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Small Scale Wastewater Treatment Plants

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Abstract
Wastewater treatment plants (WWTPs) are significant source of antibiotic resistant bacteria (ARB) and antibiotic resistance genes (ARGs), which can spread further in the environment by reaching rivers together with effluents discharged from WWTPs. In this study untreated and treated wastewater (UWW, TWW), upstream and downstream river water (URW, DRW) were collected from 4 WWTPs, in the winter and autumn seasons. The occurrence of ARB resistant to beta-lactams and tetracyclines as well as the presence of antibiotics from these classes were analysed in water and wastewater samples.
Keywords*: WWTPs , URW, DRW, ARB.*

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I. INTRODUCTION

In general, the sanitation field seems to live the life of an orphan in many Pacific Island Countries. In many cases this important sector of public health has been left alone when major upgrading projects improved the water supply systems in many countries and provinces. This basically ignored the downstream effect of improved water supply, that of increased discharges into rivers or aquifers. Two reasons appear to be the major cause for that: firstly, wastewater collection and treatment is costly and their benefit often hard to show; and secondly, even if low-cost solutions are being implemented many projects fail to deliver the expected outcome. During the last years many rural areas were provided with some kind of water supply system. The availability of water leads to wider spread use of flush toilet systems.

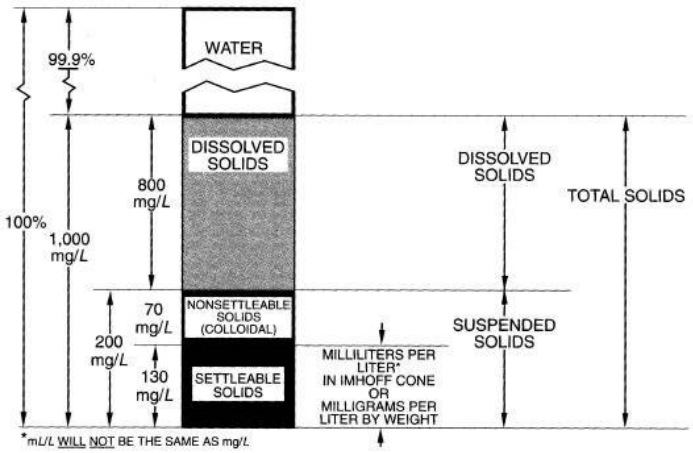


Fig 1: Composition of solids in raw wastewater. Source: Small Wastewater System Operation and Maintenance Vol. 1

Housing in India has been a great challenge. Millions of houses are required to build in a certain time frame. 99% of these houses are required by the Low income groups. If the time frame is not maintained the new slums will come up. In civil engineering works, thus, the structures are designed by keeping in mind all these factors related to low cost housing.this will lead to increase availability of shelter to people having low income group.

II. OBJECTIVES

current wastewater disposal and treatment techniques,
ongoing sanitation initiatives and projects,
stakeholders in the sanitation sector,
the administration structures related to sanitation projects,
a possible project implementation agency,
sites for future pilot projects

III. SCOPE OF STUDY

Traditionally, sanitation work in developing countries concentrates on research on very rudimentary sanitation facilities such as stand-alone septic tanks, composting toilets or pit toilets. Little is known about the viability of SSWTP. Therefore this project has been designed to provide a comprehensive study to establish guidelines for their application. It is anticipated that on completion of this project, money will be available to implement pilot projects in the participating countries

IV. LITERATURE REVIEW

1.During the period 1969 to 1981 the American Water Works Association (AWWA) Research Foundation and the AWWA Sludge Disposal Committee prepared a series of reports with a comprehensive literature review on the nature and solutions of water treatment plant waste disposal problems. The first report, prepared by the AWWA Research Foundation, was divided into four parts (AWWA Research Foundation, 1969a, 1969b, 1969c, 1970) and was entitled "Disposal of Wastes from Water Treatment Plants." The first part of this report (AWWA, 1969a) covered the status of research and engineering practices for treating various wastes from water treatment plants. The second part (AWWA, 1969b) reviewed plant operations for the disposal of various types of wastes, and the regulatory aspects of disposal. The third part (AWWA, 1969c) described various treatment processes employed and their efficiency and degree of success, and presented cost analyses. The last part (AWWA, 1970) summarized research needs, engineering needs, plant operation needs, and regulatory needs..

2. Sludges from water treatment plants may be divided into eight major categories (Westerhoff, 1978): pre-sedimentation sludge, coagulant sludge, lime sludge, iron and manganese removal sludge, ion-exchange sludge (brine waste), activated carbon wastes, spent diatomaceous earth, and sludge from saline water conversion. These categories, as well as filter backwash wastewater, are discussed below.
3. Russelmann (1968) discussed general characteristics of water plant wastes. In addition, he addressed special characteristics of coagulation wastes, filter backwashes, ion-exchange brines, and screenings from a few water suppliers. He concluded that it is impossible to make generalizations concerning sludge production in terms of millions of gallons of water treated because sludge production is entirely dependent on raw water quality, the method of treatment, and efficiencies of the treatment processes
4. Treatment and disposal of pre-sedimentation residues in and of itself is not a major problem. They can be treated and disposed of with other sludge. The cleaning cycle of a pre-sedimentation basin is usually very long, 10 years or more (Westerhoff, 1978).

V. RESEARCH METHODOLOGY

The methodology adopted for gift study is completing survey of enormous scale comes. elaborated study of 3 completely different techniques like standard, formed and aluform is dispensed by analyzing price needed for specific methodology and so comparison it with relevance price and time needed . This study is predicated on works and field survey.

The study target sorting out problems caused from low price house extension comes that have an effect on the development activities. the sector study is split into 3 components – On web site observation on construction activities to examine and observe construction activities dispensed by the contractors. Finding new construction techniques to implement them in construction of building. Study of low price construction materials from comes underneath construction and recently completed. once completion of those processes, web site observations are dispensed to assemble main knowledge

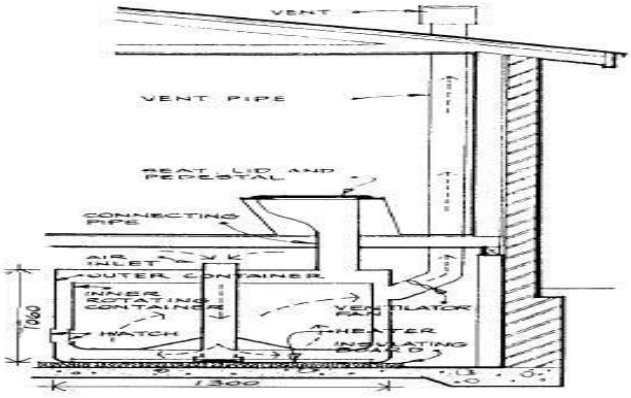
VI. RESULTS AND DISCUSSION

The majority of secondary treatment processes are biological in their nature – i.e. they use the natural activity of the bacteria to break down polluting material. Biological treatment processes can themselves be divided into two general sub-divisions – aerobic and anaerobic processes.

Advanced or quartiairy treatment are applicable only to industrial wastes to remove specific contaminants.

This information is useful to see the analysis starting and direction. Reviews of different works from

literature survey can become the backbone of this analysis. Comparison of low cost water traeatment plant



VII. CONCLUSION

From above study we conclude that,

1. Wastewater treatment involves a variety of processes performed at different levels of treatment. The basic form of treatment is the breaking down of organic waste by bacteria.
2. For Cost effective houses present study clearly states that aluform technique is suitable technique for low cost housing mega projects. either aerobically or anaerobically or a combination of both which occurs in secondary treatment. Primary treatment offers the settlement of solids. Tertiary treatment involves the removal of phosphorus, nitrogen and toxic substances

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