REJUVENATION/ IMPROVING SANITARY CONDITIONS OF OPEN SEWAGE CARRYING DRAINS IN CITIES AND TOWNS

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In our country, each and every city and town has at least one drain which carries sewage and sullage water. The drain ultimately either joins river or lake and where there is no water body, the waste water remains inundated on land. In smaller town, the drain water either dries-up or gets seeped into soil during its travel. At several places, drain water is directly used for irrigation purpose. Infact, storm water drains were built with the purpose to drain-out rain water/storm water out of city to avoid floods. But, with the growing urbanization and population, these storm water drains got converted into sewage drains.

The civic Authorities are responsible for collection, treatment and disposal of domestic sewage and are required to set up sewage treatment plants. However, this action has not been taken by any of the Municipality / concerned authority and as a result, cities and towns are disposing untreated sewage into drains. These drains are source of generating foul/obnoxious gases and cause for mosquito breeding. Citizens are facing various problems due to these drains. At many places, local authorities plans to cover the drains for road widening, creating parking spaces and construct shops for commercial activities. Due to these activities, drains are difficult to clean and more waste is getting deposited. It has been observed that local authorities and citizens find it easy to dump garbage and other waste into drains and this disrupt the flow. Due to sluggish flow, septicity increases and generates foul

odor. It is always preferred that flow velocity in drains is maintained which allows sewage to decompose and odor also gets removed. It has also been experienced that at many places where drains are stepped-down, aeration is created and smell gets eliminated.

Observing the current trends, it will a long way to go for local authorities to intercept sewage drains and ensuring complete treatment. It has been estimated that the cost of treatment of per million liter for treatment is Rs 2.5 crores; whereas, cost of collection by conveyance system that is laying of sewers is around Rs 3.5 crores; per MLD. Since, the costs are prohibitive for Municipalities, there is need to look for alternative, intermediary and low cost methods for improving sewage conditions in the drains. It would be appropriate to study the concept of in-situ sewage treatment where low cost methods can be adopted which should be able to degrade sewage to a maximum possible extent and eliminate odor in the process. This could be achieved by employing microbial consortia having mix of anaerobes, aerobes and facultative organisms. These organisms can be utilized for dosing the drains by various methods ranging from open spraying to transferring practices for sewage treatment and also creating natural means for aeration, etc. However, in-situ sewage treatment option are not comparable, replacement or substitution of sewage treatment plant but, considering them as of options of intermediate solution till authorities prepare themselves to be capable for creating facility of STP to treat entire waste water generated by cities/towns.

It has been identified that industrial effluents when are mixed with domestic sewage, they tend to upset sewage treatment plant. Particularly, this is more prominent when industrial effluent contains toxic components. Therefore, industrial effluents should not be let-out into drains and effluent generating industries should be regulated accordance with the Water (Prevention and Control of Pollution) Act, 1974.

In order to improve sanitary conditions and for up-keeping good environ of the sewage carrying drains, following recommendations and suggestions may be considered for implementation;

- A record on the quantity of waste water flowing in drains be measured and diurnal and seasonal records be maintained.
- Outfalls into drain with their quality and quantity be measured and monitored.
- Quality of drains water at regular interval of time be monitored.
- There should be prohibition on disposal of garbage and other type of waste on the banks or in the drain. At appropriate places, drains could be fenced.
- Periodic cleaning and de-sludging be ensured and flow of the drains be maintained.
- Stepping cascading of drain at appropriate distances may be attempted to create turbulence for transfer of oxygen. This may be done in consultation with Public Health Engineering Institutions and exchanging views with other civic authorities where it has been done.

- Using gradient and velocity of drain water, pedaling or any other alternate facilities may help in keeping effluents moving and creating/ transferring of oxygen.
- No part of the drain to be covered and if it is essential, it should be done in consultation with all the concerned Departments.
- Pitching of embankments and bottom of the drains could be attempted after appropriate consultation with the concerned Departments.
- On the embankment, plantation in consultation with the Horticultural / Agricultural Department may be attempted.
- Municipality or concerned Agency may try/attempt to use eco-friendly microbial consortia for applying in drain to reduce foul smell and for achieving reduction of BOD/COD. But, this should be carefully done involving expert institutions.
- Drains should not be checked with Wastes like Dairies, Slaughter House Waste etc.