
A Note on Regulation of Decentralized Sewage Treatment Plants (STPs) in Karnataka

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1 Regulations Mandating the Construction of Decentralized Sewage Treatment Plants (STPs)

In January 2016, the Department of Forest, Ecology & Environment (FEE) issued Notification No. FEE 316 EPC 2015, Bengaluru, dated 19.01.2016 mandating the installation of Decentralized Sewage Treatment Plants (STPs) for following activities:-

Table 1: Activities that require mandatory installation of STPs

Sl. No.	Activities that need to install STP compulsorily and ensure reuse of treated water
1	All the residential group housing projects/Apartments with 20 units and above or having a total built-up area of 2000 square meters including basement shall install STP.
2	Commercial constructions Projects (Commercial Complexes, Office, IT enabled activities etc.) with total built up area of 2000 square meters and above shall install STP.
3	Educational Institutions with or without Hostel facility having total built up area of 5000 square meter and above shall install STP.
4	Townships and Area Development Projects with an area of 10 acres and above shall install STP.

Under the Water (Prevention and Control of Pollution) Act 1974¹ and the Rules² made thereunder, any project requires three types of permission from Karnataka State Pollution Control Board (KSPCB):-

1. Consent for Establishment (CFE) before beginning the activity/project;
2. Consent for Operation (CFO) before beginning operation of the activity/project;
3. Consent for Expansion (CFEx) before expanding operation of the activity/process.

As per the above FEE notification, KSPCB would include building of an STP as a requirement before granting CFE/CFO for any activity/project. The CFE is mandatory for seeking approval of the project from BDA/BBMP/BMRDA/City Corporations; for obtaining water connection from BWSSB/Karnataka Urban Water Supply and Sewerage Board; and for obtaining permanent electricity connection from BESCOM/CESCOM/GESCOM/HESCOM.

¹Sec 25 and Sec 26 of the 1974 Act.

²See Rule 32 of The Karnataka State Board for the Prevention and Control of Water Pollution (Procedure for Transaction of Business and the Water (Prevention and Control of Pollution) Rules, 1976.

As per the Notification KSPCB/798/COC/2016-17/1425 dated 15-06-22016, the CFO has to be renewed periodically dependent on the following:-

Table 2: Consent Validity Period and Inspection Frequency of various categories of STPs

Sl. No.	STP Category	Consent Validity Period	Inspection Frequency
1	STPs Established at Residential apartments, Commercial complex, Housing colony with wastewater generation more than 100KLD (Red)	5 years	At least once a year
2	STPs Established at Residential apartments, Commercial complex, Housing colony with wastewater generation less than 100KLD (Orange)	5 years	At least once in 3 years
3	STPs Established at Residential apartments, Commercial complex, Housing colony with wastewater generation less than 10KLD (Green)	10 years	At least once in 5 years

For category classification see: [KSPCB website](#).

For the inspection frequency see PCB/782/COC/2016/7158 dated 31.03.2016.

2 BWSSB Regulations

Within Bangalore, additional regulations with respect to STPs were introduced by Bangalore Water Supply and Sewerage Board (BWSSB), first in 2017,³ and later the schema prescribed in the FEE Notification was modified vide Bangalore Sewage [Amendment] Regulation, 2018, to arrive at the following regulations regarding compulsory installation of STPs:⁴

³BWSSB Notification No: BenJaMan/Aa /PaMuA(Ni)/UMuA(Ni)-2/Ta.Sam-3/608 dated 16.04.2017.

⁴The Hindu, STP: government to suspend penalty clause for existing apartments, December 1, 2017.

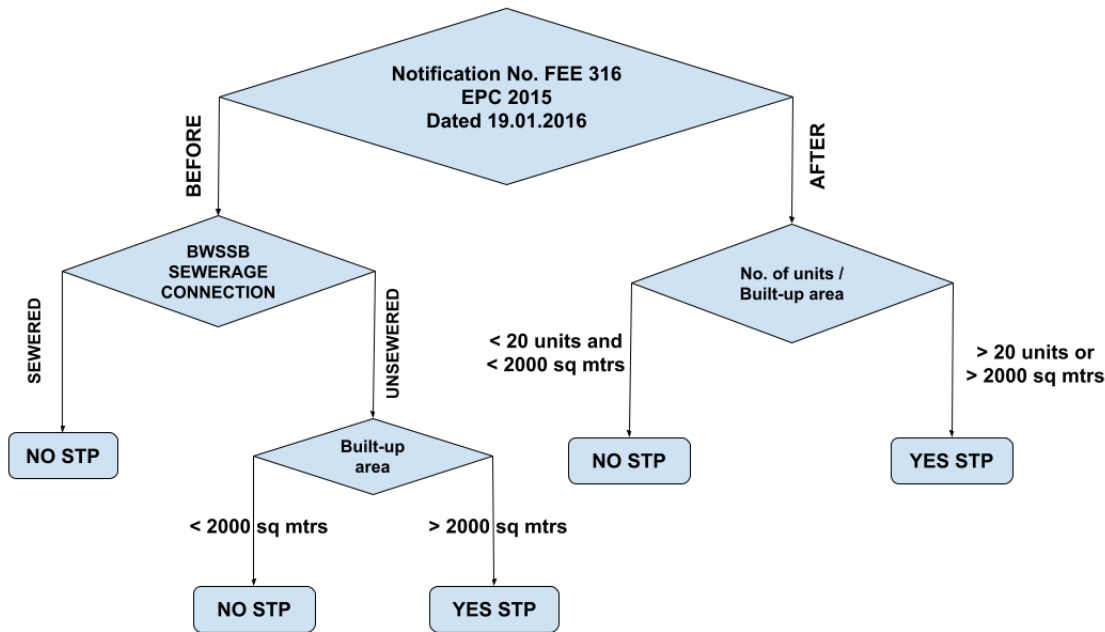


Figure 1: **BWSSB** Regulations regarding mandatory installation of **STPs**

3 Treatment Standards

Under the Water (Prevention and Control of Pollution) Act 1974, treatment standards have been prescribed which the treated water has to meet. As per the **KSPCB** Notification No. PCB/074/STP/2012/4976 dated 05.12.2015 the following discharge standards have been prescribed, which are applicable for the sewage treated for the **STPs** established by local bodies, industries, commercial establishments, apartments, residential layout, townships, CETPs treating only sewage:-

Table 3: Effluent Discharge Standards For Sewage Treatment Plants (**STPs**)

Sl. No.	Parameters	Parameters Limit
1	pH	6.5-9.0
2	Biochemical Oxygen Demand (3 days at 27oC) (mg/l)	Not more than 10
3	Chemical Oxygen Demand (mg/l)	Not more than 50
4	Total Suspended Solids (mg/l)	Not more than 20
5	Ammonical Nitrogen (mg/l)	Not more than 5
6	Total Nitrogen (mg/l)	Not more than 10
7	Fecal Coliform (MPN/100 ml)	Less than 100

4 Implications for Manual Scavenging

These regulations are intended to contain and reduce water pollution but no thought has been given to the issue of manual scavenging and the safety of the workers who are made to clean these STPs. As long as the STPs are installed and meet the specified discharge standards, any technology can be used and no regulation regarding how these STPs are to be cleaned are specified. In fact, most technologies in use require annual cleaning of STPs and with STPs being made compulsory for apartments above 20 units/2000 sq. meters built-up area, several STPs continue to spring up across Bangalore while the ability of KSPCB to inspect them is non-existent. Thus, the phenomenon of manual cleaning of STPs will only increase in the coming future unless a comprehensive set of regulations prescribing the procedures to be followed for Operation & Maintenance of the STPs is prescribed.

5 Directions issued by various Authorities

Following such incidents of deaths in STPs, and in response to public protests, several meetings have been held by senior government officials and statutory bodies, after which several significant decisions were arrived at and directions were issued, although the compliance has remained patchy:-

5.1 Directions issued by Karnataka State Commission for Safaikarmacharis

In a meeting held with BWSSB officials, chaired by the Chairman, Karnataka State Commission for Safaikarmacharis, following directions were issued regarding STPs:-

- BWSSB, BBMP and KSPCB should form a joint team and survey all the STPs in the Bengaluru and ensure that a "Danger" sign-board is installed at all these locations.
- BWSSB, BBMP and KSPCB should identify all the STPs which have been constructed without any permission/license/consent and take appropriate action. Any cleaning of STP at apartments, hospitals or elsewhere should be done with all the equipments listed in Prevention of Employment as Manual Scavengers and their Rehabilitation Rules, 2013.
- The Commission noted that it has observed during its visits to centralized STPs operated by BWSSB that the workers there are not provided any safety equipments and are

not being paid minimum wages as per law. Hence, **BWSSB** should ensure that all the workers employed at centralized **STPs** coming under **BWSSB** should be provided with safety equipments and be given minimum wages.

- All the sanitation workers working under **BWSSB** including those working in centralized **STPs** should be given identity cards with signatures of the worker, the immediate employer and the primary employer.
- Master health-check-up should be carried out once every three months for ll the sanitation workers working under **BWSSB** including those working in centralized **STPs**.

5.2 Meetings under the Chairpersonship of Chief Secretary, Government of Karnataka

In a meeting chaired by the Chief Secretary of Government of Karnataka on 23-02-2018, a series of directions were issued to the Bangalore Water Supply and Sewerage Board (**BWSSB**):-

- Private contractors who fail to provide safety equipment to workers engaged for cleaning **STPs** shall be fined between Rs. 50,000-1,00,000 and if it is the **BWSSB**, then appropriate officers shall be fined.
- **BWSSB** should frame appropriate rules to manage and regulate both private and government **STPs** and to put a 'danger' sign outside every **STP**.
- Creating awareness among the public about use of Sucking and Jetting Machines for cleaning of **STPs** by contacting **BWSSB** or **BBMP** or private organizations whenever **STPs** are required to be cleaned.
- A Manhole Cleaning Task Force (MCTF) should be formed, along the lines of Fire Services, to put a stop to the deaths in manholes/**STPs**.
- **BWSSB** must constitute a team of officers to conduct a survey of number of **STPs** in Bangalore and submit it to the government within 7 days. If any of these **STPs** are being operated without licenses/consent then appropriate directions should be issued to the concerned persons.
- A helpline number should be established by **BWSSB** and **BBMP** which the general public can call to avail mechanical services for cleaning of manholes, **STPs** and pits.

These directions were not complied with by the **BWSSB**. The Karnataka High Court in matter WP 8928/2020 c/w 3211/2018 passed interim directions on 19-12-2020 asking the government to place on record the compliance with the orders passed in the meeting held under the chairmanship of the Chief Secretary of Government of Karnataka on 23-02-2018.

5.3 Meetings held under the Chairpersonship of Additional Chief Secretary and Development Commissioner

In a meeting chaired by Additional Chief Secretary and Development Commissioner on 28-05-2019, following directions were issued:-

- The Karnataka State Pollution Control Board (**KSPCB**)/concerned authorities in-charge of granting licenses/consent/permission for **STPs** should issue appropriate instructions for installation of "Danger boards near **STPs**.
- **BWSSB** should take issue paper advertisements to identify owners of private Sucking and Jetting machines involved in cleaning of **STPs** and the workers in such cleaning. The sanitation workers identified through this should be provided with training through **BBMP**.

6 Action taken by **KSPCB** so far

The Karnataka State Pollution Control Board (**KSPCB**) issued Official Memorandum (OM) No 4504, dated 15.01.2021 asking the Regional and Zonal Offices to conduct awareness programs to all **STPs** to ensure they make use of the Mechanical cleaning Equipments, while cleaning the their **STPs**, instead of resorting to manual cleaning. Subsequently, the **KSPCB** issued a Office Memorandum (OM) on **STPs** (**KSPCB/SEO-INFRA/STP-GUIDELINES/2020-21/5446**) dated 01-03-2021. The OM noted that

The location of these **STPs** is equally important besides its Operation & Maintenance. It is observed that majority of **STPs** mainly of the Residential apartments are either provided not in the proper location leading to the frequent complaints by the residents about noise and odor nuisance. Also in many cases, the unit operations are not properly designed and the treatment technology is not properly adopted reading to non-conformity to the standards prescribed by the Board. The

Plant operators may not be aware of the functioning of various unit operations and this may result in discharge of untreated sewage which ultimately joins the water bodies and may also lead to seepage of water from the tanks thereby contaminating the ground water.

Thus, the primary concern here was still the improper treatment of water. The OM prescribed the parameters for selecting the location of the STPs and the technologies to be used for treatment. But some of the regulations contained in the OM had implication for the safety of workers as well. For example, the OM included the following prescriptions:-

VII. Caution Board At STPs:

1. The STP owner shall provide 'DANGER' sign board near the STP to maintain safety of the operational personnel and shall maintain operational safety protocol. Proper signages shall be displayed in both Kannada and English at the taps where treated sewage is flowing as "not fit for drinking".
2. Whenever there is a maintenance and staff get into STP, especially in the basements a display Board "Caution - Danger" shall be put up. The gases generated might choke & create breathlessness and may be fatal. During such activities the person entering shall do so with all protective equipment's including the Oxygen portable cylinder with a mask. Two more persons shall be watching from outside and shall immediately evacuate the person inside if such a situation arises. A minimum of two sets of such protective gear shall always be kept available in a working condition.

Within two months, this OM was withdrawn (vide PCB/05/INFRA/GEN/2022/680 dated 30-04-2022) based on legal opinion that the Board doesn't have any powers under the Water (Prevention and Control of Pollution) Act, 1974. No further efforts have been made to tackle the problem of manual scavenging arising out of the proliferation of STPs in Bengaluru. Meanwhile, since 2016, when the FEE notification mandating construction of STPs was issued by FEE, seven fatal incidents of manual scavenging in STPs have come to light in which 13 persons have lost their lives.

Table 4: List of Incidents of Worker Deaths in Sewage Treatment Plants in Bangalore

S. No.	Place of Incident	Date of Incident	No. of Persons Deceased	Name of the Deceased	Case Details
1	Shantinivas Apartment, Goraguntepalya	18.10.2016	2	Venkatramana (24 years), Manjunath (30 years)	Yeshwanthpur PS [CR 402/2016]
2	Jatti Dwarakamai Apartments, Whitefield	24.04.2017	1	Prithivi Raj (23 years)	Whitefield PS [CR 197/2017]
3	ND Sepal Apartments, Somasundarapalya	06.01.2018	3	Madegowda (45 years), Srinivas (52 years), Narayanswamy (43 years)	Bandepalya PS [CR 6/2018]
4	Prestige Langleigh Apartments, ECC Road, Whitefield	03.02.2018	1	Rajappa (38 years)	Whitefield PS [CR 46/2018]
5	Yamloka Restaurant, AECS Layout	13.02.2018	2	Ramu (25 years), Ravi (28)	HAL PS [CR 48/2018]
6	Prestige Falcon City, Konanakunte	04.02.2023	2	Ravikumar (39 years), Dilip Kumar Jena (24 years)	Konanakunte PS [CR 45/2023]
7	Shahi Exports Pvt Ltd., Hosur Main Road	23.12.2023	2	K Anand (41 years), T R Shashikumar (51 years)	Parappana Agrahara PS [CR 729/2023]

Glossary

BBMP Bruhat Bengaluru Mahanagara Pallike. 2

BDA Bangalore Development Authority. 2

BMRDA Bangalore Metropolitan Regional Development Authority. 2

BWSSB Bengaluru Water Supply and Sewarage Board. 2, 4

CFE Consent for Establishment. 2

CFEx Consent for Expansion. 2

CFO Consent for Operation. 2, 3

FEE Forest, Ecology and Environment. 2, 7

KSPCB Karnataka State Pollution Control Board. 2, 3

STP Sewage Treatment Plant. 2-4, 7