WASTEWATER TREATMENT BY SEWAGE TREATMENT PLANTS

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RECEIVED : 27 October, 2017

The development of innovative technologies for treatment of sewage waters from various sources is a matter of great concern for the newly developed urban world. Another beneficial aspect of this research work will be recycling, reuse of water and sludge from different sou Performance of restricted to agricultural and industrial purposes through the green method. E An environmental Impact Assessment (EIA) is a way by which we can assess different factors such as impact of environmental health of human, ecological health and associated risk with it and existence of changes in services of nature in particular projects The sewage treatment plants, for treating municipal waste water, is also not complying with prescribed standards.

KEYWORDS : Waste water, Sewage Treatment Plant, Environmental Impact Assessment (EIA).

INTRODUCTION

Water is one of the most important natural resources in the universe. The availability and quality of water always have an important role in human civilization. Domestic useable water that is used in the home every day, including water for normal household purposes. Industrial water use is an important resource to the industries for such purposes as processing, cleaning, transportation, dilution, and cooling in manufacturing facilities. Major water-consumed industries include steel, chemical, paper, and petroleum refining. Industries sometimes reuse the same water over and over for more than one purpose. Irrigation water use is water artificially applied to farm, orchard, pasture, and horticultural crops. Mining water use for the extraction of naturally occurring minerals; solids. A significant portion of the water used for mining is about 32 percent, is saline. Public Supply water use refers to water such as county and municipal water works, and delivered to users for domestic, commercial, and industrial purposes.

Waste water can come from: Human excreta often mixed with used toilet paper or wipes; this is known as blackwater if it is collected with flush toilets. Urban rainfall runoff from roads, car parks, roofs, sidewalks/pavements (contains oils, litter, gasoline/petrol, diesel or rubberresi, etc.), Highway drainage, Storm drains Industrial waste Industrial site drainage

Environmental Impact Assessment (EIA)- Environmental assessment (EA) An Environmental Impact Assessment (EIA) is a way by which we can assess different factors such as impact of environmental health of human, ecological health and associated risk with it and existence of changes in services of nature in particular projects. [1, 2]. It is the term used for the assessment of the environmental consequences of a plan, policy, program, or concrete projects prior to the decision to move forward with the proposed action. In this context, the term "environmental impact assessment" (EIA) is usually used when applied to concrete projects by individuals or companies and the term "strategic environmental assessment" (SEA) applies to policies, plans and programmes most often proposed by organs of state (Fischer, 2016). Environmental assessments may be governed by rules of administrative procedure regarding public participation and documentation of decision making, and may be subject to judicial review.

Most industries produce some wastewater although recent trends in the developed world have been to minimise such production or recycle such wastewater within the production process. However, many industries remain dependent on processes that produce wastewaters.

Types of Wastewater Treatment Process: The major important types of wastewater treatment process are as follows:

1. Effluent Treatment Plants (ETP)
2. Sewage Treatment Plants (STP)
3. Common and Combined Effluent Treatment Plants (CETP).

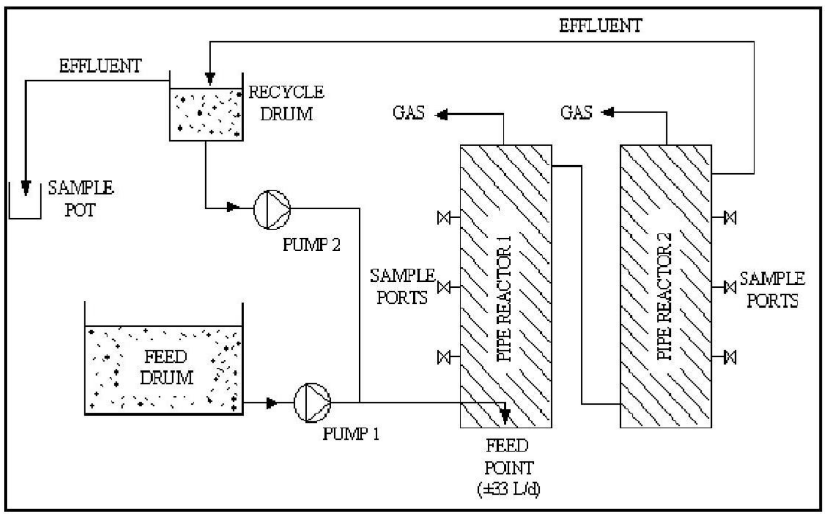
It is estimated that every year 1.8 million people die due to suffering from waterborne diseases. A large part of these deaths can be indirectly attributed to improper sanitation. Wastewater treatment is an important initiative which has to be taken more seriously for the betterment of the society and our future.

Sewage treatment is the process of removing contaminants from wastewater, primarily from household sewage. It includes physical, chemical, and biological processes to remove these contaminants and produce environmentally safer treated wastewater (or treated effluent). A by-product of sewage treatment is usually a semi-solid waste or slurry, called sewage sludge, that has to undergo further treatment before being suitable for disposal or land application [3].

Sewage treatment may also be referred to as wastewater treatment, although the latter is a broader term which can also be applied to purely industrial wastewater. For most cities, the sewer system will also carry a proportion of industrial effluent to the sewage treatment plant which has usually received pretreatment at the factories themselves to reduce the pollutant load. If the sewer system is a combined sewer then it will also carry urban runoff (stormwater) to the sewage treatment plant. Sewage water can travel towards treatment plants via piping and in a flow aided by gravity and pumps. The first part of filtration of sewage typically includes a bar screen to filter solids and large objects which are then collected in dumpsters and disposed of in landfills. Fat and grease will also be removed before the prima treatment of sewage.

The combination of wastewater and biological mass is commonly known as mixed liquor. In all activated sludge plants, once the sewage or wastewater has received sufficient treatment, excess mixed liquor is discharged into settling tanks and the treated supernatant is run off to undergo further treatment before discharge. Part of the settled material, the sludge, is returned to the head of the aeration system to re-seed the new sewage entering the tank. This fraction of the floc is called return activated sludge. Excess sludge is called surplus activated sludge is removed from the treatment process to keep the ratio of biomass to food supplied in the wastewater in balance, and is further treated by digestion, either under anaerobic or aerobic conditions prior to disposal. Activated sludge refers to biological treatment processes that use a suspended growth of organisms to remove BOD and suspended solids. The process requires an aeration tank and a settling tank [5]. Clarifiers are settling tanks built with mechanical means for continuous removal of solids being deposited by sedimentation. Disinfection of sewage is necessary for healthy rivers and streams. Microorganisms are present in large numbers in sewage and waterborne disease outbreaks have been associated with sewage-contaminated water supplies.

SEWAGE WATER TREATMENT PLANT DESIGN



CONCLUSIONS

The problems associated with wastewater reuse arise from its lack of treatment. The challenges lies on to find such low-cost, low-tech, green methods, which on one hand avoid threatening our substantial wastewater dependent livelihoods and on the other hand protect degradation of our valuable natural resources. The use of constructed wetlands is now being recognized as an efficient technology for sewage water treatment. In comparison to other to the conventional treatment systems, constituted wetlands need lesser material and energy, are easily operated, have no sludge disposal problems and can be maintained by untrained personnel. Further these systems have lower construction, maintenance and operation costs as these are driven by non-conventional energies like sun, wind, soil, microorganisms, plants and animals. Hence, for planned, strategic, safe and sustainable use of waste waters there needs to be emergent policy decisions and coherent programs encompassing cost effective decentralized waste water treatment technologies, bio-filters, efficient microbial strains, and organic / inorganic amendments, appropriate crops/ cropping systems, cultivation.

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