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

APPEALS NOS. 3 & 4 OF 2021

Lingam Nagar Welfare Association,
Rep. by V.Thirugnanasambandam S/o. A.Viswanathan,
Lingam Nagar Residents,
Kuzhumani Road,
Trichy - 620 102.

... Appellant

VS

1. The Chairman,
   The Tamil Nadu Pollution Control Board,
   Guindy, Chennai - 600 032.

2. District Environment Engineer,
   Tamilnadu Pollution Control Board,
   Thiruchirapalli.

3. The Commissioner,
   Thiruchirapalli City Corporation,
   Promenade Road,
   Cantonment,
   Trichy -1.

4. The Commissioner.
   M/s. Faecal Sludge Treatment Plant,
   S.F. No. 19/9 Part, Ward – 1, Block – 12,
   K. Abishekapuram Village,
   Thiruchirapalli West Taluk,
   Thiruchirapalli District

... Respondents

COMMON STATUS REPORT / AFFIDAVIT FILED ON BEHALF OF RESPONDENT NOS. 3 & 4

I, S.Sivasubramanian, Son of Mr.Subbiah, aged about 58 years, having office at Bharathidasan Salai, Cantonment, Trichy, do hereby solemnly affirm and sincerely state as follows:

1. I state that I am the Commissioner of Tiruchirapalli Corporation, the 3RD Respondent herein and as I am such well acquainted with the facts and circumstances of the case from available records.

2. I state that the above appeals have been filed by the appellant to set-aside the Orders of Learned Appellate Authority, Tamil Nadu

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Pollution Control Board dated 15.07.2021 passed in Appeal Nos. 46 and 47 of 2018.

A. Necessity of the Faecal Sludge Treatment Plant

3. I humbly submit that public health consequences of inadequate urban water and sanitation services are severe. One in every ten deaths in India is from causes related to inadequate sanitation and hygiene (The Economic Impacts of Inadequate Sanitation in India, Water and Sanitation Programme, 2010). Faecal contamination also remains one of the main reasons for pollution of ground and surface water (Annual Report 2010-11, Central Pollution Control Board (CPCB), 2012), particularly in and around urban centres. Inadequate sanitation is also estimated to cause economic losses equivalent to 6.4 per cent of India's GDP (Water and Sanitation Programme, 2010).

4. The adequate facilities and services for collection, transportation, treatment and disposal of urban domestic Faecal sludge are non-existent in majority of Indian cities. Most onsite sanitation facilities are emptied manually, in absence of suitable equipment by scavengers. Ideally, a septic tank system should be desludged regularly every 2-5 years. But ignorance towards Operation and Maintenance (O&M) procedures often results in accumulation of sludge at the bottom reducing the effective tank volume which leads to an overflow. This sequence of events ultimately causes failure of the system and release of partially treated or untreated Faecal sludge from the septic tank. Private desludging vehicle operators often dispose the Faecal sludge in drains, waterways, open land, and agricultural fields, thereby causing serious damage to the environment. It is to remedy this public hazard that the Faecal sludge treatment plant ("**Plant**") was initiated.

5. That Faecal sludge when not managed properly can cause:

i. pollution of waterways including groundwater,

ii. serious implications on health and environment,

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iii. Faecal sludge, which is rich in nutrients such as nitrogen and phosphorous, disposed untreated into surface water bodies, would pose a threat of eutrophication.

B. <u>Wastage of useful soil conditioner</u>

6. When properly managed, Faecal sludge can be a useful resource than a waste. The end products of FSTP can be used as a soil conditioner for farming as they are a rich source of Nitrogen, carbon and phosphorous, and for irrigation. Therefore, the instant Faecal sludge treatment plant has been proposed with an objective to create an enabling environment for scaling up Faecal sludge management solution.

7. I submit that the Tiruchirapalli City Corporation is having an area of 167 Sq.km., and having a population of around 9,16,857 as per 2011 Census. There are about 2,28,518 people, who lives in the slums in the city (Census, 2011), roughly constituting about 25% of the total population (916, 857). The main area of the city has a centralized sewage network with a waste stabilization pond for treatment. However, there are a few areas within the Corporation limits which are not connected to the network sewerage and rely on on-site sanitation systems for containing the black water.

8. The on-site sanitation infrastructures in the house hold levels are mostly septic tank and pits. The drainage waste gets filled over an interval, post which it requires to be de-sludged. Desludging is carried out using vacuum pumps owned by private operators or City Corporation. The sludge is currently being disposed at designated areas from where it travels through sewerage networks to waste stabilization pond. At times these desludging vehicles dispose in vacant or farm lands due to difficulty in access to the disposal sites. A designated treatment plant hence becomes necessary for safe handling and disposal of Faecal sludge.

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9. I humbly submit that the Government of Tamil Nadu is taking steps to improve urban sanitation and as a first initiative the Tamil Nadu Urban Sanitation support program was conducted and many agendas were discussed including city sanitation planning. A Technical Support Unit (TSU) has been set up to assist the Government of Tamil Nadu to achieve full chain of sanitation in the urban locations. The Technical Support Unit has been setup under the Tamil Nadu Urban Sanitation support program in the Municipal Administration and Waster Supply Department. Under the said program Trichy City Corporation is chosen to demonstrate pilot projects along the sanitation value chain.

10. I humbly submit taking safety and hygiene into consideration and to avoid unsecured disposal of Faecal sludge, the answering Respondent corporation proposed the Plan for which the Respondent Corporation sought the help from an organization viz., Indian Institute of Human Settlements, which is having requisite expertise in this field offered technical and financial support and thereafter a Memorandum of Understanding ("**MoU**") was entered into between this Respondent corporation and the Indian Institute of Human Settlement ("**IIHS**") on 21.09.2016.

11. I humbly submit that as per the MoU, IIHS has taken the responsibility for implementation of the Plant with a view to prevent environmental pollution and safeguarding the public health through the sage treatment and disposal of Faecal sludge. According to the MoU, the responsibility of IIHS for implementation of the treatment project also includes construction and commissioning of the treatment facility within the prescribed period. Therefore, this Respondent Corporation along with the above institution proposed the project to construct a pilot Faecal sludge treatment plant in Kasivilangi, Kulamani Road, Woraiyur, Block No. 12, T.S. No. 19/9 in the Corporation Lands.

C. <u>Legal Compliances</u>

12. That the Respondent Corporation sought permission from PWD, Trichy for discharging the treated waste water into Kudamurthi drain.

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After consideration and site inspection, vide letter dated 15.12.2016, it was recommended that permission would be granted, subject to certain conditions –

i. Meet the permissible tolerance limits as issued by the Central Pollution Control Board
ii. Tolerance limit to be tested periodically
iii. Lean flow to be maintained in the drain
iv. Inlet point into Kudamurti drain to be provided with shutter arrangement etc.

13. I humbly submit that the Consent Orders for Establishment of the proposed Faecal Sludge Treatment Plant were issued by the Tamil Nadu Pollution Control Board on 07.01.2017 under Section the Air (Prevention and Control of Pollution) Act, 1981 and the Water (Prevention and Control of Pollution) Act, 1974 after considering all the pollution norms with stringent conditions.

14. I humbly submit that all necessary permissions were obtained from the pollution control board and other departments to set up the Faecal sludge treatment plant and a sum of Rs. 3.27 crores is allotted to implement the above plant. The Faecal sludge treatment plant will be able to water to the treatment needs of more than 10,000 households to the sage disposal of Faecal sludge and will specifically benefit the properties in the neigbourhood covering about 5 to 6 wards. The de-sluding operators will also find it convenient to empty the septic tanks and bring the waste for treatment in the said Faecal sludge treatment plant. The treated waste water and the bio-manure are safe to release back into the environment, as it undergoes the necessary process. For the above said reasons the Faecal sludge treatment plant is not hazardous and certainly help for the hygiene environment.

15. I humbly submit that subsequent to the above said consent orders, this Respondent Corporation had commenced preliminary

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works for the said project in the 2nd week of January, 2017 and the local public was aware of the same since then.

16. I humbly submit that the Faecal sludge taken from septic tanks, pits and other on site containment and from house hold septic tanks is conveyed to the treatment facility using the de-sludging truck available with this Respondent Corporation or private operators. The Ward Nos. 45, 49, 53, 57 and 70 of K-Abhisekapuram Zone which are not connected to the sewerage system were disposing the Faecal sludge into their septic tanks and hence these wards were utilized for the said project.

D. Project Report on Faecal Sludge Treatment Plant

17. That a detailed project report titled, "Detailed Project Report for Implementation of 32 KLD Faecal Sludge Treatment Plant in Tiruchirappalli" has been prepared under Tamil Nadu Sanitation Support Program for designing and construction of the FSTP. A perusal of the aforesaid project report gives an overview of the concept and procedure adopted for developing an efficient Faecal sludge treatment plant.

I. Approach Road

18. The proposed treatment plant has been planned to be set up at Kasivilangi located in the North West of the city which is at a distance of 5 kms from Chattiram bus stand. The proposed site is owned by the Tiruchirappalli City Corporation and has a total area of 4 acres out of which 1.5 acres is made available for FSTP construction. The site is well connected to important arterial roads of the city with an all-weather approach road.

II. Faecal Sludge Management

19. I humbly submit that the proposed project in questions is only to treat the Faecal waste generated from the household septic tanks within the limits of this Respondent Corporation. The following are the technical process of the proposed Faecal Sludge Management:-

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i. Waste from the toilets should be safely carried to a treatment facility – some neighbourhoods have Underground Drainage Systems (UGD or sewerage) that carry away the human wastes to a treatment plant.

ii. Where there are septic tanks and pits, the Faecal matter (called sludge) needs to be periodically emptied and taken to a treatment plant to be treated.

iii. If the Faecal matter from the above toilets leaks into the environment, either through exfiltration or seepage from the sewer pipes or is directly thrown into the open fields, it can cause smell, nuisance, and health problems apart from environmental problems.

iv. Tamil Nadu has been a pioneer in prioritizing water, sanitation and public health of the people, and has invested not only in sewerage and treatment plants, but also issued Operative Guidelines for Septage Management, i.e. Faecal sludge from septic tanks and pits. The State has now come up with an innovative plan of treating Faecal sludge and converting it into useful products such as bio-manure, by setting up Faecal Sludge Treatment Plants in urban locations.

III. Implementation of Faecal Sludge Treatment System

20. I humbly submit that the treatment concept for Faecal sludge treatment in Trichy town has been developed considering mainly

a) Maximum treatment efficiency

b) Hygienic and safe operation

c) Minimum operations and maintenance requirements

21. That only certified and licensed Faecal sludge transporters to de-sludge and transport waste to the FSTP as per the Operative Guidelines for Septage Management for Local Bodies of Tamil Nadu. The transporters also have to fill in the form as prescribed by the ULBs

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which has details of waste identification, waste generator address and so on.

22. The Faecal sludge received at the treatment facility would be treated in various stages using different treatment modules as described below:

i. Testing of incoming Faecal sludge

The waste received at the site from the desludging vehicles (transporters) will be checked for the source of waste from the forms submitted by them. If the waste is of industrial origin, it will not be accepted. The waste will also be sampled and tested by the plant operator for assuring that the waste is not of industrial origin.

ii. Pre-treatment

The desludging truck carrying Faecal sludge will be directed to a receiving point inside the treatment facility. The Faecal sludge received at the treatment facility will be discharged into the screen and grit chamber (four in number) by means of gravity where it undergoes pre-treatment without any exposure to the desludging operator. Large and inorganic solids are trapped in this using a vertical screen and Grit chamber.

The solids collected at this chamber is removed regularly and dumped along with municipal solid waste arrangement made by TCC.

iii. Sludge stabilization

The liquid sludge (mixture of liquid and solids in slurry form) from screen and grit chamber is further conveyed to a Sludge Stabilization Reactor (four in number) through gravity for treatment. The main objective of this treatment system is removal of degradable organic substance and for improving its dewatering ability.

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The tank has three chambers, the first chamber of the stabilization tank acts as a homogenization reactor, where the organics are mixed thoroughly. The second chamber provides a digestion zone for anaerobic treatment of organics present in the Faecal sludge. The third chamber is a designed for 1-day retention time to collect digested sludge and pump it to further treatment modules.

iv. Sludge Drying

The solids collected at the bottom of the stabilisation reactor in the form of slurry are pumped to sludge drying beds. The sludge drying beds are structures with sloped base for holding graded filter media. The sludge undergoes liquid-solid separation and also drying. The percolate from the sludge drying bed is collected and conveyed to the Integrated Settler and AF for further treatment. The dried sludge from the drying beds are removed periodically and transferred to the sludge storage shed located within the premises.

v. Sludge percolate treatment

a. The percolate from the sludge drying bed is subjected to anaerobic treatment in the settler integrated with an Anaerobic Filter. It is proposed to provide a settler before the anaerobic treatment to trap solids. Anaerobic Filter is used for removal of organic matter in the percolate.
b. The treated wastewater from the anaerobic filter is further treated using a Vertical Planted Gravel Filter (VPGF). It helps in infusion of oxygen into the passing wastewater, thereby reducing of organic matter, removal of nutrients, removal of odour, colour.

vi. Tertiary Treatment

A module consisting of sand and carbon filter, and UV treatment is planned for tertiary treatment. It is likely that the effluent from

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VPGF will meet TNPCB, 2017 standards. This tertiary treatment shall be optional and will be implemented if required.

IV. Design Description

23. I submit that the treatment plant is subdivided into four decentralized units of 8 cum each within the FSTP site. There are 4 Screen and grit chamber, 4 Stabilization reactors and 48 sludge drying beds (12 for each stabilization tank). However, there is a common percolate treatment facility for 32 KLD in the form of a DEWATS with a unit of integrated settler and anaerobic filter (includes a settler and there chambers of anaerobic filter) and two numbers of vertical planted gravel filter and a final collection tank.

V. End Products

24. After undergoing these 6 stages it results into two end products namely (1) Bio solids and (2) Treatment Water. Thereafter again it was treatment (Bio-manure) and the treated bio solids can be used as a soil conditioner for farming as they are rich in nitrogen, carbon and Phosporus. The treated water can be reused for irrigating plantations in the nearby farm lands. The remaining unused treated sewage water would be discharges into Kudamurti drain and for which proper permission is also obtained from the appropriate department. Hence, the above plant is pathogen free odourless and would not harm the environment and the human beings.

VI. Process of Faecal Sludge Treatment Plant

25. The entire work of the Faecal Sludge Treatment Plant can be divided into three stages:

i. Collection of Faecal Sludge from the septic tanks of residential homes – this is done by de-sludging operators; their job will be easier if there is an FSTP nearby.

ii. Treatment at the Plant - the FSTP will be able to treat Faecal sludge brought by de-sludging operators at the FSTP using a scientific, safe and environmentally sound technology.

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iii. CPCB and TNPCB Standards and by-products: The treatment will be done to meet the stringent standards specified by the Pollution Control Board. The resulting treated wastewater and bio-solids can be used for irrigation, farming, etc. without any danger to public health or environment. In fact, these will be environment friendly and sustainable since the plant will not use too much energy.

VII. Benefits of Faecal Sludge Treatment Plant

26. That following are the benefits of the Faecal sludge treatment plant:

i) Improved de-sludging and immediate local treatment.

ii) De-sludging operators will be facilitated by having an FSTP nearby – no need for transporting over long distances, or dumping in non-designated locations.

iii) Proper management of human excreta can go a long way in creating a healthy society. Expected reduction in diseases because of less untreated excreta in the environment.

iv) Opportunity to sell bio-manure or use it locally in the FSTP for gardening etc.

VIII.PARKING SITE

27. I humbly submit that the land of 4 Acres owned by this Respondent Corporation in the above referred land is bifurcated into three parts. The western part is the site proposed for Faecal sludge treatment plant, while the southern part is for a proposed fish market. The centre portion is proposed for a buffer zone consisting of thick vegetation between the Faecal sludge treatment plant and fish market. The site is located at the distance of 6 Km away from the centre of the City. Besides, the entire process of the plant would take place sub surface and therefore no odour would emanate and also no human contact is ensures. The bifurcation is as follows:-

a. 1.5 acres for fish market,

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b. 1.5 acres for faecal sludge treatment plant and

c. the remaining 1 acre of land for green belt area which proposed to be formed in between the fish market and faecal sludge treatment plant.

28. I humbly submit that this Respondent Corporation has proposed to use a small portion of land of an extent measuring 30 Mtr. x 27 Mtr. = 810 Sq.Mtr (8,715.60 Sq.Ft.,) for car parking facility in the site in question for fish market, which is highlighted in the sketch annexed herewith. There is enough land is available for this Respondent to establish the proposed Faecal Sludge Treatment Plant, adjacent to which, green belt area of about 1 Acre is also available.

It is therefore prayed that this Hon'ble Court may be pleased to record the above statement and dismiss the above appeals and pass such further or other orders as this Hon'ble Tribunal may deem fit and proper in the circumstances of the case and thus render justice.

Solemnly affirmed at Tiruchirapalli •
on this 2nd day of March, 2021 •
and put his signature in my presence •

COMMISSIONER
Tiruchirappalli City Corporation

BEFORE ME

Roll No.MS 303/98
02/03/2021
Advocate : Tiruchirpalli

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