

Successful Pilot Gray Water Treatment System on a public drain

by

B'men Civic Exnora

Ganapathy Puram East, Crompet

Issues:

- Entire area doesn't have underground sewerage.
- The traditional norm in unsewered areas was to use the gray/sullage water for gardening or allow the water to soak into the soil through soak pits.
- With the advent of flat complexes and multiple dwelling units, the "carrying capacity" of the soil around such flats has been lost and the soil was no longer able to absorb all the gray water from such complexes. Therefore the gray water is discharged into storm water drains or in some cases straight on to public roads causing unhygienic conditions.
- In unsewered areas through out Tamil Nadu, we don't have any institutional arrangement for Grey water disposal and therefore storm water drains, which are meant to carry clean rainwater into lakes and rivers, actually carry gray water and pollute waterways, water bodies and the ground water table.

Issues ... contd.

- There are about 5 flat complexes in the target area which discharge gray water into a storm water channel. Most of the independent houses don't discharge gray water into the storm water channel.
- There is a good gradient from one end of the street to the other through which the storm water drain flows before discharging into an agricultural field. However the agricultural land owner blocks the channel from entering his field during the crucial monsoon period resulting in inundation of the lower end of the street.
- Originally the drain flowed into a lake but the channel to the lake has been partially encroached and therefore the storm/gray water doesn't reach the lake.

Resource

- natural gradient from one end of the street to the other
- existing lake into which the water can be drained
- good cooperation among local residents
- supportive Municipal Body

Objectives

- Finding a low cost and environmental friendly solution to the twin problems of inundation of low lying areas during the rainy seasons by
- Connecting up the existing storm water channel to the nearby lake thereby avoiding water stagnation and helping recharge ground water table
- Desilting and desludging the existing drain to establish free flow

Objectives Contd.

- and prevention of pollution of ground water and nearby water bodies due to flow of sullage water in the existing storm water channels by
- setting up a "root bed/reed zone" treatment system for the gray water flowing through the storm water channel so that the lake and the ground water table are not polluted
- sensitizing public opinion for better management of waste

Solutions:	Responsibility
<p>A portion of the existing storm water drain was converted into an "in situ" "root zone/reed bed treatment" system which involved:</p>	<ul style="list-style-type: none"> • Labour and material by Municipal body – • technical guidance for bio technology by Dr.Ismail • civil works Mr.Ramalingam
<ul style="list-style-type: none"> •Deepening and sectioning the drain; 	
<ul style="list-style-type: none"> •Establishing small "steps" across the drain by building with gravel of size 1 ½ “ to make the water “fall”; 	
<ul style="list-style-type: none"> •planting water reeds and tubular plants along the sides of the drain to form a root zone/reed bed gray water treatment system. 	

Solutions:



Cleaning the roadside drain

Preparing the Reed Bed



Blue Metal bunds laid to “Cascade” the Gray water



. Planting Water Reeds and



Fully Functional



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Reed bed treatment of waste water in the
street gutter