

Why was the Bhumi Green Energy Waste-to-Energy Incinerator Plant temporarily shut down?

"Zero" Environmental Compliance, Monitoring, and Accountability



Paryavaran Rakshan Samiti Sangli

Maharashtra | 2026

FACT-FINDING COMMITTEE

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ABBREVIATIONS

APCS	: Air Pollution Control System
BNSS	: Bhartiya Nagrik Surksha Sanhita
CPCB	: Central Pollution Control Board
CTE	: Consent To Establish
CTO	: Consent To Operate
ETP	: Effluent Treatment Plant
ESP	: Electrostatic Precipitator
MPCB	: Maharashtra Pollution Control Board
NABL	: National Accreditation Board for Testing and Calibration Laboratories
NACEJ	: National Alliance for Climate and Ecological Justice
NGT	: National Green Tribunal
OCEMS	: Online Continuous Emission Monitoring System
PCB	: Pollution Control Board
RDF	: Refuse-Derived Fuel
RTI	: Right To Information
STP	: Sewage Treatment Plant
SWM	: Solid Waste Management
ZLD	: Zero Liquid Discharge

EXECUTIVE SUMMARY

This fact-finding report examines the environmental compliance, monitoring practices, and impacts on agriculture and health of the Bhumi Green Energy Waste-to-Energy incinerator plant located in Tung village, Sangli district, Maharashtra. The report is based on documents obtained through the RTI Act, findings of the MPCB and CPCB, Agricultural Department Officials, and a field visit conducted by members of the Paryavaran Rakshan Samiti Sangli, National Alliance for Climate and Ecological Justice and project-affected villagers.

The report identifies extensive non-compliance with the environmental regulations and the conditions imposed under the plant's Consent to Operate. The company failed to submit mandatory quarterly compliance reports, annual environmental statements, and dioxin-furan monitoring reports. It also failed to operate a functional Online Continuous Emission Monitoring System, limiting regulatory oversight and public transparency.

Official inspections by the MPCB in 2025 revealed untreated effluent was found stored in temporary lagoons and discharged into a nearby stream connected to the Warana River. The Effluent Treatment Plant was non-operational, while air pollution control systems such as the Electrostatic Precipitator were either not functioning or leaking, resulting in visible black emissions from the WTE plant. The MPCB's inspection records pollutant deposition on nearby crops. These findings prompted the MPCB to issue show-cause notices and interim directions, which remained non-compliant during subsequent inspections.

The CPCB also observed major operational deficiencies. The plant's secondary combustion chamber was operating at approximately 230°C, far below the mandated 950°C required for safe incineration mandated by the Solid Waste Management Rules, 2026. Operating at such low temperatures will result in flue gas emissions which will contain much higher levels of pollutants such as carbon monoxide, volatile organic compounds, soot, acid gases, and carcinogenic dioxins and furans formed from incomplete combustion. Monitoring of fly ash, bottom ash, air emissions, and wastewater was found to be inadequate or absent, raising concerns regarding toxic emissions and hazardous waste management.

Evidence from the Agricultural Department's report indicates that emissions and ash from the plant have affected surrounding agricultural activity. An Agricultural Officer's report recorded deposition of ash on crop leaves within approximately 1–1.5 kilometres of the plant, affecting photosynthesis, crop growth and agricultural yield.

A later report from Sept 2026 by Agricultural Officer recorded that some farmers had left their agricultural land fallow, while others had shifted from grapes to sugarcane because of the perceived effects of pollution on crops. The report also refers to a conditional order issued by the Sub-Divisional Officer requiring the industry to control pollution and the risks posed to human health, agriculture and the environment.

This report documents a pattern of repeated regulatory violations dating back to 2023. MPCB directions from 2023 recorded failures relating to operation of water- and air-pollution-control equipment, discharge of untreated effluent beyond the premises, exceedance of consented effluent standards, inadequate scientific storage of fly ash and dust emissions affecting nearby agricultural fields. A subsequent compliance report stated that the directions had not been complied with and that the industry had not submitted a response to the earlier directions.

Field observations and testimonies from villagers indicate significant environmental, health, and socio-economic impacts. Residents reported persistent foul odours, respiratory ailments, eye and skin irritation, and declining agricultural productivity. Farmers observed black particulate deposits on crops, livestock refusing contaminated fodder, and change in crop pattern from grapes and vegetables to less sensitive sugarcane cultivation. Waste spillages from transport vehicles and deterioration of local roads have further affected livelihoods. Bottom ash and rejected waste from the industry is being handed over to the private parties for the land-filling which raises serious concerns of soil and water contamination.

This report concludes that the Bhumi Green Energy plant demonstrates systemic failures in environmental compliance and accountability which has led to the temporary closure of the industry. It recommends immediate permanent shutdown of the facility, application of the polluter-pays principle, environmental restoration measures and compensation for the affected communities, and a policy shift towards decentralized, zero-waste alternatives emphasizing waste reduction, reuse, repair, recycling, and composting. The Sangli WTE case also serves as a warning against the establishment of new WTE plants in Mumbai, Pune, and other parts of Maharashtra, given the demonstrated risks of environmental pollution, public health, regulatory non-compliance and weak accountability.

INTRODUCTION

A waste incinerator or a Waste-to-Energy incinerator (WTE) is an industrial facility designed for generation of electricity by burning municipal solid waste (MSW). It involves burning mixed MSW to generate heat and produce steam over turbine blades, spinning them at high speeds to produce electricity. The entire process is comparable to coal or gas fired thermal power plants, except that instead of fossil fuels, MSW is used as fuel (**Figure 1**).

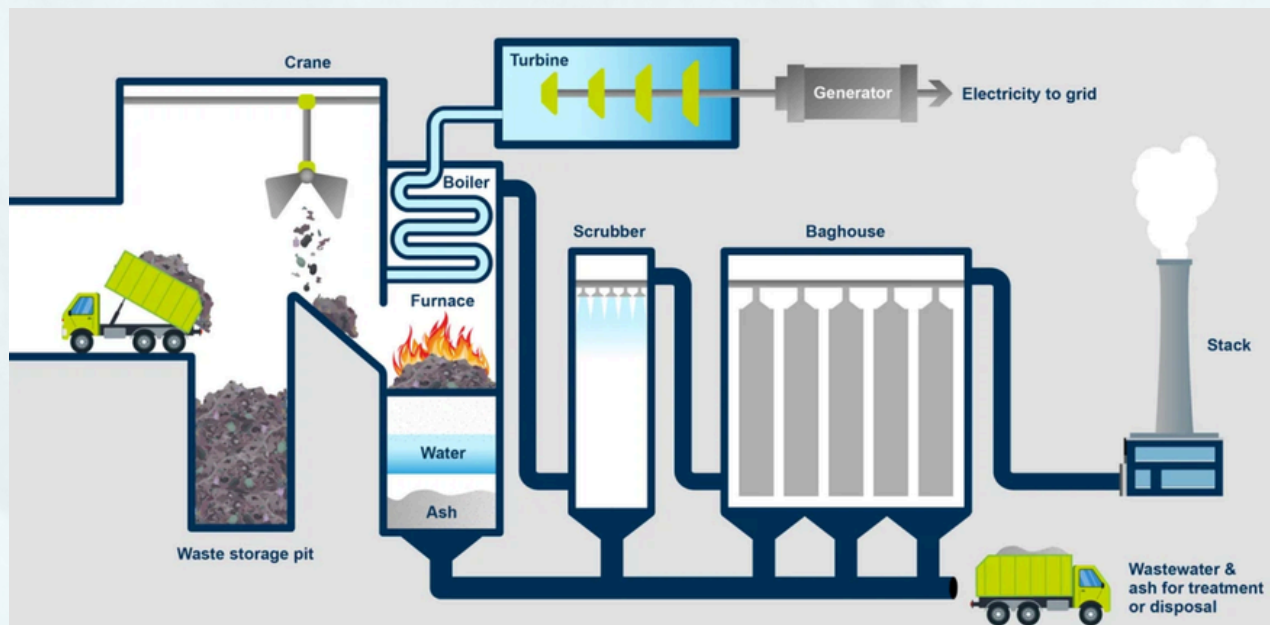


Figure 1: A schematic diagram of a typical WTE plant

While WTEs are promoted as a sustainable environmental service with the twin benefits of waste management and power production, this rationale does not withstand scientific scrutiny. WTEs **do not eliminate**¹ the need for landfills. Instead, they convert relatively stable, non-hazardous municipal waste into highly toxic, mobile chemical residues. About 30-40% of the MSW burned inside a WTE plant comes out as hazardous waste which needs specially-designed secured landfills. Furthermore, they generate humongous amounts of toxic leachate laced with heavy metals such as lead, cadmium, chromium, arsenic, etc. The flue gas emissions release **persistent organic pollutants**² (POPs) such as dioxins and furans, also called as “forever chemicals”, because they accumulate in ecosystems, bioaccumulate in food chains, and are associated with severe health risks such as cancers, hormone disruption, infertility, etc.

India’s current waste management model prioritizes reduction, reuse, and recycling over any form of disposal or energy recovery. However, WTEs disrupt India's waste management ecosystem and directly oppose true recycling and resource conservation efforts. A **meta-analysis**³ of 36 studies spanning 16 countries that

examined the job creation potential of various waste management strategies found that the recycling ecosystem involving waste pickers, aggregators and recyclers, creates around 70 times as many jobs as WTE incinerators. With government policy and massive financial assistance, the WTE incinerator industry has become the biggest slayer of the entire waste recycling/reusing ecosystem. WTEs are also the most expensive technology to manage waste or produce electricity. The requirement of huge capital for constructing these facilities, combined with the continuous expense of treating hazardous ash and maintaining advanced filtration systems, makes them financially unviable on their own. They rely heavily on public subsidies, artificial renewable energy credits, and substantial "tipping fees/processing fees" paid by municipalities for every ton of waste burnt. For a WTE plant in Tehkhand, Delhi, it was **estimated that**⁴ for a WTE plant with an investment of Rs. 375 crores, the project proponent got roughly 300 crores of public funds, having to pay only 20% of the project cost on its own. This effectively **diverts scarce public funds**⁵ away from far more cost-effective and environmentally friendly alternatives, such as decentralized composting, biogas, source-segregation infrastructure, and support for informal recycling networks. While over 50% of India's WTE Plants have already shut down, India continues to build new ones. Since the commissioning of the first WTE plant in Timarpur, Delhi, in 1987, WTE projects in India have been marked by repeated failures, continuing as recently as **February 2026**⁶, when an incinerator in Chennai was shut down over environmental pollution and health risks based on a fact-finding report.

OBJECTIVES OF THE REPORT

This fact-finding report examines the environmental, regulatory, and health concerns associated with the **Bhumi Green Energy WTE Incinerator** in Tung village, Sangli, and presents evidence on the broader implications of incineration-based waste management. Below are the detailed objectives of this report -

To document environmental and pollution norm violations by Bhumi Green WTE plant with evidence from official records and field visits to the impacted communities.

To present scientific institutional conclusions on the environmental, public health, social, and ecological impacts of WTE incineration, and to highlight alternatives based on waste reduction, segregation, reuse, recycling, and decentralized treatment.

METHODOLOGY

The report is primarily based on the documents obtained from the Maharashtra Pollution Control Board through the Right To Information Act, 2005. Also, it refers to the observations made by the Central Pollution Control Board in its [report](#)⁷ dated 18/08/2025, submitted to the National Green Tribunal in the matter before the Principal Bench, *"News item titled "Waste to energy: Smokescreen or solution?" appearing in the Indian Development Review dated 27.03.2024"* O.A. 536/2024. Also, members of the National Alliance for Climate and Ecological Justice (NACEJ) along with members of the affected communities visited the fields in the vicinity of the plant on 14th January 2026, but were denied entry into the plant itself. They heard the grievances of the farmers and villagers of Tung, surveyed the farm lands near the plant, and the road going to the plant. The report also contains the lived experiences of the residents of Tung village.

PROJECT BACKGROUND

The WTE plant is situated in Tung village of Sangli district in Maharashtra. It is at a distance of 1.2 km from the boundary of the residential settlement of the village, and is surrounded by agricultural fields (**Figure 2**) where a variety of crops including grapes, leafy vegetables, bananas and sugarcane are grown. A seasonal water stream flows right behind the plant and joins the Warana River which further meets the Krishna River, both being a major source of irrigation and drinking water in Sangli

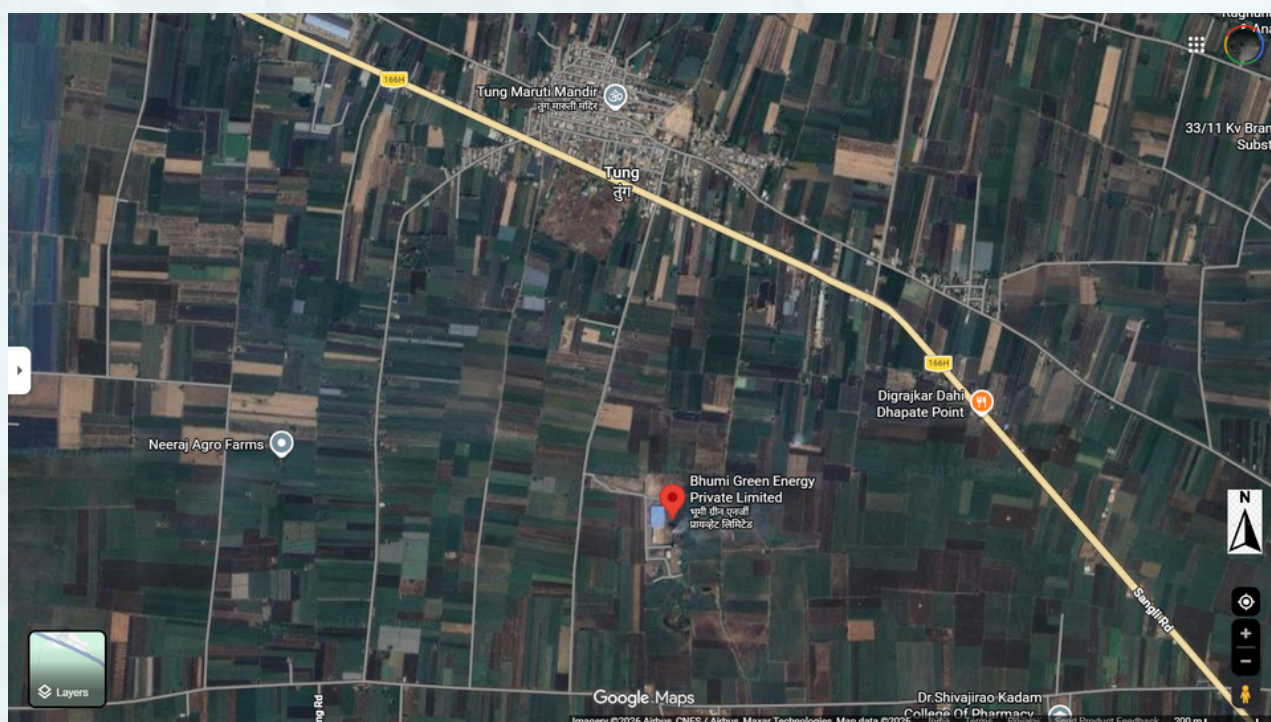


Figure 2- Google map image of location of the plant

district. The ownership of the plant appears to have changed between 2022 and 2023, transitioning from **Sinewave Biomass Power Pvt Ltd** to **Bhumi Green Energy Pvt Ltd**. Former had a CTO (**Annexure-A**) for the production of electricity from “Biomass” only. However, the CTO dated 12-05-2024 (**Annexure-B**) granted to Bhumi Green Energy Pvt Ltd mentions the production of 10 MW of electricity from both “Biomass and RDF”. **Refuse-Derived Fuel (RDF)** is⁸ a fuel produced from the combustible fraction of municipal solid waste (MSW) including materials such as non-recyclable plastics, paper, cardboard, and textiles.

FINDINGS BASED ON DOCUMENTARY EVIDENCE

1) Non-compliance with the conditions in the CTO dated 30-10-2024

An industrial unit is required to obtain from the State Pollution Control Board a CTO under which the Board provides several conditions to be met with respect to the establishment and operation of the industry. The Bhumi Green Energy WTE plant was granted such a CTO on Oct 30, 2024 (**Annexure-C**). Schedule IV of the said CTO provides for several conditions.

Quarterly Statement

Clause 8 of Schedule IV provides that the industry is required to submit “quarterly statements duly supported by documentary evidence, in respect of the industry’s obligation towards consent and pollution control compliances.” However, no such report has been submitted by the industry. (**Annexure-D**)

Online Monitoring

Clause 13 of Schedule IV mandates the industry to install OCEMS and to transmit the monitoring data on MPCB and CPCB servers. The **CPCB server**⁹ does not reveal any online monitoring data uploaded by the concerned industry, nor the **MPCB server**¹⁰ which goes against the **guidelines**¹¹ issued by the CPCB. Visit Report dated 19/08/2026 (**Annexure-E**) observes that the industry has installed OCMES. However, we do find any data in this regard as of 24/09/2026 (**Figures 3 & 4**).

Dioxin Furan Monitoring

Further, according to **Clause 13** of Schedule IV, the industry is under obligation “to conduct Dioxin Furan monitoring once a year by a third-party NABL-accredited agency, and submit the report to the Sub-Regional Officer of the State Pollution Control Board.” The RTI reply by the Sub-Regional Officer shows that no such report has been submitted by the industry. (**Annexure-F**)

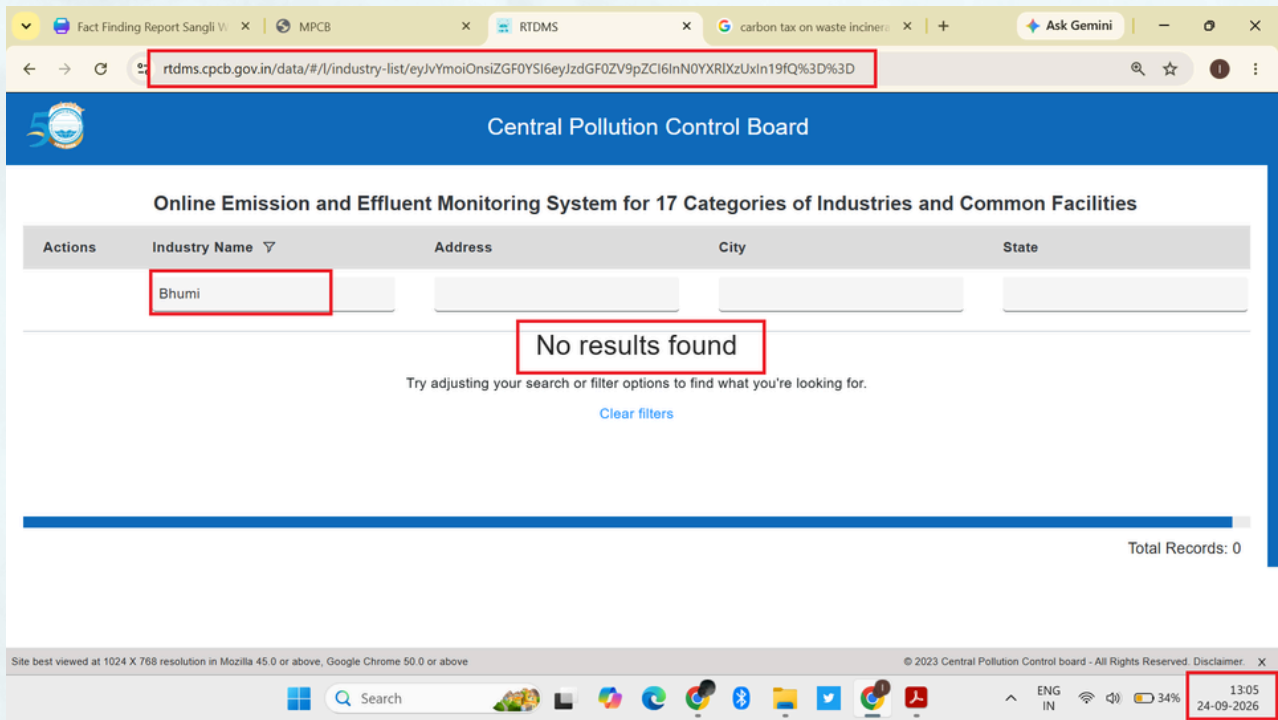


Figure 3- Screenshot of CPCB's server showing OEMS data

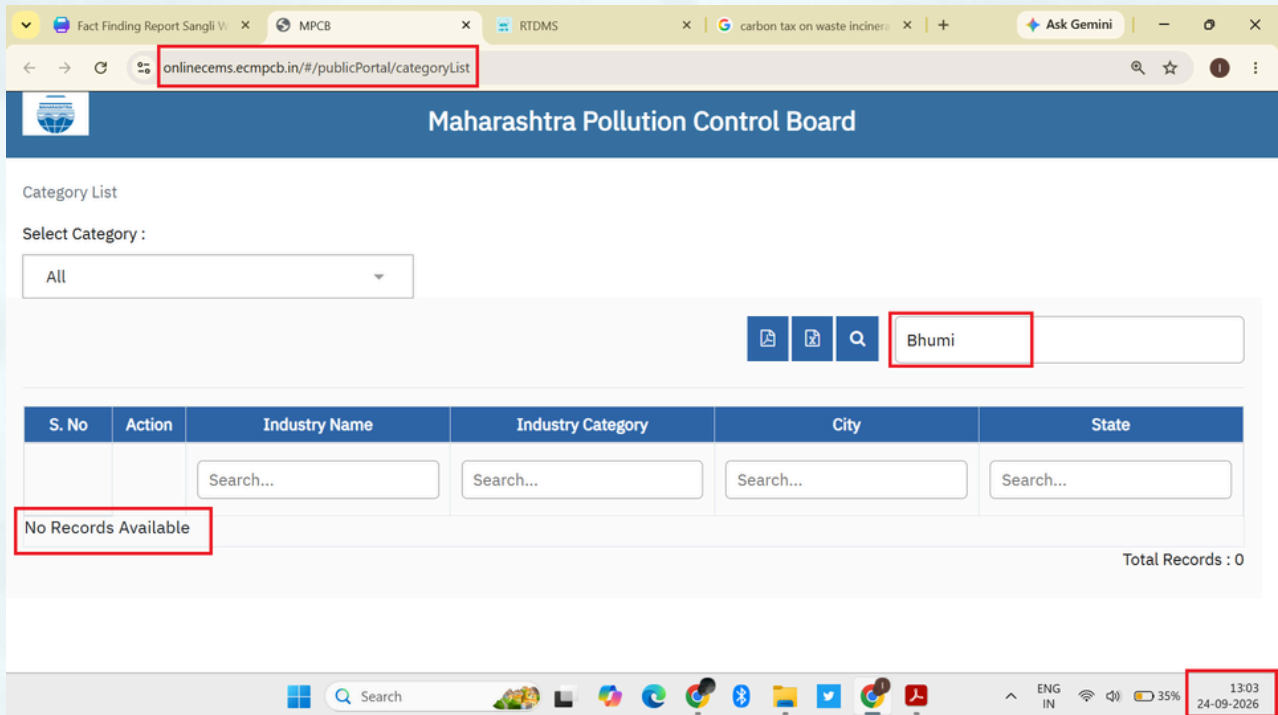


Figure 4- Screenshot of MPCB's server showing OEMS data

Environment Statement Report

Clause 30 of Schedule IV stipulates that the industry must submit to the PCB the Environment Statement Report on the 30th of September every year. However, no such report has been filed by the industry. (**Annexure-G**)

2) Findings of the Maharashtra Pollution Control Board (MPCB)

Proposed Directions 20-03-2025 (Annexure-H)

On a complaint received from the villagers of Tung, the officials of the MPCB visited the plant on 10th March 2025. The observations made by the officials are alarming and clearly reveal a blatant breach of environmental and pollution norms.

- The officials observed that the effluent generated by the industry was stored in a kaccha lagoon (temporary pit) and the overflow from this pit was found to be discharged into the adjacent stream located behind the industry. This stream directly joins the Warana River which is a major source of irrigation and drinking water.
- The ETP was found to be not in operation for a long period. This implies that the effluent being discharged into the adjacent stream which goes into Warana River is completely untreated.
- The ESP was not in operation, causing heavy blackish emissions from the stack. Also, heavy leakages were present in the vent connected to the ESP and the boiler.
- The officials observed that the emissions had accumulated on the crops in the farms located in the vicinity of the industry.

The MPCB through the said Proposed Directions, issued to the industry a Show Cause Notice as follows:

- Why should industrial activities not be closed down?
- Why should the competent authorities not be directed to disconnect water / electricity supply to your unit?

Interim Directions and Compliance Report on Interim Directions

After giving an opportunity to hear the industry representative, the Board on 1st July 2025, issued Interim Directions which mandated the industry to comply with six specific directions issued under it. Further, on 26th August 2025, an official from the Board visited the industry to ensure compliance in respect of directions issued under the said Interim Directions. Except for one, none of the directions stipulated in the Interim Directions have been complied with by the industry.

Sr. No.	Interim Directions 01/07/2025 (Annexure-I)	Compliance Report 26/08/2025 (Annexure-J)
1	Stop discharge of treated or untreated effluent outside the factory premises.	No treated or untreated effluent was observed to be discharged outside the factory premises.
2	Operate ETP round 'O' clock to meet the consented standards.	During inspection, the ETP was found to be not in operation.
3	To provide a scientific arrangement for the storage of effluent (pakka pit) within 15 days.	Effluent is stored in kaccha lagoon with plastic sheet.
4	To amend existing consent for provision of wet scrubber.	Industry has not submitted an application for amendment of consent to provide for wet scrubber. The direction has not been complied with as of 28/04/2026. (Annexure-K)
5	To operate air pollution control equipment to achieve the consented standards.	Wet scrubber was found to be not in operation. Huge leakages were observed from the vent connected to the scrubber and the stack. Huge amount of emissions were observed from the boiler section.
6	To submit within 7 days a Bank Guarantee of Rs. 1 Lakh which will be fortified, and Top-Up Bank Guarantee of Rs. 2 Lakh towards compliance with above-mentioned directions.	During inspection, the industry representative did not produce the bank guarantees as per the directions.

3) Temperature of Incinerator Below Required Level

The CPCB's report dated 18/08/2025 (**Annexure-L**) submitted to the NGT includes information on WTEs and Action Taken Reports received from the PCBs of several States.

The report notes that the "minimum temperature maintained at secondary combustion chamber (°C)" is only 230°C against the mandated 950°C by the CPCB.

4) Inadequate Monitoring

Monitoring Done Only Twice on Water & Air Quality Post-RDF CTO

After 12/05/2024, i.e. post RDF Consent, the plant has been monitored by the MPCB only two times for water and air quality according to information as of 11/06/2026.

	Date of Sample Collection	Source
Water (Annexure-M)	05/08/2025	ETP (leachate)
Air (Annexure-N)	11/09/2025	Ambient

The MPCB officials visited the concerned WTE plant on 11/06/2026 (**Annexure-O**) for inspection, and took samples of the effluent coming out of the ETP. They also monitored the ambient air quality.

However, no monitoring has been done till date by the MPCB for the emissions directly coming out from the stack of the concerned WTE plant. Such monitoring may reveal the exact amount of hazardous gases released by the plant, since ambient air usually dilutes the pollutants by the time it reaches the monitoring device.

Fly Ash and Bottom Ash Not Monitored

In the CPCB's "Compliance Report" dated 18/08/2024 (**Annexure-L**), it has been noted that "Analysis report of Bottom ash & fly ash not provided" in respect of the concerned industry. Also, the RTI reply dated 20/03/2026 (**Annexure-P**) provides for all the reports of monitoring done in the last five years by the MPCB in respect of the concerned industry. The said RTI reply does not provide for the bottom ash and fly ash monitoring reports.

5) Findings by the Agricultural Department's Officer

A report dated 29/03/2023 (**Annexure-Q**) prepared by Block Agricultural Officer, Miraj, categorically observes that the ash coming out of the concerned WTE plant is deposited on the leaves of the crops which disrupts the process of photosynthesis, thereby affecting the growth of crops and the yield. The ash coming out of the plant is affecting the crops within a radius of 1-1.5km. The report also mentions even more serious concerns that the ash is deposited on the hands and clothes of the labourers in the fields.

Another report dated 31/08/2026 (**Annexure-R**) by Block Agricultural Officer records similar findings. It also records that some of the farmers have left their farms fallow while some have shifted to sugarcane from grapes owing to pollution from the industry affecting the crops.

6) Repeated Violations

Proposed Directions and Interim Directions of 2023

The industry has been indulged into repeated violations of environmental and pollution norms as is evident from the Proposed Directions dated 28/03/2023 (**Annexure-T**) issued by the MPCB. The said Proposed Directions categorically records 17 specific violations observed in the visit dated 11/03/2023 by the MPCB Officials. A few major violations are:

- The industry had failed to reply to Warning Notice dated 14/03/2023 issued by the Sub-Regional Office MPCB, Sangli.
- The water and air pollution control devices were not in operation.
- The quantity of raw material (RDF) and the location from where the raw material had brought is not provided
- Untreated effluent was found being discharged outside the premises and the results of effluent analysis exceed the consented standards
- The industry had not provided scientific arrangement for fly ash which was found stored on open land due to which dust emissions were observed on crops in nearby farmlands.

Interim Directions dated 11/05/2023 (**Annexure-T**) followed by the abovementioned Proposed Directions has several directions issued to the industry of which some major directions are:

- Submit total quantity of MSW/RDF received from Pune Corporation and other local bodies
- Submit details of ETP and ZLD and upgradation proposal for ETP, STP, and APCS within 7 days
- Submit details of air pollution control system

The Compliance Report dated 02/06/2023 (**Annexure-U**) reveals that none of the directions had been complied with by the industry nor it had filed any reply to the abovementioned Proposed and Interim Directions of 2023.

Arrears towards Irrigation Department (Annexure-V**)**

The Irrigation Department, Sangli has sealed the industry's water supply four times in 2025 as the industry has not cleared arrears of bills of water extraction from Krishna River.

7) Source of Raw Material

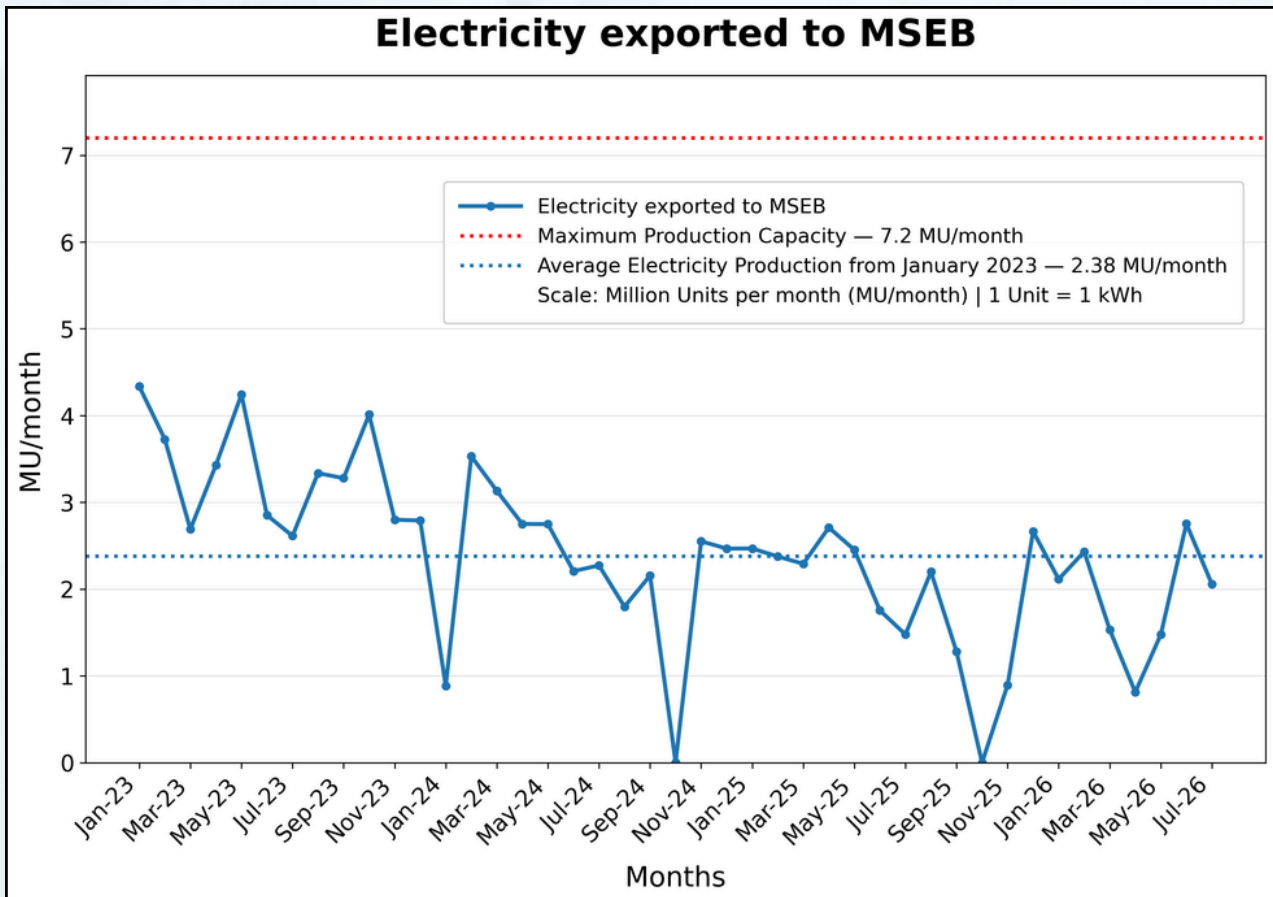
Bhumi Green Energy does not directly take MSW from the local bodies. The company has established a subsidiary company named as **"Krishna Green Environ Solutions"** Special Purpose Vehicle (SPV) established by Bhumi Green Energy, which is in turn involved in processing of MSW. Bhumi's WTE plant at Tung imports RDF from these processing facilities at Sangli.

The MPCB in its Interim Directions dated 11/05/2023 (**Annexure-T**) had directed the industry to submit the quantity of the MSW/RDF received from the Pune Corporation and other local bodies. The industry however, had not submitted any reply to the same.

The concerned industry is now being acquired by the Pune Municipal Corporation as is evident from the CTE dated 04/08/2026 (**Annexure-W**) granted by the MPCB where the PMC is named as owner of the concerned industry and expansion from 10 MW plant to 14 MW plant.

8) Amount of Electricity Produced

The industry has submitted (**Annexure-AA**) before the SDO Miraj, its monthly electricity production which is exported to MSEB from January 2023 (**Figure 5**). The data reveals that the "average monthly electricity production" stands at 2.38 Million Units/month (MU/month) which is only 33% of the full capacity of 7.2 MU/month.



Considering all the official reports and observations, the SDO Miraj finalized conditional order dated 15/09/2029 via final order dated 23/09/2029 (**Annexure-S**) thereby ordering the temporary closure of the industry under the section 152 of BNSS.

LIVED EXPERIENCES OF THE VILLAGERS AND FINDINGS FROM THE COMMITTEE VISIT

Tung is a village in Miraj Taluka of Sangli district with a population of more than 6000. In 2014, Sinewave Biomass Pvt. Ltd. set up the power plant where there was no opposition for the establishment of the plant as they were initially told that the plant would induce industrial development in the area by providing job opportunities for locals and electricity availability in the local area. When the plant was taken over by Bhumi Green Energy Pvt Ltd, it started burning plastic (RDF) for electricity production. This has posed serious threats to the health of the villagers, agriculture, and the environment. Also, new issues have arisen, such as waste spillover, worsening road conditions, and social conflicts. The abovementioned fact-finding committee visited the plant on 14th January 2026, but were denied entry into the plant. They inspected the fields in the vicinity of the plant and the road leading up to the plant.

1) Environmental Impacts

The most serious environmental issue is the air pollution in and around the plant. The smoke not only comes from the main stack of the plant, but also from the inner parts of the plant. This has been observed by the committee members (**Figure 6**). Situation has not changed till 19/08/2026 as observed in the latest MPCB's visit report (**Annexure-E**). The question as to whether this smoke passes from any filtration system or not remains unanswered.

Trucks carrying waste load to the plant pass via the road going through the agricultural fields. The waste from the trucks spills onto this road (**Figure 7**) and the industry does not collect it. All this spilled over waste spreads through the fields and the villagers fear that it could increase micro-plastic content in the soil.

Google Earth images from 2022 shows that the the industry has been dumping the MSW into its premises thereby piling up of waste mountains (**Figure 8**). The industry does not possess consent for waste landfill. Such piling up of waste in open area may cause land and water contamination.

The villagers of Tung have alleged illegal dumping of bottom ash from the plant for the land filling on Sangli-Ashta Road (**Figure 9**). Almost 25 sites have been identified where thorough investigation in source of the material used for land filling is needed. The industry in its say dated 01/09/2026 (**Annexure-X**) filed before the SDO Miraj has accepted the fact that the private entities take ash from the industry for land filling. Such unscientific and illegal disposal can cause soil and water pollution in the surrounding areas.



Figure 6- smoke coming out from inner parts of industry



Figure 7- waste spill from the trucks carrying MSW to the plant



Figure 8- waste piling up (upper left corner)



Figure 9- ash and rejected waste being used for landfilling

2) Health Impacts

Persistent foul smell is present in the vicinity of the plant, because of which the farmers are unable to work continuously in the fields for longer durations. The foul smell was experienced by the committee members during their visit. Eye & skin irritation, and respiratory diseases have increased in the village, especially amongst the persons working in the fields surrounding the plant.

3) Agro-Economic Impacts

Blackish emissions accumulate on the leaves of plants, causing a decline in agricultural produce and crop failure. The fields surrounding the plant were used to grow grapes and vegetables. However, the crop pattern has changed to sugarcane mono cultures, because grapes and vegetables are not able to sustain the high levels of pollution caused by the industry. As a result of drizzling on the day prior to the committee's visit, it was observed **(Figure 10)** that the blackish emissions accumulated on the leaves were washed off and gathered into water droplets. Heavy emissions are consistently recorded by the Officials of MPCB in their recent visits too **(Annexure-E and O)**.



Figure 10- blackish emissions accumulated on the crops

The livestock refuses to consume napier grass, which is fodder rich in protein, and which grows along the edges of the fields in the vicinity of the plant, because there is a pungent smell that is stuck to it, owing to the pollution from the plant. As a result, the farmers have to bear the additional burden of arranging fodder for their livestock.

One of the challenging stages in sugarcane farming is the cutting of fully grown sugarcane. Carrying out this activity has become a new problem for the farmers. Sugarcane cutters are not willing to work in the fields around the plant because they experience severe itching and skin rashes if they remain in the fields for long durations.

Almost 10-12 trucks carrying heavy loads pass via the road going through the agricultural fields. This has resulted in the wear and tear of the road which is a private road made by the farmers from their own farm lands for their convenience.

4) Socio Economic Impacts

Changing crop patterns, the additional burden of arranging fodder, increased health issues, etc., have impacted the livelihood of the villagers of Tung.

Also, the villagers who democratically oppose the operation of the plant are being targeted with fake criminal complaints of extortion being filed against them.

The “right to a clean and healthy environment” of the villagers, guaranteed under the fundamental rights, is being violated by the industry through non-compliance of the pollution and environmental norms.

5) Growing resistance against the industry

Ever since the industry started using RDF for incineration the villagers are complaining to the various authorities from time to time. They have filed complaints with the MPCB, CPCB, Collector Sangli, SDO Miraj (**Annexure-Y**). The villagers and members of civil society from Sangli and Pune have formed environmental group “Prayavaran Rakshan Samitee, Sangli” to fight and resist against the environmental and pollution norms violations by the industry.

The *Gram Sabhas* of four villages namely Tung, Kasbe Digraj, Mouje Digraj, Padmale have passed resolution to permanently shut down the industry (**Annexure-Z**).

RECOMMENDATIONS AGAINST WTEs BY INDIAN SCIENTIFIC INSTITUTIONS

1) National Environmental Engineering Research Institute (CSIR- NEERI)¹²

- Promoting WTE plants for mixed waste defeats the purpose of waste segregation, which is mandatory, as per the prevailing SWM Rules, 2016. The mass burning of MSW also defeats the opportunity of Circular Economy for the waste sector.
- As per Rule 21 of SWM Rules 2016, only the non-recyclable fraction of wastes, having calorific value of 1500 kcal/kg or more shall be utilized for generating energy through co-processing in Cement or thermal power plants. The co-processing of non-recyclables in the existing cement or power plant facilities, utilization of readily-available infrastructure, which operates at more than 1000 °C temperature and is well equipped with stringent emission monitoring and control systems. This arrangement also avoids the setting up of new incineration systems which require huge investments, as well as various regulatory procedures.
- The mixed waste generated in India is heterogenous, has high moisture content, and is low in calorific value; making it unsuitable for WTE plants. The situation is further aggravated during the monsoon season, when the calorific value drops significantly due to very high moisture content. The mass burning of such mixed waste results in incomplete combustion, as the combustion temperature drops to less than 850 °C.
- The incomplete combustion results in the release of suspended particulate matter, carbon monoxide, nitrogen oxide and sulphur dioxide, exceeding the permissible discharge limits. This can have altogether adverse health and environmental implications.
- In view of the above observations, CSIR-NEERI is of the opinion that waste to energy plants based on mass burning of mixed waste may not be feasible in India, as these are against the MSW Rules.

2) Indian Institute of Technology Bombay (IIT-B)¹³

In general, there is public concern about the operational efficiency of the incinerators and whether these incinerators meet the prescribed environmental standards. In absence of proper operation of an incinerator, it could lead to the emission of hazardous pollutants like dioxins and furans. The operation of the existing incinerators should be audited by the credible third-parties. The municipalities and the operators of the incinerators should bring transparency by publishing the data in public domain. Also, the general public should be allowed to visit these facilities as in the developed countries. There is a need for transparency and confidence building.

- India's incineration-based WTE experience demonstrates the risks of adopting capital-intensive technologies without adequate consideration of local conditions and sustainability goals. Despite significant public investment, these facilities contribute minimally to waste management or energy generation while creating environmental, economic, and social problems undermining circular economy objectives
- The path forward requires recognizing WTE's limited role within integrated systems focused on reduction, reuse, and recycling. Where residual waste treatment is necessary, facilities should operate as public services with strict environmental safeguards rather than profitdriven enterprises. Simultaneously, prioritizing investment in decentralized, community-based solutions would better serve environmental goals and social equity, enabling waste management systems that support an inclusive and sustainable development pathway.
- The waste hierarchy prioritizes reduction, reuse, recycling, and composting over incineration and and filling, a principle recognized in India's Solid Waste Management Rules 2016. However, incineration-based WTE systems fundamentally threaten this hierarchy's implementation.
- The revenue model creates perverse incentives through tipping fees, payments per ton of waste delivered, which remain the principal guaranteed revenue stream. This encourages operators to maximize waste volumes regardless of quality, since more waste equals more revenue. Projects typically include 20-30 year waste supply agreements with "deliver-or-pay" clauses requiring municipalities to provide fixed annual waste volumes or face penalties.
- WTE projects are highly capital-intensive, costing ₹12-40 crore per MW with equally high operational expenses. The electricity they generate is expensive at ₹6.2-7.07 per unit, significantly higher than other energy sources. When projects fail, as half have done, private operators often default on loans or abandon facilities, leaving public institutions with losses while "successful" projects burden consumers with expensive electricity.

RECOMMENDATIONS

Keeping in mind the committee's observations, documentary findings and institutional recommendations set forth in this report, below are our recommendations-

1. **Permanent shutdown** of the WTE plant operated by Bhumi Green Energy Pvt. Ltd. in Tung village with immediate effect.
2. Given the serious nature of pollution norms violations and reluctance from the plant operators to comply with India's environmental regulatory norms, we recommend **constitution of a committee** consisting of governmental and non-governmental experts and affected persons for the purpose of exhaustive auditing of company's affairs
3. Under the 'polluter pays' and 'precautionary' principles, the **Bhumi Green Energy should be held liable to provide appropriate compensation** to affected community members and be made responsible for the restoration of the area they polluted to its original state.
4. **Immediate halting of proposed WTE projects in rest of Maharashtra** and thorough auditing of compliance status by the existing plants by a committee of experts in the field.
5. Bans on single-use and/or avoidable applications, reducing overall resource use, including measures to tackle the oversupply of short-lived single-use plastic products.
6. Development of reuse and repair across a variety of sectors (packaging, electronics, construction, etc.), including through the enforcement of legal targets and the adoption of product-as-a-service schemes.
7. Financial investments, including initial capital, subsidy and operational support for decentralised waste management, reuse systems, product-as-a-service, repair services, and traceability mechanisms.
8. We suggest that the policy for the Waste to Energy Plants in India should reflect, at least, recommendations by IIT-B and CSIR-NEERI mentioned hereinabove.

CONCLUSION

The findings of this Fact-Finding Report indicate that the operation of the Bhumi Green Energy's Waste-to-Energy plant at Tung, Sangli, has raised serious and continuing concerns relating to environmental protection, pollution control, adverse impacts on public health, agriculture, and the livelihood of the surrounding communities.

The repeated and consistent findings by the MPCB and the Agricultural Officer have shown that the industry has not made any efforts to control the pollution and comply with official directions since 2023. Bringing waste from Sangli and Pune city for burning in another village raises the issue of environmental justice that who is bearing costs of whose waste. The lack of continuous monitoring and unavailability of monitoring data in public domain, inaction by the authorities despite clear evidence as to absence/non-operation of the pollution control devices, non submission of mandatory reports on emission of carcinogenic compounds dioxin and furans, all these factors points towards zero environmental compliances and accountability.

The experience of Tung also demonstrates that waste management cannot be assessed merely in terms of electricity generation. It must be evaluated against environmental sustainability, public health, agricultural security, regulatory compliance and the rights of affected communities. A waste-management approach based on source segregation, reduction, reuse, recycling, composting and decentralised treatment should receive greater priority wherever feasible.

Presently, waste incineration is being phased out in other parts of the globe in recognition of how the world needs to shift away from destructive linear economic model abetted by landfilling and incineration, and transition to a circular economic system grounded on the principles of Zero Waste. **European nations**¹⁴ are introducing laws that do not allow incinerator technologies related to renewable energy and waste reduction, since they are not considered either green or renewable. However, India alongside countries in the Asia Pacific has decidedly chosen incineration as a primary method of dealing with waste management. Despite global evidence to the contrary, India is building WTEs at an ever increasing pace.

Experience of Bhumi shows that the WTEs, in addition to being costly to build and run, are also barely able to generate even a small amount of electricity, and emit **68% more greenhouse gases**¹⁵ per unit of energy than coal plants.

Incinerators put society's health at risk, perpetuate a linear and extractive economy, and counteract efforts to create a zero-waste world where more local and green jobs are created. Incinerators not only compete for the same materials as recycling programs, they rely on these materials that could otherwise be recycled or composted. Zero-waste systems not only deliver the best environmental outcomes, they are also proven to create the most jobs. Recycling **creates**¹⁶ over 50 times as many jobs¹⁶ as landfills and incinerators, and repair **creates**¹⁶ 200 times as many.

Municipal and city administrators, as well as the communities need to look beyond the marketing tactics of "waste-to-energy" companies and choose options that promote—not undermine—sustainability and climate resilient solutions. Waste management activity is far broader in scope than treating residual waste through landfill or incineration. Actions at the top of the waste hierarchy - including waste prevention initiatives and recycling - have considerable scope to reduce climate change emissions and effectively manage waste in a manner that is environmentally responsible and fiscally viable.

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Annexures



Figures