International Journal for Multidisciplinary Research (IJFMR)
E-ISSN: 2582–2160, Volume 4, Issue 5, September-October 2022

Impact of Solid Waste on Water at Chapra (Bihar)

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Abstract
The present condition of solid waste management in India is fighting with several insufficiencies such as weak infrastructure, poor financial position of municipal authorities, lack of modern technology, Unlawful and dangerous dumping is a main problem that increases serious concern with regard to security and quality of life. The Chapra city does not have any underground sewerage facility which threat to overall health and hygiene. The annual amount of waste generation increases along with increase in population and urbanization. With the rapid population growth, urbanization, development and changing life styles in Chapra city have also changed waste composition from mainly organic to mainly plastic. There is a big gap between enforcer and the implementers. The enforcing agencies should understand their role in a better way and should start facilitating the corporation to make administrative and financial provision in their annual plans. Societies also recognize the need for safe and responsible management of the waste.

Keywords: Municipal Solid Waste, Solid Waste Management, Environmental Problem

Introduction

Any compact or semi-solid material produced by human activity is considered solid waste. Rapid population and urbanisation expansion in developing countries have resulted in enormous increases in the amount of household trash, leading to pollution and other environmental problems. The waste management budgets of local governments are consistently underfunded. Most people simply dump their trash somewhere out in the open, which leads to hygiene issues and environmental damage. The city has a very subpar drainage system. The contamination of Chapra's surface and ground water supplies by garbage. People living near the landfill use ground water for drinking and for household needs. Those who have had their water supply tainted as a result of waste dumping or a leak are also at a greater risk than the general populace. The accumulation of garbage in a given area can block the natural flow of storm water, leading to the formation of stagnant water bodies that can serve as a breeding ground for mosquito-borne illnesses like malaria, dengue fever, and cholera. That sort of thing happens all the time in Chapra. There is need for proper planning of SWM.

Database and Methods

Finding out how solid waste affects the environment in Chapra is the primary goal of this investigation. Both primary and secondary data were used to create this study. Primary survey using self-administered questionnaires and in-person interviews to collect data from people's first-hand experiences. Information collected from various departments associated with Solid Waste and their management. The goals of the study dictate whether qualitative, quantitative, or a combination of the two approaches should be used.

Solid Waste: Characterization

It is estimated that Chapra city generates an average of 87-92 tonnes of solid waste per day. The annual amount of waste generation increases along with increase in population and urbanization. With the rapid population growth, urbanization, development and changing life styles in Chapra city have also changed waste composition from mainly organic to mainly plastic. Waste varies in type and substance depending on location.

Several variables, including standard of life, weather, occupational makeup, location, etc., play a role. Here are some numbers to consider about trash collection in Chapra:

Number of Household in Chapra	32585
Number of non-residential premises in Chapra	5155
Number of Administrative Ward in Chapra	45
Estimated Quantity of solid waste generated in the local body area per day metric tonnes (TPD)	87
Quantity of solid waste collected per day (TPD)	87
Per capita waste collected per day (gm/capita/day)	43
Quantity of solid waste processed (TPD)	10
Quantity of solid waste disposed at dumpsite/landfill	77

Source: Bihar State Pollution Control Board, Patna

Impact of Solid Waste on Water

Open dumping of solid waste is major concern for Chapra city. The accumulation of household waste in sewage system blocks the water flow and causes lots of water and health problem. The accumulation of harmful compounds in the food chain via the plants and animals that feed on it is a direct outcome of the dumping of untreated garbage in rivers, lakes, or small ponds in cities. Exposure to untreated releases of chemicals including cyanides, mercury, and polychlorinated biphenyls (PCBs) can result in severe illness or death. Numerous workers found surface water, ground water, and water near solid waste

landfills to contain significantly greater concentrations of organic and inorganic contaminants and heavy metals. Water quality is also affected by pathogens and nutrients. Untreated sewage is a major source of pathogens like coliforms.

Photo: Dumping of Wastes in Water Bodies

The findings of the study and the field observations led to the conclusion that Chapra's inadequate solid waste management system is having a negative effect on the water ecosystem:

- Open dumping of household waste blocks the drains and sewers which are cause of water logging and unhygienic condition in the city. Prabhunath Nagar, Kathari Bagh, Near the Chawk, Daldali Bazar etc. are always facing these problems throughout the year.
- In addition to the aforementioned issues, clogged drains and wastewater floods in the city as a result of clogged drains considerably assist the breeding of mosquitoes, which in turn aids in the development of malaria and dengue in the city.
- Severe water pollution is being caused by leachate from open waste sites, especially during wet seasons.
- In festive seasons (specially in Chhath Puja, Dusshera and Diwali) many people dump their waste like flower, incense stick in water bodies. It is serious concern associated with water pollution.

Conclusion

Poor waste management infrastructure prevents most emerging nations from serving their whole populations. Outside of Chapra and along the roadsides, trash is regularly deposited. Water pollution is caused open dumps, which also clogs drains, encourages the hatching of flies, and can spread infectious diseases. Chapra's current solid waste management system is inadequate because of a lack of resources (both financial and otherwise). Waste collection efficiency is especially low in outlying sections of the city. Additionally, societies acknowledge the importance of proper waste management.

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Acknowledgement
My deepest gratitude goes out to the Indian Council of Social Science Research (ICSSR), New Delhi, for supporting this minor research project. This paper is the result project that the ICSSR funded. The author, Dr. Anupam Kumar Singh, solely owns the opinions and information included in this work, as well as the conclusion.