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REVIEW ARTICLE

UNTREATED SEWAGE AND PROBLEMS

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ABSTRACT

It seems that almost every day there is another story about pollution of one form or another, in the food we eat, the water we drink and the air we breathe. Fresh water is a precious resource and the increasing pollution of our rivers and lakes is a cause for alarm, the major cause for river and ground water pollution is found to be the domestic and industrial waste water which is mixed in such sources of water without any treatment. This article is an review of issues related the river pollution, treatment of sewage, and environmental and health problems due to untreated waste water. It also states the necessity of Sewage treatment plant. Some challenges in this field.

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INTRODUCTION

Water pollution is the broad environmental issue for surface water, It is very well known that surface water is pollutes due to various industrial and domestic activities which produces liquid waste. Though this problem is not treated with the awareness. It has seen that there is large gap between generation and available treatment for domestic waste water in India, moreover the existing treatment plants does not operate well and are not provided maintenance (CPCB 2007 Report). As pre the report of world health organisation (1992) among 31119 towns and cities from India Only 209 towns having partial sewage treatment facilities and only 8 have full waste water treatment. So this issue becoming very dangerous for developing countries. Sewage pollution is caused by several factors, including failing and outdated infrastructure that is compounded by rapid, sprawling development that paves over the farms, forests, and wetlands that naturally soak up storm water. As a result, rain and snow that would have naturally drained into the ground or slowly run off the land into streams now gets diverted through culverts, often discharging directly into public sewage systems where it combines with sewage and domestic wastewater. Even cities with separate sanitary sewers find that storm water can flow through cracks and manhole covers into pipes that carry human waste, causing sewer overflows. (Source: http://www.americanrivers.org/)

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Necessity of S.T.P

- S.T.P plays an important role for the mankind. The main function of these plants is to make sewage water clean by passing the water through various units like chemical, physical, and biological process.
- It helps society by cleaning the water and avoids spreading of diseases.
- It reduces the surface water pollution and protect from water born diseases
- Around the world, water is responsible of about 80% of diseases, thus treating water is become important so as to save the life of human being from water born diseases such as cholera, typhoid, jaundice etc.
- Sewage treatment plants are desired to clean sewage water and remove the most contaminants from the waste water.
- The developing countries in the world producing huge amount of sewage daily so to nullify this we need to have number of sewage treatment plants.
- Sewage treatment plant act as aid for treatment water and giving back clean and harmless water to environment.

Specific River Issues

The Ganga

Ganga is largest river in India with a great religious importance for Hindu people. The river provide water to about 40% of India's population across 11 states. People spiritually bath in

the river coz it is considered as holy by Hindus. (Hyde, Natalie, *et al.* 2010) The river flows through densely populated area (i.e. around 29 cities with population over 100000) (African Water org 1996). The major part of ganga river pollution is sewage generated through domestic usage and public defecation. The industries situated along the river like chemical plants, tanneries, chemical plants distilleries, slaughter houses and hospitals are contribute to pollution of river by depositing untreated waste water into it. (*et al.* scared Ganges carries toxic pollution) During festival seasons over 70 million people bath in Ganges over a few weeks. (Thomas Reuters *et al*., 2007). It has found that the pollution of Ganga significantly affect the aquatic life. Over there. From the results of mercury analysis in various specimen collected along the basin, indicate that some fish muscles tends to accumulate high levels of mercury and It was also found that there is correlation between mercury levels and food habits and fish lenth. (Moumita Pal *et al*., 2011) Analysis of River water in 2006 showed that there is significant association between water born diseases and use of water for bathing, washing, cooking, brushing, etc (Hamner *et al*., 2006)

The Yamuna

The Yamuna is the largest tributary river of Ganga in north India. Earlier the water of Yamuna was of good quality but deu to high pollution and industrial activities today Yamuna is one of the most polluted rivers in the world. By estimate of 2012, (Delhi scared), Yamuna river contains 7500 coiform bacteria per 100 cc large number of NGO's citizens moments pressure groups are active to clean the river (The Hindu *et al*., 2012) The Yamuna starts getting polluted by pesticides and fertilizers as it enters Haryana, though most of pollution occurs in Delhi coz of domestic and industrial untreated sewage over there (Puja Mandal *et al*., ?) although the river pollutes throughout its journey but maximum pollution ocures journey through National capital territory because of rising pollution, poor sanitation, untreated sewage, agricultural runoff, cattle washing, pesticides residue, and religious activities (Deepshikha Sharma *et al*.)

Challenges

- The number of city dwellers practicing open defecation increased from 140 million in 1990 to 169 million in 2008. In low- and middle-income countries wastewater is used to discharged into the sea or rivers without treatment. Number of large cities does not have sewage treatment plants or plants quickly become undersized as urban population growth outpaces investments. Discharge of untreated wastewater shifts problems to downstream areas. Well-managed wastewater can, instead of being a source of problems, be a positive addition to the environment and lead to improved food security, health and economic development.
- Wastewater directly or indirectly irrigates 20 million hectares of land worldwide—almost 7% of total irrigated area. Water pollution is, despite improvement in some regions, on the rise globally. While substantial progress is made in regulation and enforcement, pollution is likely to increase as a result of economic development driven by urbanization, industries and intensive agriculture systems. Human-generated water pollution is a serious hazard to human and ecosystem, health, but its impact can't easily quantify. Urban settlements are the main source of point-source pollution. (http://www.un.org/)
- Every day, 2 million tons of sewage and other effluents drain into the world's waters(http://www.un.org/)
- Currently, most plants use a combination of biological and chemical waste stabilization. Increasingly, the U.S. Environmental Protection Agency (EPA) is presenting the idea of making wastewater effluents cleaner in terms of nutrients. This forces most plants to add more chemicals to polish their effluents. The other unintended effect is that multiple systems now need more maintenance. Wastewater plants are having trouble maintaining complicated systems and keeping costs down. Eventually, a lot more chemical stabilization is going to displace more of the biological stabilization (Lev Nelik and Merat Zarreii2010)

Impact on environment and human health

- The impact of water pollution implies decrese in desolve oxygen, change in physical, chemical parameters of water, releases toxic substances which may affect aquatic life and increases neutrient loads (Environmental Canada 1997)
- Wide spreade use of untreated waste water and insufficient funds for treatment are causes for increases water born diseases as well as rapid degradation of environment (Mahmood and Maqbool 2006)
- Undesirable constituents in waste water can harm to health of human being as well as environment (Kamyotra)
- WHO estimates that worldwide some 2.2 million people die each year from diarrheal disease, 3.7 per cent of all deaths and at any one time over half of the world's hospitals beds are filled with people suffering from water related diseases (UNDP 2006).
- For an estimated 88 per cent of diarrhea cases the underlying cause is unsafe water, inadequate sanitation and poor hygiene. Moreover, it is estimated that 50 per cent of malnutrition is associated with repeated diarrhea or intestinal worm infections. Childhood malnutrition is at the root of 35 per cent of all global child mortality (WHO, 2008).
- The public health and environmental implications of sewage overflows are tremendous. Sewage pollutes our waters with pathogens, excess nutrients, heavy metals, and other toxins. It kills aquatic life and creates algal blooms that can suffocate fisheries (source: http://www.americanrivers.org/)
- Even worse, sewage carries pathogens that can end up in our drinking water supplies and swimming areas. These disease-causing microorganisms cause diarrhea, vomiting, respiratory, and other infections, hepatitis, dysentery, and other diseases. Common illnesses caused by swimming in and drinking untreated or partially treated sewage include gastroenteritis, but sewage is also linked to long term, chronic illnesses such as cancer, heart disease, and arthritis (source: http://www.americanrivers.org/)
- The health risks associated with this practice have been long recognized, but regulatory measures were, until recently, based on rigid guideline values whose application often was incompatible with the socio-economic settings where most

wastewater use takes place. (http://www.who. int/water_sanitation_health/wastewater/en/)

- New diseases, including water-related diseases, periodically "emerge" either because they are newly recognized or because their importance increases. This may be due to the micro-organisms themselves evolving, to changes in the way we manage water resources and supplies; changes in the tools and methods used to study the organisms and the health effects they cause; or due to changes in the human population itself. (ttp://www.who.int/water_sanitation_ health/emerging/en/)

Initial analysis of water quality problems

Water pollution management requires to the point definition of the problem which is to be managed. The first task is identification of supposed water quality problem as being "a problem". This gives ability to identify all related water quality problems. After that next task is to make sure that useful information is collected that enables identification and assessment of existing and potential future water quality troubles. Thus managers must be able to identify problem areas that require intervention within the water quality sector or the sector for which they are accountable. Even if all existing and potential water quality problems could be recognized it may not be practicable to solve them all at once. All managers are limited by budgetary constraints forced by political decision makers. consequently, tools for analysis as well as prioritization of water quality problems are indispensable and help make the best possible use of the available resources allocated to water pollution control. (Larsen and Ipsen)

Conclusion

Liquid waste produces by various industrial and domestic activities is essentially needs the primary treatment over it so as to avoid polluting the surface water. large gap between generation and available treatment adds the pollution load to the surrounding environment and altimately affects on human health and environment. Some river like Ganga and Yamuna are seriously suufering from water pollution issues which needs a stronge action to avoide ferther pollution of such rivers. Wide spreade use of untreated waste water and insufficient funds for treatment are causes for increases water born diseases as well as rapid degradation of environment. The health risks associated with this practice have been long recognized, but regulatory measures were, until recently, based on rigid guideline values whose application often was incompatible with the socio-economic settings where most wastewater use takes place. The developing countries in the world producing huge amount of sewage daily so to nullify this we need to have number of sewage treatment plants. Fresh water is a precious resource and the increasing pollution of our rivers and lakes is a cause for alarm so this is the time to carry out measures to prevent the pollution in any means and it is necessary to develop efficient and economical treatment facilities. Also the awareness improvement among citizens is very much important.

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