

A Study on Disposal of Domestic Wastewater by Magic Soak Pit Method in Rural Areas

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Abstract – The waste water from houses like water used for bathing, washing clothes and utensils is disposed in gutters and on open land in rural areas. Such water creates unhygienic condition in nearest areas. Also villages have lack of drainage system. Such disposal creates nuisance of mosquito to the people and also various diseases rises. The study is about disposal of domestic wastewater without creating unhygienic condition at domestic level. The study uses the method of magic soak pit for disposal of wastewater. The study identifies that the magic soak pit method is unhygienic and safe to dispose the wastewater. The method used is not only disposes the wastewater but also increases the ground water level.

Key Words: Magic Soak Pit, Disposal, Unhygienic Condition Wastewater, Groundwater Recharge.

1. INTRODUCTION

The magic soak pit is an underground structure used to dispose the wastewater. The wastewater generated in houses like water used for bathing, washing clothes and utensils is commonly disposed in this pit. Such water percolates in the ground and filtered automatically by the soil properties and merges with local groundwater. A magic soak pit is a structure made by using different size boulders and stones, a tank of cement at middle below the ground. Water is sent to the tank placed in soak pit. Then the suspended particles from wastewater settles down in the tank and the water split out from the holes made to the tank.

The water flows through different size stone and boulder layers and percolates in the ground.

1.1 Use of domestic wastewater

In rural areas domestic wastewater is a source of wastewater i.e. water utilized for bathing, cooking, washing utensils and clothes. Such water is not so dangerous and can be a source of artificial groundwater recharge with some basic treatment. Also the wastewater in rural areas is disposed off on open land and gutters which creates unhygienic condition which causes different diseases to people living around. Utilizing such wastewater can avoid such condition and can help to increase the groundwater.

1.2 Artificial groundwater recharge

The method of magic pit allows water to percolate in ground the water filters in the ground automatically by soil properties. Also the wastewater that is water used for bathing, washing clothes and utensils has little impurities and it is not so harmful that soil can filter it itself. Because of this the ground water will not contaminate and the groundwater level shall increase in the particular area.

1.3 Objectives

The main objectives of present study are as below:

- To enhance the use of domestic wastewater.

- To make the village drainage and mosquito free.
- To overcome the inadequacy of waters to meet water demands.
- To aware the people about wastewater disposal and ground water recharging.

1.3 Advantages of using magic pit method

- The village becomes drainage free.
- The village becomes mosquito free which helps to lower the risk of various deceases.
- Locally available materials can be used for construction of structure economically.
- For construction of structure, small land is required.
- This method helps to recharge the nearest groundwater source.

2. SCOPE

- ❖ Construction Procedure
 - Mark 4ft x 4ft square on ground where the structure has to be construct.
 - Excavate the ground up to depth of 4ft mechanically or manually.
 - Now fill the trench with boulders and large stones up to 1.5ft height.
 - Make 4 holes on four side of tank just below the top edge of tank.
 - Place the cement tank at centre on the bottom layer firmly.
 - Fill the trench with large and small stones beside the tank by taking care that the holes of tank will not close by stones.
 - Now place a cover to the tank and connect wastewater pipe to the tank from the source of generation of wastewater.

- Fill the remaining part of trench by soil layer by taking care that it will not percolate the rain water in it.
- When we dispose the waste water through magic soak pit it is treated somehow by the layers of structure and little amount of quality will increases. The water is then percolates in the ground and filtered by soil properties and meets the nearest ground water table.
- It is necessary to check the characteristics of waste water before disposing into the pit to ensure that the water is able to dispose in ground by comparing the limits of tolerance for inland surface subjected to pollution as per IS: 2296-1982.

❖ Experiment results

We tested some wastewater parameters as per IS: 2296-1982 and we found that the results are under the limits of inland surface disposal. The results and limits are as below.

Table -1: Result of raw water

Sr. No.	Parameter	results	Limits for inland surface disposal
01	pH	6.76	6.5-8.5
02	D.O.	7.24 mg/l	4mg/l minimum
03	BOD	17 mg/l	4mg/l minimum
04	Oils and Grease	0.052 mg/l	0.1 mg/l maximum
05	Total Dissolved Solids	61.2 mg/l	1500 mg/l maximum

3. CONCLUSION

After studying this method of disposing wastewater we found that the method is economical, easy to construct, effective in disposing the domestic wastewater at house level. By using this method the problem of unhygienic condition near the houses is prevented and the production of mosquito is prevented. Hence the different diseases occurred due to unhygienic condition and mosquitoes are prevented. This method gives a healthy life to people living in that particular area.

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