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# Study of Generation and Composition of Solid Waste Management (MSW)

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**ABSTRACT**

In this paper we studied about the generation and composition of solid waste management. For any management of solid waste there is a huge back up from urban local bodies. In the urban areas like Saran city area, the residential household, offices, Bus stands, public markets, center of shopping, etc the waste generated are generally dumped outside of the house or in a common dumping site or collection site. They are further collected by the Municipal cooperation from the site. Public dumped the wastes in open ground or side of the market without proper segregation which is difficult for the municipal cooperation to collect. Due to improper dumping of the waste, there is increase in pollution of water and soil. In this city the sites for dumping of the wastes are not properly manage or planned.

**Keywords :** MSW, Landfill, pH, Waste, WQI.

## I. INTRODUCTION

Because of the modern lifestyle is very important and the waste produced is increasing proportionally. Good and healthy management can be achieved by checking the waste generation data regularly as per the interval of time or periodically. The management which should be check periodically includes Generation of MSW, Collection, Disposal of waste etc . The good and most efficient application of waste management can be done and achieved by applying '3 Rs' methods. '3 Rs' principle (Reuse, Reduce, Recycle) '3 Rs'. The particular goal of these principles is to minimizes the waste generation. These "3 Rs" are the most basic and simple strategies which should be adopted for the wisely management of the solid waste.

The modern and development in life style has changed the standard of living and increase in composition of MSW. In major area which income are high public started using more package for day to day used. People should be given well awareness about the environmental impact of the solid waste and its ill effect on the population. There should be formation of the NGO's group, campaign should be organize periodically to make them aware about the diseases and the impact of the solid wastes. Community should organize themselves by providing areas for the dumping and treatment of the waste.

## II. REDUCING BIODEGRADABLE MSW AT SOURCE

Composting and vermicomposting using microorganism is one of the best techniques for minimizing the organic biodegradable material. Composting can reduce more than 51% of biodegradable organic components of MSW on-site. Composting decreased the residential MSW between 39 and 56%. The life-time of landfills can be extended by composting.

The process of composting can minimize the area for landfill more than half of the area or 51%. In developing countries like India the composting of the waste are done in the household level I,e not in large scale or municipal level. For example, in Dhaka, Bangladesh, composting of solid waste was more efficient and useful in small-scale plants than in large-scale. The main reasons were effectiveness in operation and maintenance cost, well separation of SW, and effectiveness in marketing. Zurbrugg et al. found that composting in decentralized system could recover costs and yield a profit.

## III. WASTE TO ENERGY (WTE)

Some developing countries in Asia are trying to change SW into energy. Philippines and Thailand have converted waste to energy. A pilot plant of 150 ton/day capacity of municipal SW produced 14,000 m3 of biogas, with 55-65% methane product, which was equivalent to 1.2 MW. In the Philippines the Clean Development Mechanism (CDM) was implemented with a WTE project in Payatas. This plant generated electricity of 60 kW to 70 kW, which was supplied to 20 residents. Almost similar in Thailand, the anaerobic digestion tanks have been operated in three areas. The anaerobic digestion tanks have capacity from 10 tons/day to 300 tons/day MSW which generate electricity from 625 kW to 2.5 MW. Landfill as final disposal site has the potential to emit greenhouse gases (GHGs). GHG emissions, which contribute to climate change, are another environment issue which has to be coped with. Asuwei landfill site, located in Beijing City was the earliest and the biggest landfill site to capture GHGs. It had a capacity of 2000 tons/day. The landfill gas has captured after 2001. It is currently used to generate electricity.

## IV. SWM INTER PARTNERSHIPS

The exchange of ideas and technologies is very must required for achieving a common goal.

Table 1: Analyzed physico-chemical parameters of the Tube well of Bhikhari Chouk

| Parameters | 2019-2020 | | | 2020-2021 | | |
|---|---|---|---|---|---|---|
| | Winter | Summer | Rainy | Winter | Summer | Rainy |
| Temperature | 16 | 28 | 27 | 17 | 29 | 29 |
| pH | 8.5 | 8.4 | 8.4 | 8.4 | 8.3 | 8.4 |
| Turbidity | 3.4 | 3.2 | 4.2 | 3.2 | 3.0 | 3.8 |
| TDS | 216 | 220 | 212 | 221 | 225 | 214 |
| TSS | 12 | 10 | 18 | 12 | 09 | 14 |
| Hardness | 275 | 270 | 265 | 260 | 255 | 258 |
| EC | 438 | 449 | 433 | 445 | 449 | 432 |
| Chloride | 134 | 130 | 132 | 132 | 135 | 130 |
| Sulphate | 40 | 45 | 42 | 42 | 41 | 49 |
| Total Alkalinity | 230 | 230 | 234 | 232 | 219 | 222 |
| Calcium | 28 | 32 | 34 | 27 | 29 | 24 |
| Magnesium | 60 | 58 | 57 | 59 | 60 | 65 |

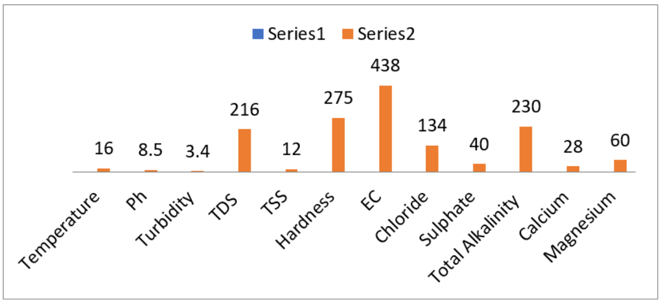


Figure-1: Variation in physico-chemical parameters of the Tube -well of Bhikhari Chouk in Winter Season 2019-20

For all the activities of SWM mainly in municipalities areas, partnership includes the residents, institutions or local government and the private sector, such as micro companies. In Yala, Thailand, a program of recycling and garbage reducing was established through a relationship between poor communities and the municipal administration. Similarly, to in India, the government had the cooperation with private sector and citizen in recycling SW. On the other hand, initiatives of the private sector (citizen and enterprises) such as public-privatecommunity partnership also help to increase the efficiency of waste management system. Cooperation is built between governments, research institute, NGOs, stakeholder, and people participation to solve the problem in SWM.

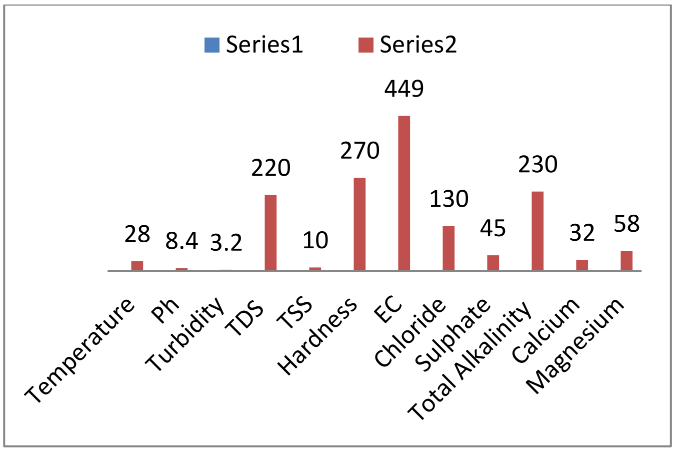


Figure 2: Variation in physico-chemical parameters of the Tube -well of Bhikhari Chouk in Summer Season 2019-20

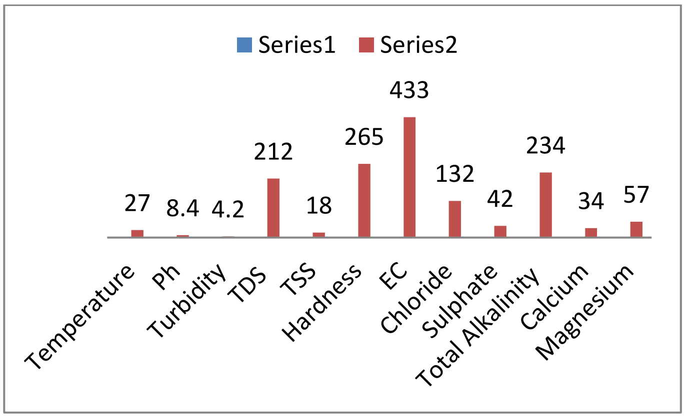


Figure-3: Variation in physico-chemical parameters of the Tube -well of Bhikhari Chouk in Rainy Season 2019-20

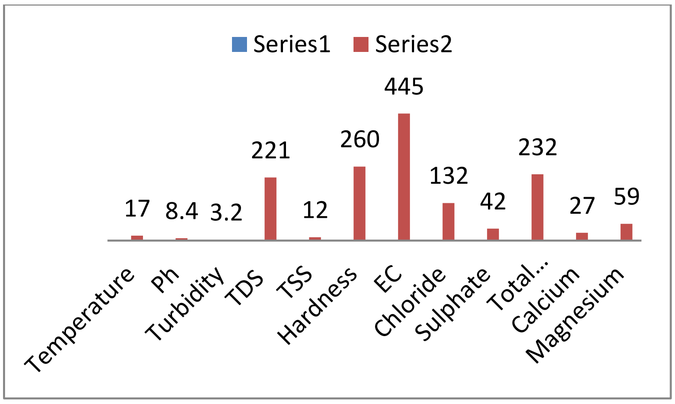


Figure-4: Variation in physico-chemical parameters of the Tube -well Bhikhari Chouk in Winter Season 2020-21

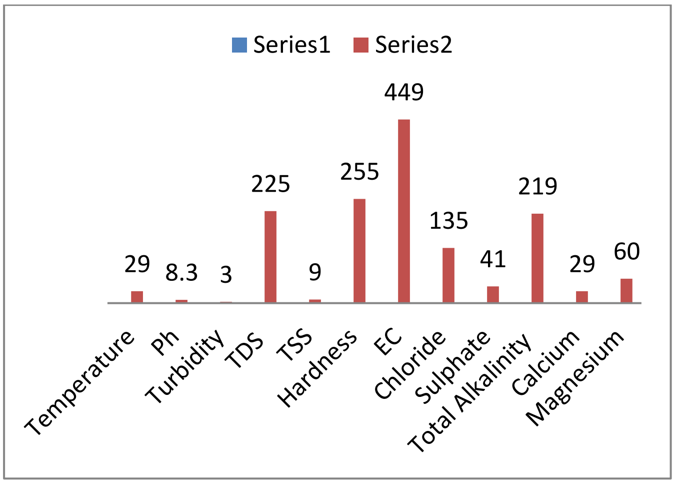


Figure-5: Variation in physico-chemical parameters of the Tube -well of Bhikhari Chouk in Summer Season 2020-21

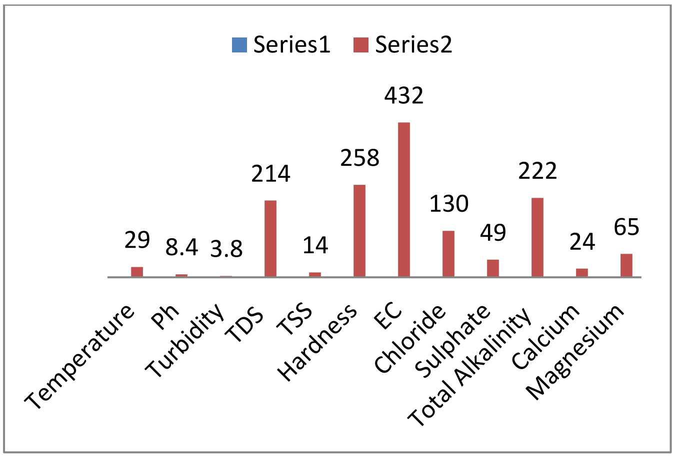


Figure-6: Variation in physico-chemical parameters of the Tube -well of Bhikhari Chouk in Rainy Season 2020-21

## V. CONCLUSION

Solids and Total Suspended Solids Total Dissolved Solids may be considered as salinity indicator for classification of groundwater. The TDS in groundwater is due to the presence of Calcium, Magnesium, Sodium, Potassium, Bicarbonate, Chloride and Sulphate ions. In the study area TDS varied from 141 to 459 mg/l. As prescribed limit of TDS for drinking water is 500 mg/l, all the water samples have TDS concentration well below the prescribed limit.

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