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NAALA CLEANING

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Abstract: One of the most significant issues we currently have is water contamination. In addition to damaging water supplies and sickening humans, it has an impact on the ecosystem. Our main goal is to maintain these waterways clean, therefore it's important to focus on the root of the problem. The extra water bodies can be kept clean if the first water bodies are cleaned thoroughly. We selected the naala in Laxmi Nagar because we want to clean the naalas as part of our project. Our primary goal is to maintain the water bodies' usability by lowering the pH and chloride contamination. In order to establish the quality of the water, we will additionally test its BOD and COD. Water hyacinth, a coarse concrete mesh that will serve as filter mesh, and a particular type of aerobic bacteria that eats the sewage present in the water will be used to evaluate the cleaning procedure.

Keywords: Water contamination, no fine concrete mesh, water hyacinth, aerobic bacteria , naalas.

1. INTRODUCTION

Pollutants that contaminate water sources make the water unsafe for drinking, cooking, cleaning, swimming, and other uses. This is known as water contamination. Pollutants include things like chemicals, trash, bacteria, and parasites. All forms of pollution eventually taint water. Air pollution contaminates lakes and oceans. An underground stream, a river, and ultimately the ocean could all become contaminated due to land contamination. Therefore, garbage dumped on an empty lot has the potential to someday contaminate a water source.

Water pollution can make people sick or poison them. Bacteria and parasites from improperly handled sewage may contaminate drinking water sources and lead to diseases like cholera and diarrhoea. Hazardous substances can be lethal or have a long-lasting harmful effect that can lead to neurological problems or cancer. Examples include pesticides, herbicides, and chemicals from establishments, farms, homes, and golf courses.

Numerous water pollutants enter our bodies when we use water for drinking and food preparation. The pollutants come in contact with the digestive system. They can then progress to various diseases by spreading to the body's other organs. Skin irritations can happen when chemicals come into contact with the skin while washing clothes or swimming in murky water. Hazardous compounds can affect the local flora and animals in addition to the water systems. Sometimes, in order to survive, these organisms keep the toxins in their bodies, only to be devoured by people who may then feel a little queasy or develop more severe toxic symptoms as a result. Even plants and animals have the potential to die or reproduce incorrectly.

Objectives:

A key objective of the project is the installation of efficient sewage interception and treatment facilities. These facilities are necessary to stop untreated sewage from immediately contaminating our water supplies. Installing robust sewage interception systems allows for the successful capture and transportation of pollutants and toxins to treatment facilities. Utilised in this situation are thorough treatment methods such biological filtration, disinfection, and sedimentation. By treating the sewage before reintroducing it into the subsequent body of water, we can significantly reduce the detrimental impacts on the ecology and preserve the integrity of the water.

The project also underlines the value of public knowledge and participation. Education programmes and community involvement initiatives are implemented to promote responsible water usage, waste management, and the need to safeguard our water resources. By fostering a sense of ownership and responsibility among people, we can inspire them to collaborate in the long run to preserve water and avoid pollution.

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2. LITERATURE SURVEY

A. Md. Alam, IJIFR, 2015. An experimental study of the properties of non-fine concreteNo, fine concrete has been utilised in several countries for over a century. Due to its enhanced porosity, it facilitates rainwater's direct entry into the ground, refilling the groundwater aquifer. Three batches of no-fine concrete, each containing two different sizes of aggregate, were built in an effort to identify the mix that produced a high compressive strength and explore the effect of the proportion of fine aggregate on the compressive strength of no-fine concrete.

Authors Rajnikant Prasad, Dayanand Sharma, Kunwar D. Yadav, and Hussameldin Ibrahim published a preliminary study on the use of water hyacinth for the treatment of greywater in May 2021. With regard to appropriate growth and harvesting frequency, the objective of this study was to evaluate the water hyacinth's potential as aquatic microphytes for phytoremediation in the context of greywater treatment. It was found that water hyacinth is a practical phytoremediation plant for greywater treatment, providing consistently treated water of high quality.

By Sonali Bhawsar, Strictly Anaerobic, Aerobic, and Facultative Bacteria 2019 February The growth of bacteria, viruses, fungus, yeast, algae, protozoa, and other microbes is made possible by the sewage. Sewage contains a variety of microorganisms, including pathogenic, nonpathogenic, saprophytic, autotrophic, heterotrophic, facultative, obligatory, aerobic, and anaerobic types. Millions of germs have been counted in each millilitre of diluted sewage sample. the common microorganisms found in sewage. Hossain Md Anawar and Rezaul Chowdhury (August 2020) using mechanical, ecological, biological, and chemical methods to purify contaminated river water The best river water treatment methods must be used if river ecosystems are to be restored. The various river water treatment systems have been thoroughly examined in this research.

3. METHODOLOGY

3.1 River cleaning procedure:

The Mula-Mutha river's current riverbank development plan has a lot of problems. It shouldn't be implemented in this manner. There is no information in the project about how to mitigate the effects of cloud bursts and much higher river water levels. The DPR neglected to consider the effects of climate change and featured numerous unreliable facts and data. Additionally, the project does not adhere to Indian river embankment rules. In certain places, the project will result in a 16-foot increase in water levels. The activists claimed that as a result of this, there would be floods and water rushing onto properties along riverbanks. They also claimed that information had been "falsely presented" to secure approval from the union environment ministry.

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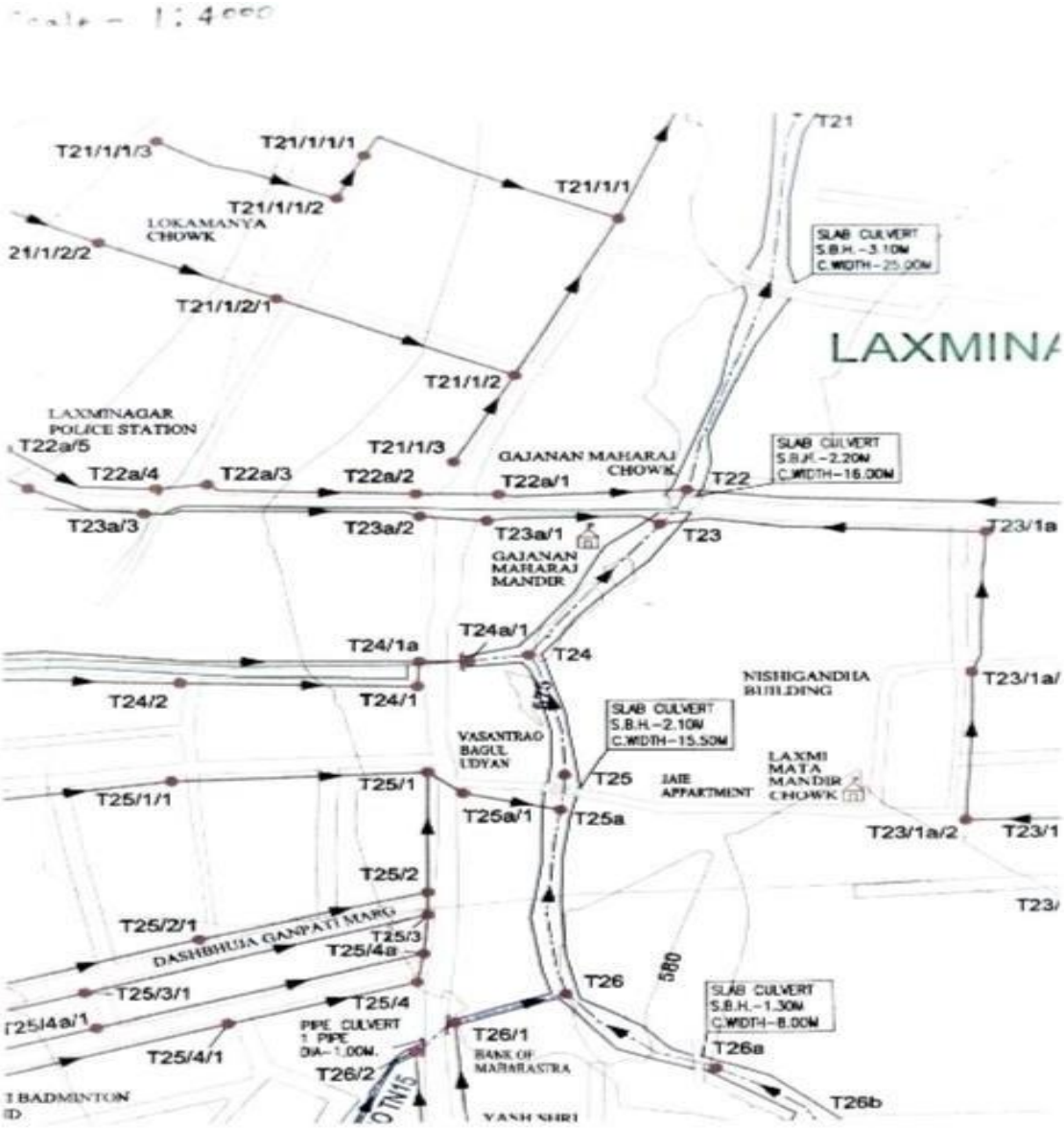

Fig. Laxmi Nagar Naala Map

Bacteria Cult:

Bacta Cult (Aerobic) are microencapsulated, preserved in a latent form, and have a 95% to 98% reactivation rate within their two-year shelf life. After being isolated from nature, each strain is meticulously created in our laboratories. Only a well crafted blend of bacteria, such as Bacta Cult(Anaerobic), can completely transform various pollutants into non-toxic byproducts.

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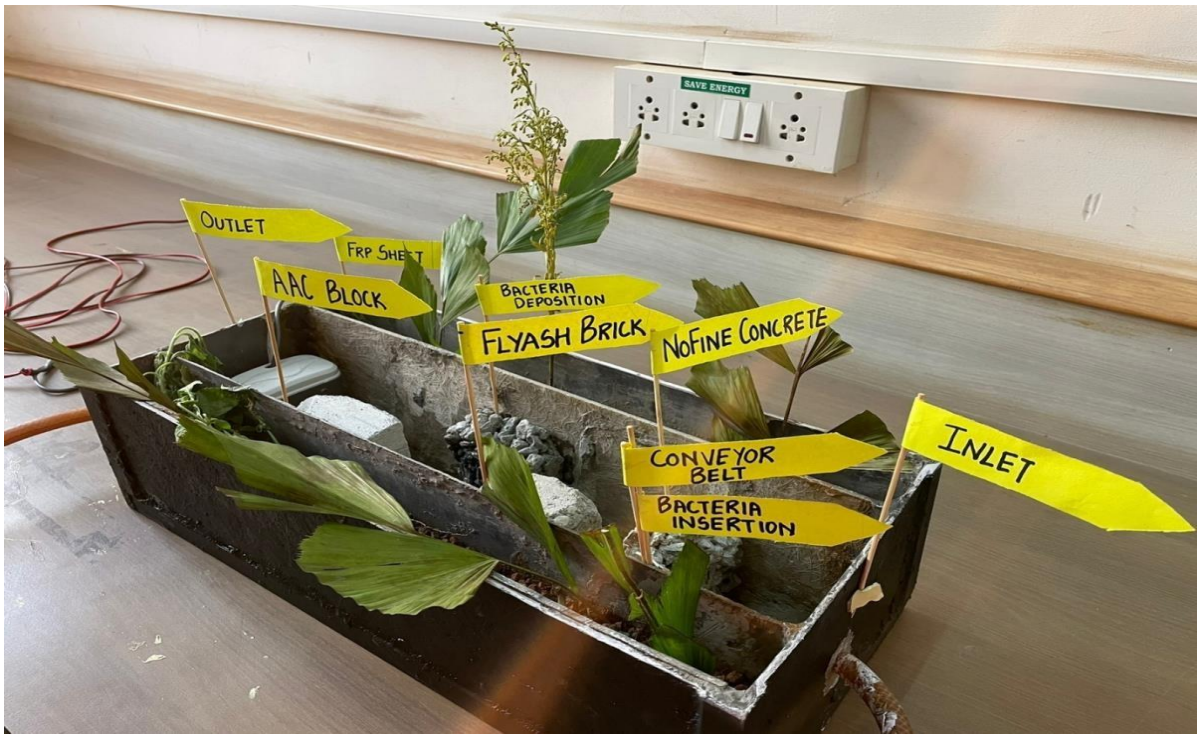

Fig Working model of " NAALA CLEANING

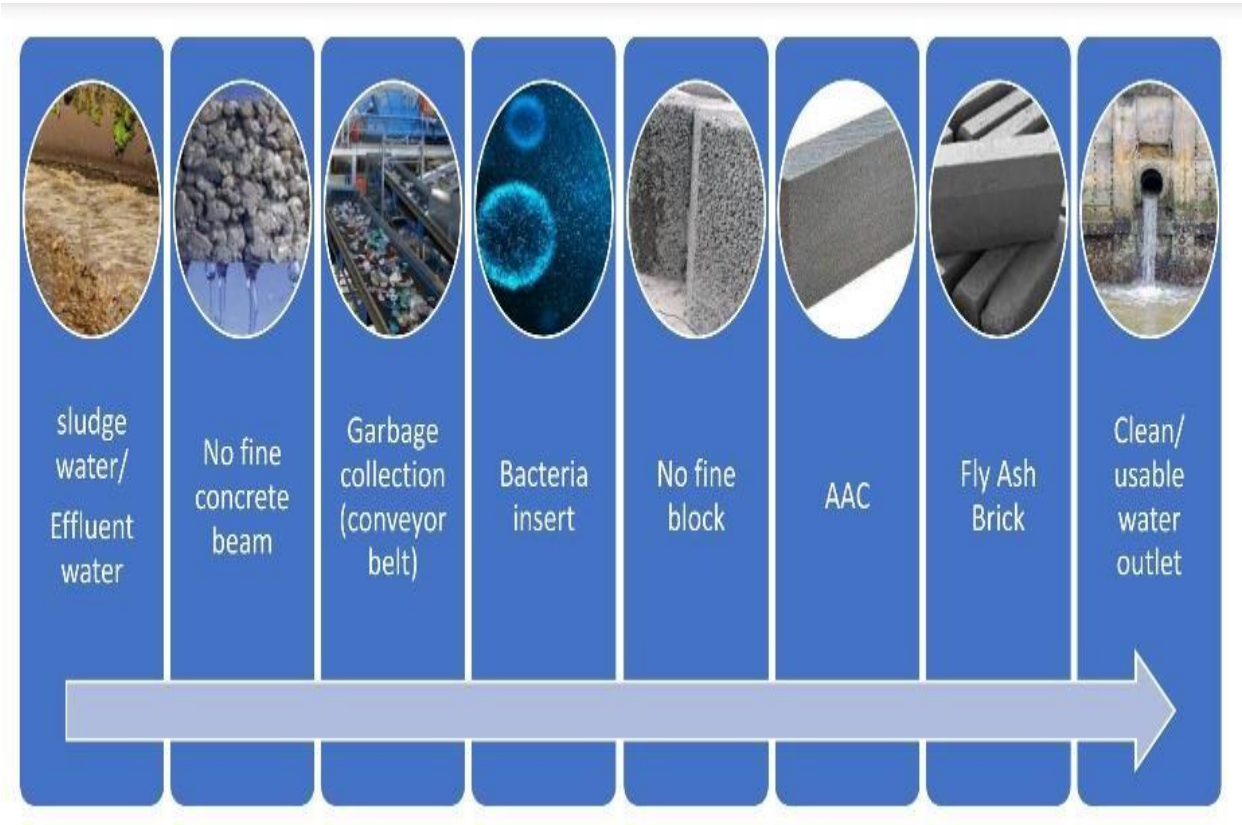

Fig. Flow Chart

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3.2 Testing of water sample:

Before starting the titration, rinse the burette with silver nitrate solution. Silver nitrate solution 0.0282 N should be added to the burette. After zeroing out the burette, place it in the stand. Transfer 20 mL of the sample to a tidy 250 mL conical flask. Add 1 mL of potassium chromate indicator for a light yellow colour. Tirate the sample until the end point, or when the colour changes from yellow to brick red, against a silver nitrate solution. Keep in mind the amount of silver nitrate that was applied (A). 3.3 mL is the titration value. Repeating the procedure is necessary for congruent values.

Blank Titration-

In a neat 250 millilitre conical flask, add 20 millilitres of the distilled water. Add 1 mL of potassium chromate indicator to get a light yellow colour.Tirate the sample until the end point, or when the colour changes from yellow to brick red, against a silver nitrate solution. Note how much silver nitrate was infused into the distilled water (B). 0.2 N is the titration value.

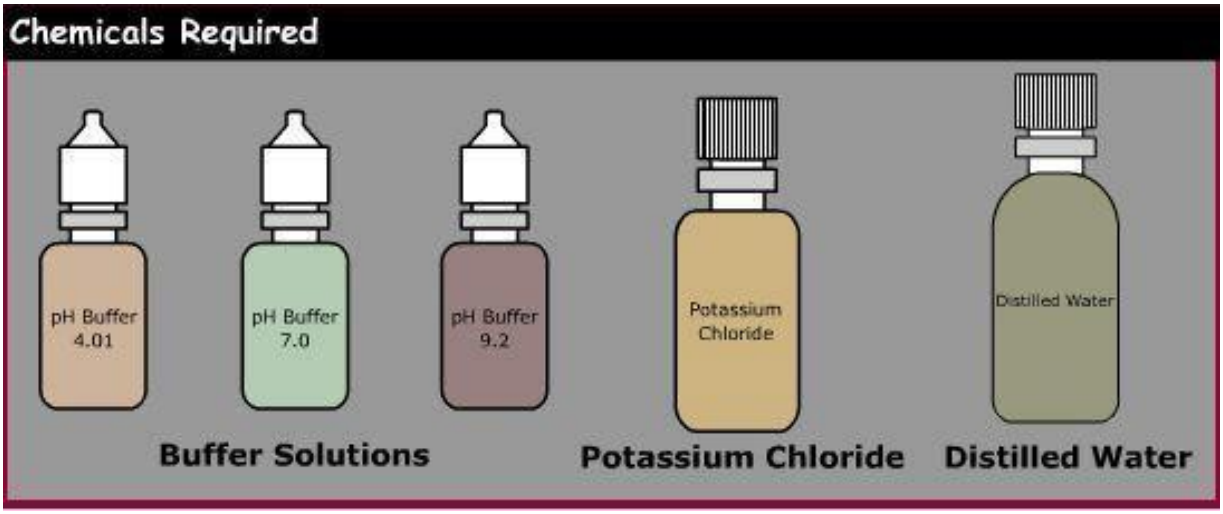
3.3 Determination of pH:

Need and scope of experiment:

The measurement of hydrogen ion concentration in a solution is known as pH, which is the negative log of the concentration of H+ ions in water and wastewater. Basic pH ranges from slightly over 7 to 14, while acidic pH values fall between 0 and slightly below 7. When the concentrations of H+ and OH- ions are equal, the pH is said to be neutral.

Principle:

The pH electrode used to measure pH is a mixed glass electrode. A sensor half cell and a reference half cell make up the electrode system. The internal solution, which is confined inside the glass membrane and has a known pH value, and the external solution, which is the sample to be tested, are separated by the thin, pH-sensitive, semi-permeable membrane that makes up the sensing half of the cell. By measuring the difference between an electrical potential that forms inside and one that develops outside, the pH of the sample can be identified.



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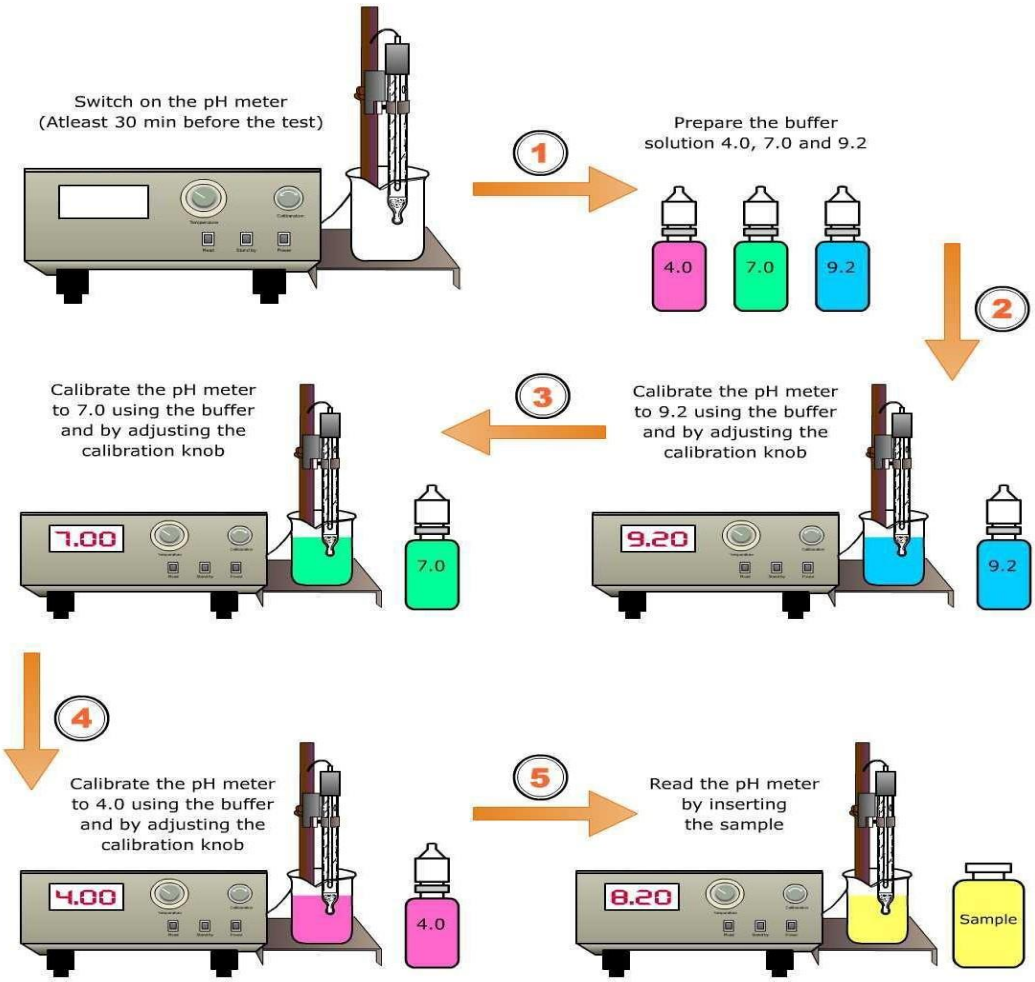
PROCEDURE CHART



3.4 Testing of sample:

- Place the water sample in a clean, dry 100 mL beaker, insert the teflon-coated stirring bar, and mix thoroughly.
- After that, insert the electrode into the beaker containing the water sample and check the pH metre for a reading. Wait until the reading is stable.
- The pH of the given water sample is 8.84
- Remove the electrode from the water sample, wash it in distilled water, and then carefully clean it with a soft cloth.

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4. CALCULATION

Discipline	Chemical Testing
Group	Environment and Pollution
Required environmental conditions	Chiller

Sr.no	Test Parameter	Standard / TestMethod	Test Results before treatment(mg/l)	Test Results after treatment (mg/l)	Permissiblelimit per (mg/l)
1	pH	IS:3025 (Part11): 1983 RA 2017	7.08	7.3	6.5 – 8.5
2	COD	IS 3025 (Part 58): 2006 RA 2017	130.1	110	250
3	BOD (3 days at27˚C)	IS 3025 (Part 44): 1993 RA 2014	46.4	29	30
4	Chloridesas Cl	IS:3025 (Part32) 1988 RA 2014	43.19	38	45-155

5. CONCLUSION

We have used cutting-edge wastewater treatment technology, and the results have been outstanding. First off, it effectively converts waste water into usable water, saving a valuable resource from being wasted. Furthermore, it significantly reduces the amounts of BOD (Biochemical Oxygen Demand) and COD (Chemical Oxygen Demand) in the water, enhancing its quality. The system is necessary for the breakdown of organic muck, which enhances the overall cleanliness and health of the water. Additionally, it promotes the stability of organic growth, which raises the level of oxygen for aquatic life, particularly fish. By preventing the spread of illnesses, it ensures a safer and healthier environment for both aquatic species and people who come into touch with water. The technique also effectively lessens repulsive odours, enhancing the atmosphere and enhancing human satisfaction. Finally, and perhaps most importantly, it helps the aquatic ecosystem's ecological balance return, allowing a variety of species to coexist peacefully and promoting a rich, sustainable environment. As a result of these advancements, our wastewater treatment system acquires a number of benefits that raise both the overall health of the ecosystem and the water quality.

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