# Construction Of Low Cost And Ecofriendly Waste Water Treatment Plant For Domestic Use

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***Abstract-*** *Wastewater treatment is most common issue in India Because of high cost. India is well economical country .So it is necessary to develop low cost and ecofriendly waste water treatment plant. Eco friendly means materials used in this process is not affected to any environment*

***Keywords***- low cost, ecofriendly

## I. INTRODUCTION

In India it is not possible to provide wastewater treatment plant to each home from government. So awareness is required for low cost waste water treatment. Simple and easily available materials are used for treatment which is locally available. Horizontal flow wet land is the best solution for low cost and ecofriendly waste water treatment plant for domestic use

## II. LITRETURE REVIEW

### 1. G. Baskar, V.T.et.al. (2014)

The wetland is constructed in shallow pits installed with a drain pipe in a bed of pebbles or gravels and sand layers planted with native vegetation. An impermeable membrane is provided at the bottom to prevent percolation of wastewater into the soil or aquifer below. The vegetation may be emergent macrophyte, floating plant or submerged plant species. The main characteristics affect the removal efficiency of constructed wetland are the vegetation type, hydraulic residence time and substrate. The aim of the present study is to examine effect of vegetation type on organic and nutrient removal under varying hydraulic residence time in constructed wetlands. A 6-day hydraulic residence time is suggested for an acceptable level of treatment in these systems.

### 2. Kavya S. Kallimani, et.al. (2015)

The constructed wetland has gained significance for treatment of wastewater and is considered as successful optional for treatment system. The major components of the constructed wetland are vegetation type, hydraulic retention time (HRT) and bed media. The main aim of the present study was treatment of untreated wastewater from campus through horizontal subsurface flow constructed wetland and compare the efficiency of two different plants. Sand and gravels were used as bed media and plants were used for experiment were Phragmites Austrails (CW1) and Canna Indica (CW2). In this paper we are evaluated performance of Pharagmites Austrails and Canna Indica in subsurface flow systems for removal percentage of pollutants such as Chemical oxygen demand(COD), Biochemical oxygen demand (BOD3) ,Total solids (TS) , Total suspended solids (TSS) , Total dissolved solids (TDS) and Phosphate at different Hydraulic retention time.

### 3. Mr. Rajnikant Prasad, et.al.(2016)

The municipal treatment plant generally treats the wastewater of cities and disposes off safely nearby in the developing and the developed countries. The condition of the rural areas remains a problem where the treatments are not given to the wastewater in such areas the constructed wetland is option for the treatment of wastewater. Constructed wetlands are engineering systems which are designed to treat wastewater from various sources. The aim of this study is to find out the economical method of treatment of domestic wastewater and to compare the efficiency of naturally aerated and artificially aerated constructed wetland. study was done for the mundhwa area by constructing lab scale model. The parameter like colour, odour, pH, COD and DO was checked.

### 4. Chethana S. L, et.al. (2016)

The natural method of refining the problem has been a suitable method in comparison to other refinery methods. Natural method is applied by means of Phragmites and Persicaria amphibia. This method has good advantages such as, easy management, low cost, low technology required, and finally yet importantly, low energy consumption. Enhancing the Phragmites refinement efficiency, other kind of weeds has been used, persicaria has unique morphological, genetic, and physiological features. a comparison between the refinability of Karanji lake water by persicaria and phragmites was made. The results were based on the findings obtained from this research the removal rate of nutrients.

### 5. Urmila M. Bhanuse1, et.al. (2017)

Horizontal sub-surface flow constructed wetland have been used from 30 years. The classification of constructed wetland is based on the vegetation of constructed wetland is based on the vegetation type hydrology & subsurface flow can be further classified according to the flow direction. The consumption of large volumes of water and the generation of organic compounds as liquid effluents are major environmental problems in milk processing industry.

**6. Suma, et.al. (2017)**

Due to rapid urbanization, mining activities, industrialization, etc. the water resources both surface and subsurface are getting polluted which is difficult to treat, recycle and the treatment requires high cost. The present study deals with the Phytoremediation for the domestic sewage treatment by Hibiscus Rosa and Catharanthus Roseus plant species. two plastic crates were used to plant the Hibiscus Rosa and Catharanthus Roseus in each separate crate. The vertical subsurface flow has been adopted in this study with two beds of aggregates and red soil. The bed consist bottom layer of coarse aggregate with 12 mm size and 6 cm depth, middle layer of fine aggregate with 2.36 mm size and 6 cm depth, Top layer was filled with red soil of size 0.6 mm and 6 cm depth. Then the physico-chemical characteristics of domestic sewage such as Turbidity, pH, TSS, BOD, COD, Nitrates and Sulphates were done before treatment and after the treatment and compared with the CPCB standard.

**7. Swathy M R, et.al. (2017)**

Food industry produces large quantities of wastewater from processing, making and cleaning processes. Improper treatment and disposal of wastewater cause many environmental issues. In this study a cost effective method for treatment of food industry wastewater using locally available plants was used. The plants used for this study was cyperus IJSART - Volume 3 Issue 8 –AUGUST 2017 ISSN [ONLINE]: 2395-1052 Page | 596 www.ijsart.com rotundus and pennisetum perpureim which is known as nut grass and Napier grass respectively. Two reed beds and one reed less bed were prepared and wastewater was allowed to pass through it. The effectiveness of these plants in pollutant removal from wastewater was analyzed by varying hydraulic retention time 1, 2, 3, 4, 5, 6 days. The characteristics of water samples before and after treatment were compared and discussed.

**8. Pharne P N, et.al. (2017)**

This is paper on wetland construction in India. It shows low cost waste water treatment process in less energy consumption**.** Simple filters are provided from locally available materials such as river sand, sea sand, charcoal, aggregates, soil etc. It is also consist of use of special plants to filter or remove toxic materials in waste water.

## III. OBJECTIVES

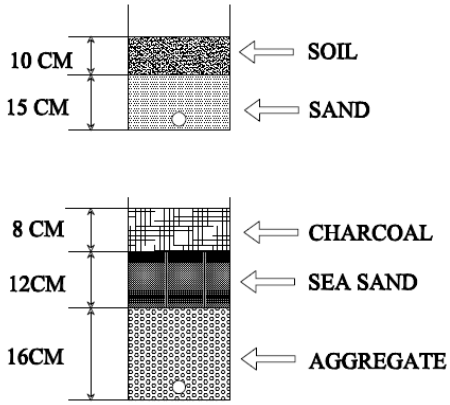
The objective of the project are mentioned as below

- To construct low cost & ecofriendly waste water treatment plant

## IV. METHODOLOGY

For this work it is proposed to carry out the work in the following phase
Phase- I
Comprehensive review of literature to understand wetland concept
Phase –II
Collection data through visiting wetland site
Phase-III
Analysis the data and determining the parametric standards
Phase -IV
Developing a model
Phase -V
Validation of propose model through case study

## IV. DESIGN OF WET LAND




LAYERS OF WETLAND

**Auto cad design diagram**

## V. EXPENDITURE FOR WET LAND

Detail money Spending sheet

1) Jar =Rs. 400/-
2) Jar cut = Rs. 200/-
3) M seal = Rs. 30/-
4) Sea Sand = Rs. 70/-
5) Fevikck = Rs. 50/-
6) Pipe = Rs. 50/-
7) Charcoal = Rs. 50/-
8) Aggregate = Rs. 50/-
9) River Sand = Rs. 50/-
10) Site cleaning = Rs. 100/-

## VI. PROPOSE MODEL THROUGH CASE STUDY

## VII. RESULT

Simple result is found after passing a wastewater from this model as it is good treated to increase a dissolved oxygen decreases turbidity and $P^H$ leve.

## VIII. CONCLUSION

The material used development for wetland is mostly earth-friendly or not harmful to the environment such as sand, charcoal, aggregates, pebbles etc. These materials contribute to green living or practices that help conserve resources like water and energy. It also prevents contributions to air, water and land pollution. This material is available easily

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