BCCI Bombay Chamber of Commerce and Industry
Vol XVI No 2 April June 2010 page 12

Waste Water Recycling – Answer to Water Scarcity

Water Scarcity

Fresh water is becoming a scarce commodity. Even many city dwellers are experiencing the brunt of water scarcity. Many posh locality, housing societies are also dependent on water supplied by private vendors. It proves to be expensive and unreliable so far as qualitative issues are concerned.

In this situation, it is necessary to conserve as much fresh water as possible. Apart of Rain Water, municipal water and bought out water, there could be one more source of water and that is recycling of available wastewater.

As far as people reside in the place and use water — they keep generating wastewater, hence availability of wastewater is quite guaranteed... 365 days a year.

Types of wastewater

Housing societies generate three major types of wastewater *viz.*

1. From bath rooms - Bath wastewater .... 40 % of total usage
2. From kitchens - Kitchen wastewater .... 15 % of total usage
3. From Toilets - Toilet Wastewater .... 40 % of total usage

The fourth usage i.e. vehicle washing and gardening is only about 5 % of total

Possibility of Recycling

It is possible to treat all the above mentioned types of wastewater ... even to drinking water standards ... either individually or combined.

However, it is found that most of the members of any housing society are readily receptive to idea of treatment and usage of the first type of waste water... that is bath wastewater.

Some members are open to recycling of kitchen wastewater.

And for obvious reasons most members oppose recycling of the toilet wastewater.

Hence at this juncture we are proposing recycling of only bath wastewater in your housing complex. It will be better accepted by the residents and will also be easy to operate and maintain.

Advanced Compact Reed Bed System for Treating Bath Wastewater

Reed Bed System, a simple, user-friendly method of wastewater treatment. It does not require complex setups, lots of energy and instrumentation. Maintaining such systems is very easy, as it does not need highly trained manpower and complicated equipment.

Conventional wastewater treatment systems on the contrary, are essentially complicated and require lot of energy for aeration, complex equipment and trained manpower for maintenance.

Thus, Reed Bed System is a clean, economic and eco-friendly method of domestic sewage treatment as an alternative to the conventional systems.

Salient features

- Fit it and forget it system
- No foul odours.
- No flies and mosquitoes
- Picturesque garden like appearance
- No need of electricity for aeration
- No moving parts, hence very low maintenance and no replacement cost
- The treated water can be recycled for industrial use, for agriculture, aquaculture or ground water recharge.

There are more than 40 such systems operative in India and a few thousand the world over.

The mode of action:

REED BED SYSTEM employs natural principles for treatment of domestic sewage. Specially selected plants are made to combine their aeration strength with highly efficient microbial cultures. The treated water can be recycled or reused for low end uses.

Details:

The wastewater is brought to a suitable site. A tank or a pit of suitable dimension is made. The dimensions depend on the site conditions and volume of the wastewater. The tank or pit is lined by soling and LDP lining. If necessary, other types of civil structure can be made into the treatment tank. The tank is filled with coarse mixture of high porosity, efficient sewage treating bacteria and supporting media.

Specially selected plants are then planted. The roots of

these form an association with the bacteria to give an effective sewage treatment. This system remains functional for many years with almost zero maintenance.

Reed Bed System is also known as Bio-Filter, Root Zone system or constructed wetland system or treatment wetland system.

Thus, the Reed Bed Systems are clean, economic and eco-friendly method of wastewater treatment as an alternative to the conventional systems.

History

Land based wastewater has been operating on household scale for thousands of years. In modern times the need for community level waste water treatment increased. Several different kinds of wastewater treatments were developed in Europe and America. Till 1960, mostly the developments in wastewater treatment technologies centered around energy intensive systems. Around this time, in the Max Plank Institute, Germany, Prof kickuth and others observed wastewater treatment abilities of natural wetlands. From then onwards efforts accelerated to develop natural waste water treatment systems. In continental Europe these systems are called as Root Zone Systems. In United Kingdom they are called as Bio-Filters and in USA they are termed as constructed wetlands or treatment wetlands. In India they are known under various terms –Bio-Filters is one of them. The longest existing such systems are over forty years old.

There are several thousand such systems operative the world over. Some of these systems are also treating industrial effluents. The range of industrial effluents being treated by these systems include various types of effluents from simple effluent like that from food processing industry to as complicated effluent as coke oven effluent which contains ammoniacal residues and even cyanides.

In India more than 40 systems are efficiently treating wastewater. Of these, we have been instrumental in setting up 17 systems including two for treating industrial effluent.

The mode of action: The Bio-Filters employ natural principles for treatment of wastewater. Specially selected plants are made to combine their aeration strength with highly efficient microbial cultures. The treated water can be recycled or reused for low end uses.

Features

Merging in the Landscape – With assorted acclimatized flowering plants with varied leaf sizes, shapes and textures as well as variously coloured flowers, the Bio-Filter systems can be made to merge very well in the landscape.

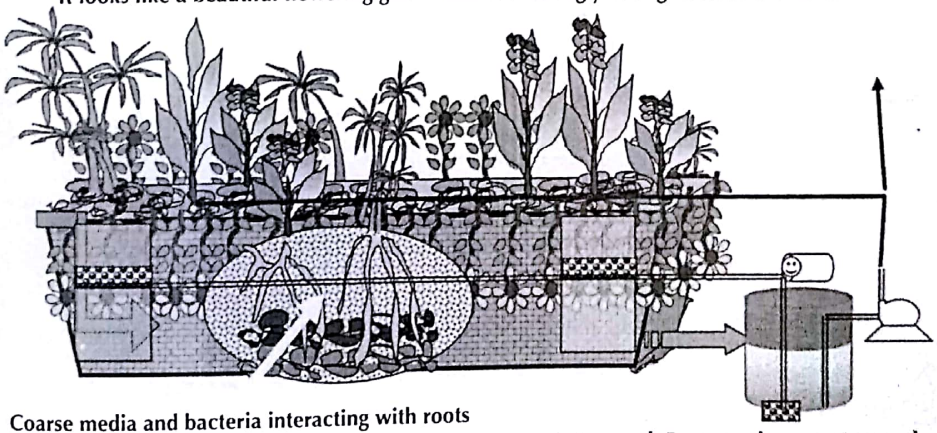
Clean and odor free – All the wastewater treatment reactions are made to happen below the surface of the Bio-Filter. As a result there are no strong odors or sludge formation or breeding of mosquitoes.

Efficient – The Treated water is clear, odour free, can sustain fish life and support healthy plant growth.

Rugged Fit and Forget systems – Once established, the Bio-Filters can take up considerable shock loads and can also remain functional even if the influent does not come in for a month or so. Thus there is no need for restart and no need for re-commissioning the systems after every holiday.

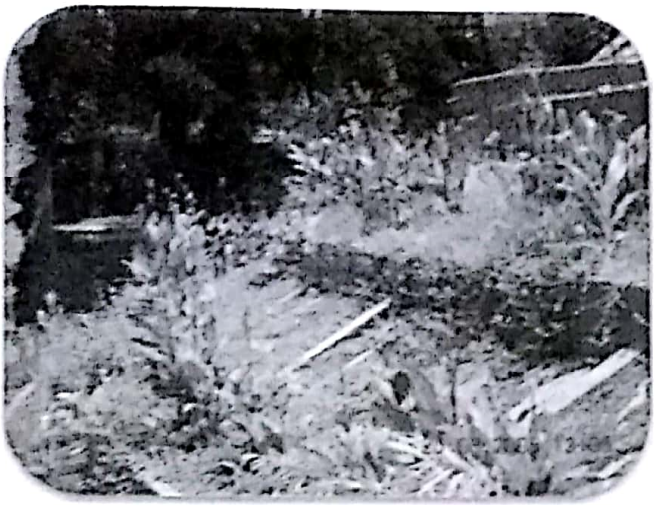
No wastage of electricity – In the conventional systems continuous aeration is required for

It looks like a beautiful flowering garden and not like ugly Sewage Treatment Plant.

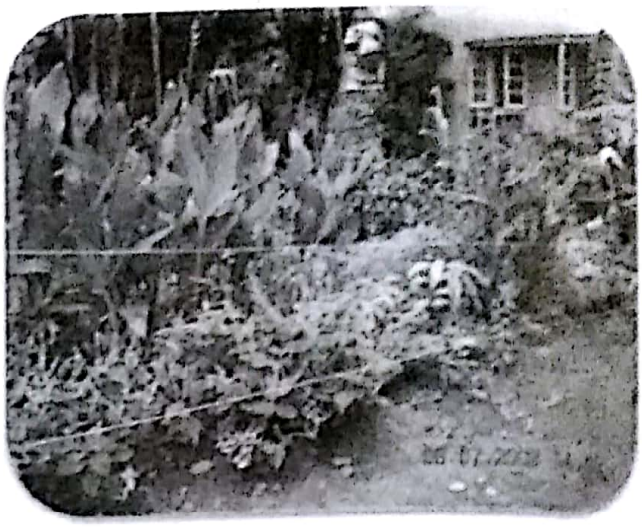


Coarse media and bacteria interacting with roots

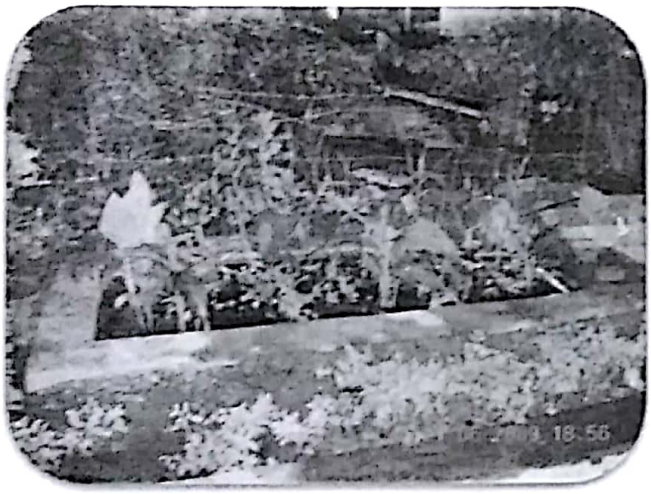
Automated Pumps, micro-aerators and passive micron filters for effective treatment



Kanti Society Bandra 55,000 lit bathwater/day



Victoria Memorial School Taddeo 7,000 lit bathwater/day Kanti Society Bandra 55,000 lit bathwater/day



Bungalow in Khar 3000 lit bathwater / day

maintaining the oxygen levels and keeping the microbes alive. There is no such need for mechanized aeration in the Bio-Filters.

Very Low Maintenance – Since there are no mechanical aerators or clarifiers etc, there are hardly any moving parts in the Bio-Filters, which require maintenance, repairs or replacements, obviously the maintenance need is low.

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