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Study of Aspects towards Wastewater Generation

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ABSTRACT

India especially Maharashtra is one of growing state also there is varying rainfall with region to region. Population growth as well as infrastructure development mainly contributes water crisis in respective areas. It should be properly managed. So the grey water is waste water for example bath, dish, and laundry water free of garbage-grinder residues from kitchen. It does not include toilet wastes. It can be a valuable resource for reuse. Also it gives nitrogen, phosphorous and potassium as a source of pollution for lakes, rivers and if is used for irrigation it will be as nutrient sources for vegetation. So in this way it helps to decrease the impact on the environment, efficiency in operation of STPs. In 2011 the proportion of population has been increased from 27.8% to 31.2% over the decade since 2001. Also number of town increased from 5161 to 7935. This leads to many Indian cities deficient in infrastructure services like water supply, sewerage, storm water drainage and solid waste management. As per the Bureau of Indian Standards, IS: 1172-1993, a minimum water supply of 200 liters per capita per day should be provided for domestic consumption in cities with full flushing systems.

KEYWORDS: Water crisis, population, grey water, reuse, domestic consumption

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INTRODUCTION

There is much space for improvement in household water use in the developed world. The WHO has assigned minimum of 25 liters per day is required to meet basic needs. But in the US, per capita use averaging 262 liters per day. Reducing water consumption at home has many implications. Clearly, total water consumption is reduced. Thus, pressure on water sources is lowered and the development of larger water supply systems. Additionally, less wastewater is generated requiring less costly wastewater collection, wastewater treatment facilities and energy.

WATER SCENARIO IN INDIA

Out of total World's population India has 2.4% & geographical area of 2.4% having water availability 4%.¹. The Central Water commission report, 2013 states that 1121BCM is estimated utilizable water, surface water is 690 BCM (61.55%) and ground water is 431(39.44%). This report shows that about 78% of total utilizable water is used for Irrigation and 6% water is used for drinking purpose in the year 2010. There must be an alternative solutions needed to be implemented for the future safety otherwise by 2050, it will vanish. Also water demand is predicted to increase significantly over the coming decades. The water demand has increased in agricultural sector, industry and energy production also. Also the expansion of municipal water supply, accelerated urbanization & sanitation systems also contribute to the rising localized demand. Climate change scenarios are contributed in the spatial and temporal variations of water cycle dynamics, such that discrepancies between water supply and demand are becoming increasingly aggravated.²

WASTE WATER PRODUCTION & ITS TREATMENT³

The most important water polluting source in India are the discharge of untreated sewage in water courses both surface and ground waters out of which 38000 million litre per day of sewage generated treatment capacity exists for only about 12000 million litre per day. According to CPCB, the survey reports on status of sewage generation in Class I Cities, I & Class II Cities, there is a large gap between generation and treatment of wastewater in India. Because of operation and maintenance problems, the treatment capacity existing is also not effectively utilized. Nearly about 39% plants are not as per standards in CPCB survey norms⁵. The Class-I type City has population of 14,30,83,804; total Water Supply is 44,769.05MLD, wastewater generation is 79.43% and that treatment capacity has 32.49% while The Class-II type City has population of 3,00,18,368; total Water Supply is 3324.83MLD, wastewater generation is 81.11% and that treatment capacity has 8.37% only. Therefore, existing treatment capacity is just 30 % of present sewage generation. This shows threatening position of sewage treatment, which is the main source of pollution of rivers and lakes. There should be urgent need to increase sewage treatment capacity and its optimum utilization.

POLICIES FOR WASTEWATER MANAGEMENT³

There are many regulations, Constitutional Provisions on sanitation and water pollution; like National Environment Policy, 2006; National Sanitation Policy, 2008; Hazardous waste (Management and Handling) Rules, 1989; Municipalities Act; District Municipalities Act etc. State governments/urban local bodies govern this management for supply, utilization, operation and maintenance of it. Also there are many policies under National River Conservation Plan, National Lake Conservation Plan, Jawaharlal Nehru National Urban Renewal Mission, and Urban Infrastructure Scheme for Small and Medium Towns (MoEF, 2012)

RESEARCH/ STUDIES ON DIFFERENT ASPECTS OF WASTE WATER

The work is carried out in University Department of Biochemistry, R.T.M. University, and Nagpur, India. In this research, the treatment unit designed in such manner that water requirement for bath and laundry (shower, hand wash basin, laundry tap and washing machine) is 54 lpcd which is utilised for its reuse and recycling shows 54% water saving out of 135 lpcd. ⁴

The pollutants accumulated in soil as result of grey water irrigation leads to cause both positive and negative impacts. Concentration of nitrogen gives source of nutrients for plant while phosphorus gives negative impacts as it is toxic. Also higher concentration of pollutants leads to impacts the soil structure and properties. It also causes the impacts on aquatic animals by producing eutrophication problems ⁵

CONCLUSIONS

All these studies and scenarios gives need of proper resource management, improvement wastewater treatment capacities. Thus this has a crucial topic of discussion due to the following reasons.

1. As wastewater management is growing problem, in both the developed and developing world
2. The available fresh water sources are dwindling and are getting scarce.
3. Increase in fresh water pollution due to various human activities.
4. Increase in health hazards and ecosystem damage due to uncontrolled discharge of wastewater into streams and oceans.
5. The deficiency in wastewater treatment in developing countries.

To overcome this there is urgent need of for policy decisions and coherent programs, low-cost decentralized waste water treatment technologies, bio-filters, and modern sewage water application methods.

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