33
22/07/2024	33.64	7.27	188	176	244	13.44	2.40	>10 ⁷	37.36	7.48	5.0	40	2.24	0.40	>10 ⁷	33.64	1.50	3.90	3.90	6.33
23/07/2024	33.75	7.30	200	180	288	12.88	2.50	>10 ⁷	34.80	7.40	5.0	36	2.80	0.40	>10 ⁷	33.75	1.50	3.90	3.90	6.33
24/07/2024	33.31	7.27	184	183	236	14.00	2.50	>10 ⁷	36.15	7.50	7.0	44	3.36	0.30	>10 ⁷	33.31	1.50	3.90	3.90	6.33
25/07/2024	37.29	7.35	240	186	320	14.56	2.60	>10 ⁷	37.91	7.50	4.0	40	2.80	0.40	>10 ⁷	37.29	1.50	3.90	3.90	6.33
26/07/2024	37.44	7.30	200	180	280	13.44	3.80	>10 ⁷	37.91	7.45	3.0	44	2.88	0.40	>10 ⁷	37.44	1.50	3.90	3.90	6.33
27/07/2024	34.57	7.33	210	170	228	12.32	4.00	>10 ⁷	37.91	7.42	5.0	37	2.30	0.35	>10 ⁷	34.57	1.50	3.90	3.90	6.33
28/07/2024	31.61	7.30	234	176	300	11.76	4.1	>10 ⁷	37.91	7.38	6.0	36	2.80	0.30	>10 ⁷	31.61	1.50	3.90	3.90	6.33
29/07/2024	31.70	7.25	196	173	296	13.44	3.92	>10 ⁷	37.91	7.50	4.0	40	2.80	0.40	>10 ⁷	31.70	1.50	3.90	3.90	6.33
30/07/2024	38.31	7.28	200	180	310	12.88	4	>10 ⁷	37.91	7.42	3.0	44	2.88	0.40	>10 ⁷	38.31	1.50	3.90	3.90	6.33
31/07/2024	34.57	7.30	224	174	300	13.11	2.67	>10 ⁷	34.11	7.42	3.0	44	2.88	0.40	>10 ⁷	34.57	1.50	3.90	3.90	6.33
AVG	34.14	7.29	196	174	268	13.11	2.67	>10 ⁷	34.11	7.42	3.0	44	2.88	0.40	>10 ⁷	34.14	1.50	3.90	3.90	6.33
MIN	26.05	7.21	20	166	208	11.76	1.88	>10 ⁷	25.60	7.36	3.0	28	1.12	0.20	>10 ⁷	26.05	1.50	3.90	3.90	6.33
MAX	41.63	7.35	240	186	320	15.68	4.50	>10 ⁷	40.72	7.50	7.0	44	4.48	0.50	>10 ⁷	41.63	1.50	3.90	3.90	6.33
TOTAL	1058.37	-	-	-	-	-	-	-	1035.63	-	-	-	-	-	-	11.00	-	4.50	15.60	27.30

Executive Engineer
 Ele. Mech. Dept.
 Sewage D. Work
 Vadodara Municipal Corporation

Quesada

0.: VMC /
 e/346 /
 e- /

Rajkamal Builders & Infrastructure Pvt. Ltd. 50 MLD STP, Bhavnagar

Daily Laboratory Analysis Record

Treated Flow - 42.69 MLD

Date - 01/08/24

Raw Sewage Flow - 49.19 MLD

Raw Sewage Characteristics

Parameters	Value as per Tender	Actual Measured Value
Biological Oxygen Demand (BOD) mg/l	300	-
Chemical Oxygen Demand (COD) mg/l	600	368
Total Suspended Solid (TSS) mg/l	350	240
PH	6.5 - 7.5	7.10
Total Kjeldahl Nitrogen (As N) in mg/l	40	18.48
Phosphorous in mg/l	8.0 - 10.0	3.14
Fecal Coliforms MPN/100ml	2×10^7	107

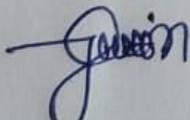
Treated Sewage Characteristics

Parameters	Value as per Tender	Actual Measured Value
Biological Oxygen Demand (BOD) mg/l	< 10	-
Chemical Oxygen Demand (COD) mg/l	< 50	24
Total Suspended Solid (TSS) mg/l	< 10	03
PH	6.5 - 9.0	7.21
Total Nitrogen (As N) in mg/l	< 10	6.72
Phosphorous in mg/l	< 2	1.02
Fecal Coliforms MPN/100ml	< 10^2	102
Residual Chlorine mg/l	0.5	0.5

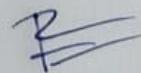
BOD Result after incubation for 72 Hrs. at 27 Temp.

Sample date: 29/07/24

Parameters	Value upto as per Tender	Actual Measured value
Inlet B.O.D.	300	123
Outlet B.O.D	<10	08



Lab. Chemist



Plant Incharge

Annexure 2

#	Municipal Corporations	Total STPs	STPs Required for Treatment Process Upgradation	Remarks/ Issues
1	Ahmedabad	18	7	Work in progress
2	Surat	11	1	Work in progress
3	Vadodara	13	2	Estimate under preparation
4	Rajkot	7	1	Estimate Stage
5	Bhavnagar	4	1	30 MLD to 45 MLD STP Upgradation, DTP preparation
6	Jamnagar	1	0	-
7	Junagarh	4	0	-
8	Gandhinagar	4	1	Consultant appointed to analyse the steps to improve the quality parameters
		62	13	

Subject	Compliance to NGT Order (Municipal Solid Waste Section)
Reference	NGT Order (O.A. 606/2018) (I.A. No. 163/2021)

Section: Solid Waste Management

1. Out of total 10,317 TPD of waste generation, 8872 TPD is processed with existence of 1445 TPD of gap. **We do not find details/breakup of waste processing plants in operation and their nature (composting waste to energy, RDF, etc.).** On interaction, it was stated that Municipalities are having old plants, and these will be upgraded. **Further, channelization of product like compost, Biogas and other residues/reject has not been disclosed.**

Response

Sr.	Type of Waste	Total Waste Generation (TPD)			Total Waste Processed (TPD)			GAP (TPD)		
		MC	NPs	Total	MC	NPs	Total	MC	NPs	Total
1	Wet Waste	3,963	1,353	5,316	3,906	661	4,567	57	692	749
2	Dry Waste	3,557	1,444	5,001	3,527	778	4,305	30	666	696
Total Waste		7,520	2,797	10,317	7,433	1,439	8,872	87	1,358	1,445
Note: Units are in TPD (Tonnes Per Day)										
ULB wise detail status on waste generation, waste processed and gap in processing is annexed (Annexure 1)										
In total, there is a processing gap of 1,445 TPD, while this gap exists for 8 Municipal Corporations, it is significantly larger in 157 Nagarpalikas, amounting to 1,358 TPD. Remaining 87 TPD of gap exists in Junagadh Municipal Corporation.										

Breakup of type of operational waste processing plants

Sr No	Operational waste processing Plant Name	Capacity (MT)	
		MC	NPs
1	Waste to Composting Plant	3,401	661
2	Material Recovery Facilities (Dry waste processing) plant	2,027	778
3	Bio-methanation plant	435.56	-
4	Refuse Derived Fuel plant	2,850	-
5	Waste to Energy plant	600	-
Total		9,313.56	1,439

Further, channelization of product like compost, Biogas and other residues/reject has not been disclosed.

The state has implemented a comprehensive and structured waste management system aimed at ensuring efficient processing and utilization of various waste materials. This system involves the segregation of waste into distinct categories, including inert materials, Refuse-Derived Fuel (RDF),

compost/soil, construction, and demolition (C&D) waste, metal, and other materials. Each of these categories is managed in a way that maximizes resource recovery and minimizes environmental impact.

Additionally, the Municipal Corporations have established bio-methanation plants with a total processing capacity of 435.56 MT, which generate biogas with a capacity of 84.52 cubic meters. The biogas produced is partially utilized by the Municipal Corporations themselves to meet their energy needs, while the remaining portion is supplied to selected agencies such as Reliance, IOCL, and other relevant industries.

The segregated materials are then channelled to specific destinations for appropriate utilization, as outlined below:

Sr No.	Segregated Material	Quantity (MT)	Utilization
1	Inert	87,36,515	Riverfront work, Dholera NHAI, Landfill site, etc
2	RDF	39,55,288	GGEPIL & WTE plant, Cement industries etc
3	Compost/Soil	44,24,487	compost used in farming by farmers, Gardening & Self utilize etc
4	C&D Waste	21,49,909	Low lying area, Paver block work etc
5	Metal	5,335	Sculpture, waste to best, Waste to art statue etc
6	Other	77,643	Self-utilize ULB

Quality of cost and its destined user

- A total of 19,996 MT of compost has been generated across 8 Municipal Corporations, with 11,836 MT sold to various designated users.
- In 157 Nagarpalikas, 3,958.08 MT of compost has been produced and is being utilized for garden maintenance and roadside beautification.

Sr No.	ULB	Total compost generated/ Month (MT)	Total compost sold/ month (MT)	Destined user
1	AMC	5019	3136	Gardening & Agriculture
2	SMC	3823	3073	Gardening, farming, various companies, sold to farmers and used in biogas/Indian oil etc.
3	BMC	4019	1182	Gardening and filling low lying areas
4	VMC	4390	4390	Gardening and filling low lying area
5	RMC	1888	Self utilize ULBs	Gardening & Agriculture
6	GMC	845	43	Gardening and filling low lying area
7	JuMC	12	12	Gardening & Agriculture

2. It has been disclosed that by October 2024, 156 composting plants and 151 Material Recovery Facilities will be operationalized with expectation that the entire gap of 1445 TPD will be removed.

Under the circumstances, ***it should be ensured that end products like compost, Biogas or otherwise as Energy produced and RDF and residues/rejects are properly utilized with defined destinations.***

Response

- The Remaining gap to be remediated by planned **156 waste to compost plants** with capacity of **5559 MT** have been approved under Swachh Bharat Mission 2.0, with a budget allocation of **650.68 Crores**.
- To address the gap of dry waste processing **151 Material Recovery Facility (MRF)** plants with capacity of **5477 MT** have been sanctioned under SBM 2.0, with a budget of **471.49 crores**.
- The RFP for selection of successful bidder for **construction and 7 years of O&M of processing plants** includes the **responsibility for the proper utilization** of end products.
- The bidder's responsibilities are to ensure that they are directed to predefined, sustainable destinations. This includes converting organic waste into compost, which is to be utilized for agricultural purposes or landscaping and managing biogas production from bio-methanation processes for energy generation, either for internal use or through supply to external agencies like industries or energy companies. Furthermore, the Refuse-Derived Fuel (RDF) produced from non-recyclable waste must be supplied to industries such as cement factories or power plants, where it serves as an alternative fuel source. The bidder is also responsible for ensuring the proper disposal or management of residues and rejects that cannot be processed or utilized, following environmentally sound practices such as disposal in sanitary landfills. This structured approach within the RFP aims to promote a circular economy, minimize environmental impact, and ensure that all recoverable materials from the waste stream are put to optimal use.

Processing plant | Progress Update

- **Composting Plants & MRF plants**
 - A total of 156 composting plants with a combined capacity of 5,559 MT
 - 151 MRFs with a combined capacity of 5,477 MT
 - 32 projects, totalling approximately 2965 MT (Wet – 1814 MT + Dry – 1151 MT) capacity, are currently under construction.
 - The remaining ULBs are in various stages of tendering, with 71 tenders completed, 39 work orders issued, 37 tenders under evaluation, and 25 tenders live.
 - The 23 smaller ULBs with pending waste management projects are currently undergoing a re-tendering process due to the limited capacity of the proposed plants. The state is actively supporting these ULBs by providing continuous assistance to help finalize the selection of

agencies. This collaborative effort aims to ensure that the re-tendering process is completed efficiently and that appropriate agencies are appointed.

End-Product Utilization

As outlined in the successful bidder's contracts, the proper utilization of all end products, including compost, biogas, energy, RDF, and residues/rejects, is a contractual obligation. Nagarpalikas are working closely with the selected bidders to ensure that they adhere to these commitments and develop sustainable utilization plans.

3. Details of legacy waste remediated with gap of 13.92 lakh MT has been disclosed. It is further disclosed that the remaining 13.92 Lakh MT legacy waste is to be remediated in municipalities and 8 Corporations have cleared the sites. However, we find that while disclosing the facts and figures, the gap existing in waste processing which is 1445 TPD has not been accounted. **Details of such waste accumulated in MCs and municipalities should be disclosed. We further find that stabilized material and the inerts are filled in low lying areas and also in developing river front sites. The next report should include the nature of such waste dumped so that they remain environmentally safe.**

Response

- **Total legacy waste: 253.76 lakh MT remediated** till date. Remaining **1.24 lakh MT** is under process. Below mentioned material segregated and channelized with as per norms.
- Presently, 98% of legacy waste from the **8 corporations and 148 Nagarpalikas** has been successfully remediated. However, remaining below 2%.i.e. **1.24 lakh MT** of legacy waste pending to be remediated in **7 Nagarpalikas**. The timelines for these pending actions are provided for your reference.

Legacy waste reported in NGT: 255 Lakh MT			
Legacy waste remediated: 253.76 Lakh MT			
Legacy waste remediation pending: 1.24 Lakh MT			
Sr No	ULB Name	Pending Legacy Waste (MT)	Timeline (100% legacy remediation)
1	Palanpur	5425	Dec -2024
2	Chansma	1550	Dec -2024
3	Patan	95024	Jan-2025
4	Dhrol	400	Dec -2024
5	Okha	200	Dec -2024
6	Dhrol	3210	Dec -2024
7	Dahod	18500	Jan-2025
	Total	1,24,309	

- The reusable materials recovered from the legacy waste sites are being effectively utilized in various ongoing projects, including construction sites, industrial applications, and the filling of low-lying areas. This approach not only supports waste remediation but also promotes the **sustainable use of recovered materials**, reducing the environmental burden. The details of the quantity of material utilized in each of these sectors are provided below for further reference.

Sr No.	Segregated Material	Quantity (MT)	Utilization
1	Inert	87,36,515	Riverfront work, Dholera NHAI, Landfill site, etc
2	RDF	39,55,288	GGEPIL & WTE plant, Cement industries etc
3	Compost/Soil	44,24,487	compost used in farming by farmers, Gardening & Self utilize etc
4	C&D Waste	21,49,909	Low lying area, Paver block work etc
5	Metal	5,335	Sculpture, waste to best, Waste to art statue etc
6	Other	77,643	Self utilize

We have taken significant steps to ensure that the utilization of these materials aligns with environmental regulations and promotes sustainable practices. For instance, the RDF generated is being used in GGEPIL & WTE plants and cement industries, reducing the need for fossil fuels. Similarly, the compost and soil produced are being utilized in agriculture and gardening, improving soil health and reducing reliance on chemical fertilizers.

We are committed to further enhancing our waste management practices and exploring innovative solutions for the effective utilization of end products. We believe that by adopting a holistic approach, we can not only address the legacy waste issue but also contribute to a cleaner and greener environment.

- Unprocessed waste is accounted as legacy waste and its processing:** To address the processing gap of 1,445 TPD, which amounts to a total of 41,15,823 tonnes of waste, it has been determined that Municipal Corporations are responsible for 14,08,357 tonnes, while Nagarpalikas are accountable for 27,07,466 tonnes. The Regional Commissioners of municipalities of six defined zones have been instructed to remediate this waste. ULBs have already initiated remediation efforts. Additionally, the reverification of accumulated legacy waste is being carried out and if required an additional funds will be allocated.

Total Waste Generation and Processed Status (Annexure-I)

Sr N	District	ULB	Class of ULBs	Total quantity of MSW generated (TPD)	Total quantity of MSW processed (TPD)	Gap
1	Ahmedabad	Ahmedabad MC	MC	2491	2491	0.000
2	Rajkot	Rajkot MC	MC	650.100	650.100	0.000
3	Surat	Surat MC	MC	2455.000	2455.000	0.000
4	Vadodara	Vadodara MC	MC	1103.000	1103.000	0.000
5	Bhavnagar	Bhavnagar MC	MC	225.700	225.700	0.000
6	Gandhinagar	Gandhinagar MC	MC	120.050	120.050	0.000
7	Jamnagar	Jamnagar MC	MC	345.000	345.000	0.000
8	Junaghdh	Junagadh MC	MC	130.015	43.000	87.015
9	Ahmedabd	Bareja	D	2.600	0.000	2.600
10	Ahmedabd	Bavla	C	7.100	2.400	4.700
11	Ahmedabd	Dhandhuka	C	10.372	10.372	0.000
12	Ahmedabd	Dholka	B	30.500	4.200	26.300
13	Ahmedabd	Sanand	C	20.200	0.350	19.850
14	Ahmedabd	Viramgam	B	18.500	0.000	18.500
15	Botad	Barvala	D	4.700	2.500	2.200
16	Botad	Botad	A	30.500	1.000	29.500
17	Botad	Gadhada	C	3.100	0.600	2.500
18	Kheda	Chakalasi	C	3.500	0.000	3.500
19	Kheda	Dakor	C	8.001	0.000	8.001
20	Kheda	Kanjari	D	3.000	0.000	3.000
21	Kheda	Kapadwanj	C	15.000	0.200	14.800

22	Kheda	Kathlal	D	5.500	0.000	5.500
23	Kheda	Kheda	C	6.000	2.900	3.100
24	Kheda	Mahemdabad	C	8.500	4.000	4.500
25	Kheda	Mahudha	D	3.500	0.000	3.500
26	Kheda	Nadiad	A	80.000	17.700	62.300
27	Kheda	Thasra	D	2.005	0.000	2.005
28	Surendranagar	Chotila	D	7.000	0.000	7.000
29	Surendranagar	Dhrangadhra	B	9.400	0.000	9.400
30	Surendranagar	Limbdi	C	7.000	0.000	7.000
31	Surendranagar	Patdi	D	7.000	0.000	7.000
32	Surendranagar	Surendranagar	A	67.000	0.000	67.000
33	Surendranagar	Thangadh	C	13.500	0.000	13.500
34	Arvalli	Bayad	D	2.600	0.550	2.050
35	Arvalli	Modasa	B	14.002	0.130	13.872
36	Banaskantha	Bhabhar	d	8.300	5.600	2.700
37	Banaskantha	Deesa	A	48.000	48.000	0.000
38	Banaskantha	Dhanera	c	11.000	11.000	0.000
39	Banaskantha	Palanpur	A	60.000	60.000	0.000
40	Banaskantha	Thara	D	5.000	5.000	0.000
41	Banaskantha	Tharad	C	12.000	12.000	0.000
42	Gandhinagar	Dahegam	C	8.110	0.000	8.110
43	Gandhinagar	Kalol	A	41.000	0.000	41.000
44	Gandhinagar	Mansa	C	15.000	15.000	0.000
45	Mahesana	Kadi	B	15.100	13.100	2.000
46	Mahesana	Kheralu	D	6.000	3.600	2.400

47	Mahesana	Mahesana	A	88.000	33.000	55.000
48	Mahesana	Unja	B	12.100	12.000	0.100
49	Mahesana	Vadnagar	C	8.020	8.020	0.000
50	Mahesana	Vijapur	C	8.020	8.020	0.000
51	Mahesana	Visnagar	B	20.100	15.000	5.100
52	Patan	Chansma	D	5.800	3.100	2.700
53	Patan	Harij	D	6.000	3.500	2.500
54	Patan	Patan	A	44.600	44.600	0.000
55	Patan	Radhanpur	C	12.100	6.600	5.500
56	Patan	Sidhpur	B	9.600	5.100	4.500
57	Sabarkantha	Himmatnagar	B	28.100	20.100	8.000
58	Sabarkantha	Idar	C	10.500	10.500	0.000
59	Sabarkantha	Khedbramha	c	6.600	6.600	0.000
60	Sabarkantha	Prantij	D	6.000	6.000	0.000
61	Sabarkantha	Talod	D	2.000	2.000	0.000
62	Sabarkantha	Vadali	D	5.500	5.500	0.000
63	Rajkot	Gondal	a	29.000	20.000	9.000
64	Rajkot	Jetpur	A	37.450	37.450	0.000
65	Rajkot	Dhoraji	B	33.100	0.000	33.100
66	Rajkot	Upleta	B	24.000	3.000	21.000
67	Rajkot	Jasdan	C	11.995	8.995	3.000
68	Rajkot	Bhayavadar	D	7.100	0.000	7.100
69	Morbi	Morbi	A	90.000	90.000	0.000
70	Morbi	Wankaner	C	11.000	9.500	1.500
71	Morbi	Halvad	C	7.000	3.700	3.300

72	Morbi	Maliya	D	6.000	5.200	0.800
73	Jamnagar	Dhrol	c	9.030	0.000	9.030
74	Jamnagar	Jam-Jodhpur	c	5.001	5.001	0.000
75	Jamnagar	Kalavad	C	9.510	0.000	9.510
76	Jamnagar	Sikka	C	7.000	7.000	0.000
77	Devbhumi Dwarka	OKha	B	26.000	4.000	22.000
78	Devbhumi Dwarka	Dwarka	C	18.030	7.030	11.000
79	Devbhumi Dwarka	Khambhaliya	C	16.100	7.110	8.990
80	Devbhumi Dwarka	Salaya	C	8.000	1.000	7.000
81	Devbhumi Dwarka	Bhanvad	D	7.610	0.000	7.610
82	Devbhumi Dwarka	Jamraval	D	8.250	5.000	3.250
83	Porbandar	Porbandar	A	69.800	34.300	35.500
84	Porbandar	Ranavav	C	6.350	4.500	1.850
85	Porbandar	Kutiyani	D	3.500	2.700	0.800
86	Kutch	Bhuj	A	30.000	20.000	10.000
87	Kutch	Gandhidham	A	120.000	0.000	120.000
88	Kutch	Anjar	B	28.000	6.500	21.500
89	Kutch	Mandvi_k	B	28.000	20.000	8.000
90	Kutch	Bhachau	C	18.500	16.500	2.000
91	Kutch	Rapar	c	9.002	1.500	7.502
92	Kutch	Mundra Baroi	C	10.000	0.000	10.000
93	Kutch	Nakkhtrana	D	8.000	0.000	8.000
94	Valsad	VAPI	A	75.070	75.070	0.000
95	Valsad	Dharampur	D	12.340	7.010	5.330
96	Valsad	Valsad	A	40.500	0.700	39.800

97	Valsad	Pardi	C	9.000	4.500	4.500
98	Valsad	Umargam	c	8.500	7.000	1.500
99	Narmada	RAJPIPLA	c	10.980	10.100	0.880
100	Bharuch	BHARUCH	A	107.000	0.000	107.000
101	Bharuch	ANKLESHWAR	B	27.000	0.000	27.000
102	Bharuch	JAMBUSAR	c	15.030	2.510	12.520
103	Bharuch	AMOD	D	7.520	0.000	7.520
104	Surat	TARSADI	C	13.220	13.220	0.000
105	Surat	KADODRA	c	11.020	11.020	0.000
106	Surat	BARDOLI	B	30.000	30.000	0.000
107	Surat	MANDAVI	D	6.620	6.620	0.000
108	Tapi	VYARA	C	12.200	12.200	0.000
109	Tapi	SONGADH	C	7.500	6.000	1.500
110	Navsari	NAVSARI	A	101.000	101.000	0.000
111	Navsari	BILIMORA	B	14.572	3.200	11.372
112	Navsari	GANDEVI	D	5.76	1.892	3.867
113	Anand	Anand	A	61.000	41.003	19.997
114	Anand	Anklav	D	3.000	3.000	0.000
115	Anand	Balasinor	C	7.030	7.030	0.000
116	Anand	Boriavi	D	3.020	3.020	0.000
117	Anand	Borsad	B	17.000	0.100	16.900
118	Chhotaudepur	Chhotaudepur	C	8.230	8.230	0.000
119	Vadodara	Dabhoi	B	10.000	10.000	0.000
120	Dahod	Dahod	B	40.000	40.000	0.000
121	Panchmahal	Godhara	A	46.500	46.500	0.000

122	Panchmahal	Halol	B	12.200	8.200	4.000
123	Panchmahal	Kaalol	C	4.206	4.206	0.000
124	Vadodara	Karjan	C	8.700	8.700	0.000
125	Anand	Karamsad	C	9.330	7.830	1.500
126	Mahisagar	Lunavada	C	13.900	13.900	0.000
127	Anand	Ode	D	1.510	1.510	0.000
128	Vadodara	Padra	C	14.000	14.000	0.000
129	Mahisagar	Santrampur	D	6.530	6.530	0.000
130	Panchmahal	Shahera	D	8.000	8.000	0.000
131	Anand	Sojitra	D	3.720	1.200	2.520
132	Anand	Vallabh Vidhyanagar	D	5.520	5.520	0.000
133	Dahod	Zalod	C	1.600	0.000	1.600
134	Dahod	Devgadh Baria	D	21.590	21.590	0.000
135	Anand	Khambhat	B	8.900	8.900	0.000
136	Vadodara	Savli	D	3.510	3.510	0.000
137	Anand	Petlad	B	9.950	7.950	2.000
138	Anand	Umreth	c	9.000	9.000	0.000
139	Amreli	AMRELI	A	65.000	0.000	65.000
140	Amreli	Babra	C	2.100	0.000	2.100
141	Amreli	Bagsara	C	8.000	8.000	0.000
142	Amreli	Chalala	D	3.010	3.010	0.000
143	Amreli	DAMNAGAR	D	4.220	0.000	4.220
144	Amreli	JAFARABAD	C	3.040	0.000	3.040
145	Amreli	LATHI-D	D	3.500	1.700	1.800
146	Amreli	Rajula	C	8.100	2.400	5.700

147	Amreli	Savarkundla	B	11.300	10.000	1.300
148	Bhavnagar	Gariyadhar	C	6.010	0.000	6.010
149	Bhavnagar	Mahuva	B	27.200	13.000	14.200
150	Bhavnagar	PALITANA	B	24.900	24.900	0.000
151	Bhavnagar	Shihor	B	14.100	2.100	12.000
152	Bhavnagar	Talaja	C	14.000	7.500	6.500
153	Bhavnagar	Vallabhipur	D	5.000	0.000	5.000
154	Gir somnath	Kodinar	C	1.101	1.101	0.000
155	Gir somnath	Sutrpada	C	6.780	4.110	2.670
156	Gir somnath	TALALA	D	5.270	0.110	5.160
157	Gir somnath	UNA	B	20.000	20.000	0.000
158	Gir somnath	Veraval-Patan	A	60.000	30.000	30.000
159	Junaghdh	BANTVA	D	1.912	0.000	1.912
160	Junaghdh	Chorvad	D	4.015	0.000	4.015
161	Junaghdh	KESHOD	B	20.000	0.000	20.000
162	Junaghdh	MANAVADAR	C	4.800	0.000	4.800
163	Junaghdh	Mangrol	B	15.000	0.000	15.000
164	Junaghdh	vanthali	D	4.508	0.000	4.508
165	Junaghdh	Visavadar	D	6.700	0.100	6.600
Total				10317	8872	1445