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New Ways of Waste Water Management System in Rural Areas

Neha T. Gosavi¹, Rupali S. Dorle², Kiran G. Chavan³, Dnyaneshwari S. Pundkar⁴, Komal A. Rathod⁵,
Shubham A. Kawale⁶

U.G. Student, Department of Civil Engineering, MGI-COET, Shegaon, Maharashtra, India¹²³⁴⁵⁶

ABSTRACT: Wastewater is water whose physical, chemical or natural characteristics have been changed as a result of the prologue of certain substances which render it unsafe for some purposes similar as drinking. The day to day conditioning of man is basically water dependent and hence discharge 'waste' into water. Some of the substances include body wastes (faeces and urine), hair soap, hair, food scraps, fat, laundry greasepaint, fabric conditioners, washroom paper, chemicals, soap, ménage cleansers, and dirt, micro-organisms (origins) which can make people ill and damage the terrain. When perfecting an being and/ or designing a new sanitation system, sustainability criteria related to the following aspects should be considered (1) Health and hygiene (2) Environment and natural resources (3) Technology and operation (4) Financial and profitable (5) Socio-artistic and institutional aspect.

KEYWORDS: Waste water, household waste, toxic contaminants, in soluble particles, scraps, fat.

I. INTRODUCTION

Waste Management is the process of collecting, transporting, separating, discarding, destroying, recycling, recovering, controlling, monitoring and regulating the waste, sewage and other waste products. Main aim of the waste management is to save the surroundings from harmful effects, free from pollution and also to protect the people's health from the hazardous effects. To manage these wastes, many ultramodern methodologies are borrowed in the worldwide. They're biological reusing, recover through recycling, ditching in hygienic sanitary landfill, composting, waste to energy, bioremediation, incineration, pyrolysis, plasma gasification, disposal in ocean/ ocean, etc. These waste management methods make the environment a better place for the living creatures to survive. This also paves the way for the future generation to live in the peaceful and healthy environment. Chancing and taking on the best waste management method is the need of the hour and also necessary for the well-being of the people in the world. By this, the waste management process will get actually effective and successful. This paper tries to portray the different waste management methods which has been espoused in the different parts of the world Sufficient and acceptable supply of clean, safe and drinkable water on a regular basis, are among the foremost issues faced by the people now a day. To accomplish this objective wastewater should be treated so that it can be reused and also the environment should be saved by the harmful effects of the untreated wastewater. Then we will study the use of nanotechnology that can help in wastewater treatment. As we all know traditional wastewater treatment technologies continue to be ineffective for delivering ample safe water due to increasing demand of water along with severe health guidelines and arising pollutants. The development of cost-effective and steady materials and methods for giving the potable water in sufficient quantities is the need of the present world. Nanotechnology based multifunctional and highly efficient processes are giving affordable results to wastewater treatments that don't require a large structures or centralized systems. The aim of the present study is to review the possible uses of the nanotechnology for the removal of contaminants from wastewater.

II. OBJECTIVES

1. To ameliorate quality of wastewater.
2. Elimination of contaminants, toxics and numerous such dangerous substances.
3. Preservation of water quality of natural water coffers.
4. To make wastewater usable for other purposes.
5. Prevention of dangerous diseases.
6. To reduce effect of waste water on living.
7. To get alternative source for water for moping, flushing, ground clearing, gardening.
8. To recycle grey water escaping from institute for institute itself.

2. NEEDS:

1. For proper waste water management at Institute level.
2. For protection of humans and the ecosystem from dangerous and poisonous elements found in wastewater.
3. For avoiding waste water effect on human, living as well as effect on waterway and marine life.
4. For gaining another water source if Institute activities like flushing, moping, etc.
5. For reducing pressure of waste water from terrain.
6. To avoid adverse effects on groundwater.
7. For reduction of water pollution, soil pollution.
8. .For controlling conditions passing due to waste water.
9. For betterment of environment near to institute.

3. ADVANTAGES:

1. **Rids Potential Diseases:** Wastewater treatment systems exclude disease-causing bacteria and kills dangerous organisms. It filters out similar pollutants before the wastewater leaves the tank and enters the ground. This filtering process prevents diseases from entering water sources or reaching plants and farmstead animals.
2. **Low- Cost:** Wastewater systems can last for over to 15 times if they're maintained rightly. They give a veritably cost-effective means of treating water and keeping unwanted bacteria at bay. There are numerous grants and other forms of monetary aids available now to help you with the cost of buying a wastewater system.
3. **Minimum Odor Emigrations:** In comparison to earlier systems, ultramodern waste water systems eject minimum odors. Something which frequently put people off investing in a septic tank or analogous system is because they couldn't stand the odors it could frequently bag. With ultramodern systems, once they're watched for rightly, odors aren't an issue
4. **No Water Bills:** Water charges are an unfortunate reality in numerous countries in moment'sworld.However, you don't have to worry about water bills, If you have your own wastewater system on your property. Pumping water into the system costs veritably little too, so you clearly save on costs in this regard.
5. **Little Conservation:** Ultramodern wastewater systems bear veritably little conservation and last much longer than the aged models. Depending on usage, a septic tank might needed-sledging every 2 times or so, with conservation examinations conducted only every 2-3 times
6. **Break down Solids Faster:** Utmost ultramodern wastewater systems are aerobic systems which have the capability to break down solids much faster than old systems. Thus, blockages come lower of an issue, de-sledging is needed less constantly and lower solids pollute the groundwater and drainage field.
7. **Lower Extravagant:** Ultramodern day septic tanks don't waste water as important as main lines. There's no excess of waste water having to be treated for just one use of the toilet or one load of laundry. The water used is returned directly to the earth and filtered naturally.
8. **Feasibility:** A new way of wastewater system has come more doable in ultramodern times and developments in technology allow ultramodern systems to beeco-friendlier, provident and easier to maintain in comparison to former models.

4. DISADVANTAGES:

1. **Space:**A wastewater treatment plant requires to have enough space to position the plant and for the treated water to distribute an area the wanted distance from boundaries. Your original council or water authority will generally set these regulations.
2. **Installation costs: when** compared with a connection to your original city sewage or a septic tank set-up the cost of a sewage treatment plant can be seen as a disadvantage. Still, once installed and over and running the costs are minimum and the life of the system will extend past that of a septic tank.
3. **Power:** The wastewater treatment plant requires reliable electricity to operate pumps.
4. **Sporadic use:** This style of wastewater treatment relies on a harmonious force of sewage to stop the unit drying out making it not ideal for homes with sporadic water use or long ages ofnon-use.
5. **Garden restrictions:** Care needs to be taken with the shops in the immersion area which can limit the kind of garden you have. It's recommended that edible plants aren't used, only lawn or shrubs or trees with shallow root systems are included.

III. METHODOLOGY

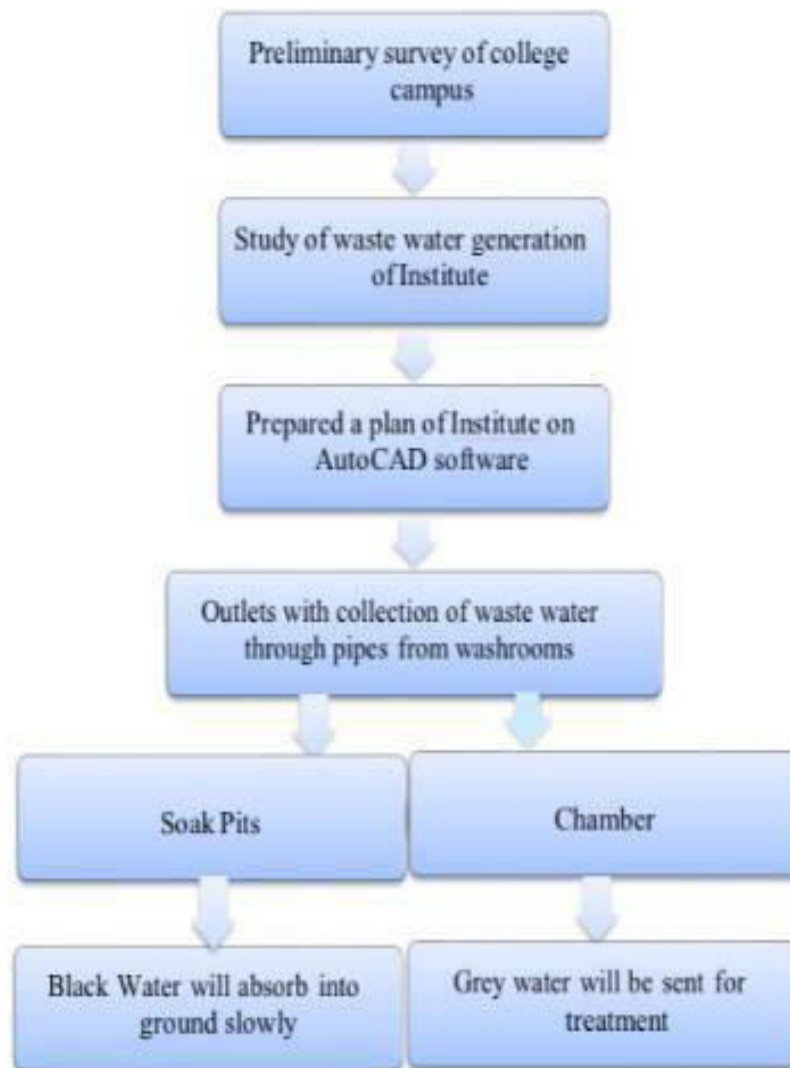


Fig. 1 Flowchart of Methodology

IV. EXPERIMENTAL RESULTS

Sr. No.	Test Parameter	Results Obtained	BIS Specification 10500:2012 Normal Values	
			Desirable Limits	Permissible Limits
1	Physical Appearance	Yellowish tinge with very fine suspended particles	-	-
2	Odour	Unpleasant odour	Agreeable	Agreeable
3	Turbidity (as N.T.U)	144	1.0	5.0
4	pH Value	7.18	6.5 to 8.5	No relaxation
5	Chlorides (as Cl)	169	250	1000
6	Nitrates (as NO ₃)	26.004	45	No relaxation
7	Total Hardness (as CaCO ₃)	616	200	600
8	Alkalinity (as CaCO ₃)	476	200	600
9	Total Dissolved Solids	1209	500	2000
10	Iron (Fe)	0.435	0.3	No relaxation
11	Fluoride (as F)	0.670	1.0	1.5

Note: All the bold values show that tests are successfully passed

Table 1 Test Results

V. CONCLUSIONS

Conclusions are made from the attained results, Central Public Health and Environmental Engineering Organization (CPHEEO) and IS 10500:2012.

1. The alkalinity to be moved from bicarbonates to chlorides or sulphates to help also choking the soil pores by evaporation of the temporary hardness. Hence this treated water is useful for landscaping.
2. The Indian water closets when flushed can sow and splash the flush water above the hem and onto the bottom rest areas, it's necessary that similar exercise shall be only after activated carbon and ultra-filtration membranes.
3. It shall not be made obligatory in layouts and confined condominiums and multiplexes and stimulant and persuasion shall be espoused

4. Policy of septic tanks on- point followed by binary drain shall be encouraged as a practical possibility. Hence this water is useful for flushing purpose at institute as well-conditioned hotel position.
5. As results attained, this water is useful in mopping and drawing purpose for institute and caravansaries as pH value is which is introductory and safe for mopping. It does neither cause skin vexation nor any kind of damage to structure.
6. Though this water isn't good for consumption but it fulfils the demand of institute, caravansaries during dry days. Hence institute is now tone-sufficient for using acceptable quantum of water.

VI. PHOTO GALLERY



1Flyashtreatmentunit model



2Waste waterbefore and after treatment



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