AN ANALYSIS OF SOLID WASTE'S INFLUENCE ON AIR AND WATER QUALITY

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Abstract:

Both air and water are necessary components for living things to thrive. Both of these aspects play a significant part in the process of development. The quality of the air and water quality we breathe and drink are essential to our survival. The solid waste pollution that we face today impacts the quality of both the air and the water. We began our day with these issues and continued into the night. The accumulation of solid waste results in several forms of pollution, disrupting our everyday lives. It creates a hazardous situation for human and animal life every day and an ecological imbalance. The emergence of harmful microorganisms may be traced back to solid waste. The water, the land, and the air are the primary targets of their influence. Consequently, in these circumstances, human and animal existence become so challenging that they raise the issue of whether or not it is even possible to survive. The quantity of rubbish continues to grow daily, and the dumping area continues to expand to such an extreme degree that it threatens to obstruct our secure site and cause a sewage overflow. Both of these cases were eventually responsible for several severe disorders. According to the research conducted and analysed, the considerable challenges posed by rubbish or solid waste are a cause for worry regarding pollution's effect on air and water. In conclusion, when the government is confronted with this problem, it must attempt to approach it from all possible angles. It is the responsibility of the local government to ensure that illegal waste disposal stops, and the national government must impose strict rules on our local areas that would lead to better living for us as well as protect us from harm.

Keywords: hazardous; microorganisms; dumping area; disorders; possible angles.

Introduction:

We know that there is a significant issue with the solid trash we produce. It doesn't matter where we look, the trash disposal is broken, and we have no choice but to accept it as standard in our environment. Garbage, also known as trash from households(Cesaro et al., 2019), refers to anything that isn't fit for human consumption and does not contribute to human nourishment. The average person throws away between 250 grams and 1 kilogram of garbage every single day in their regular lives(Siddiqi et al., 2020). We may argue that air and water are vital to all living things and, of course, non-living things since they are two of the most critical components of life(Kumar & Prakash, 2020). The growing issue of dumping solid trash in India contributes to the country's air and water pollution. Garbage and other forms of solid waste are produced daily in urban societies(Zamri et al., 2021).

However, in more recent times, the health and welfare of man have been negatively impacted by pollution in the environment. Pollutants are compounds that occur naturally in the environment but acquire a harmful quality when discharged into the atmosphere in sufficient quantities by people(Ahluwalia & Patel, 2018). As a result of fast population increase, urbanization, and industrialization, solid waste has developed into an issue that affects the whole world at the local, regional, or national level(P. Yadav & Samadder, 2018). In most developing nations, poor solid waste management leads to difficulties that eventually result in losses on economic, environmental, and biological fronts. These problems affect the health of both humans and animals(Hassan Rashid et al., 2018). The effect of garbage is contingent on the content of the waste and unlawful disposal procedures. The dumping of debris into the environment causes environmental pollution, with immediate and long-term implications on human health(Mohanty et al., 2022). Some examples of consequences that only last for a short period include congenital abnormalities, asthma, and respiratory infections. General symptoms including anxiety, headaches, dizziness, and nausea have also been present in those exposed to the chemical(Abdel-Shafy & Mansour, 2018). Trash exposure may cause chronic illnesses

of the respiratory and cardiovascular systems, cancer, and problems with the brain, nerves, liver, lymphohematopoietic system, and kidneys(Kumar & Prakash, 2020).

Objectives of the Study:

1. Determine Protection from harm is one of the challenges posed by rubbish or solid waste.
2. To emphasize, as members of society, it is our responsibility to cooperate with the government to enforce rules that will reduce this problem and protect us from its harmful effects.
3. To find out the duty of every citizen to cooperate with local and national governments to protect us from harmful influences and help in doing away with the effects of solid waste disposal.
4. To determine how solid waste affects human health's air and water quality.

Materials and Method:

This theoretical study does an in-depth analysis of the currently available data. It makes several suggestions for methods in which the aim of increasing access to Indian single-use plastics might be accomplished. The abstract relies upon on-premises from previous research, applies systematic reasoning to those premises, and describes actions based on the assumptions and reasoning. In the following sections of this work, theorizing while maintaining an action orientation will be carried out.

The problem with solid waste in India:

In Indian cities, the municipal solid waste buildup is a significant problem. These many investigations aim to determine the current state of things and identify the most critical issues in Indian cities. India's densely populated cities have considerable challenges in managing solid garbage(Przydatek & Kanownik, 2019). There has been an increase in municipal solid trash production per capita due to the rise in urban inhabitants' quality of life and socioeconomic status. It has become more challenging to remove this waste because more space is needed to dispose of it(H. Yadav et al., 2018). India's solid waste disposal practices have mainly stayed unchanged despite substantial social policy developments, economic growth, and environmental protection(Petrovic et al., 2018). Current solid waste management techniques are detrimental to public health, the environment, and the economy. The Ministry of Environment and Forests has established India's waste management and disposal regulations(Kumar & Prakash, 2020).

Influence of solid waste on air quality:

When solid waste decomposes, many hazardous gases are formed, including respirable suspended matter (RSPM), adjourned particle matter (SPM), sulphur dioxide (SO2), and nitrogen oxides (NOX). Dust from several sources may cause various illnesses, ranging from the common cold to cancer. A high concentration of particulate matter is a crucial cause of acute and chronic respiratory diseases and lung damage in humans(Kumar & Prakash, 2020). Cardiovascular disease is more prevalent in polluted environments with high levels of dispersed particulates. During the dry season, the smoke from the landfill's burning substantially contributes to the air pollution experienced by those who live a great distance away(Kumar & Prakash, 2020). As a result, they grumbled about chest pains, coughing, allergies, irritability, stress, and respiratory issues. The high density and moisture content of the solid waste produced in developing nations leads to anaerobic decomposition in landfills, resulting in landfill gas(Sipra et al., 2018). The gas coming from the dump is mostly carbon dioxide and methane and a trace quantity of other trace gases and volatile organic compounds. Both CH4 and CO2 are considered Green House Gases (GHGs) (Vongdala et al., 2019), and both have the potential to contribute to global warming. Despite this, the warming potential of CH4 is 25 times greater than that of CO2, despite CO2's shorter atmospheric residence time of 12 ± 3 years(Kumar & Prakash, 2020).

Influence of waste items on water quality:

In the context of water, pollution refers to the presence of substances in excessive concentrations that have the potential to damage aquatic life. Chemicals that pose a concern include copper, manganese, lead, cadmium, phosphate, and nitrate. Groundwater must be free of both physical and chemical risks as a matter of public health(Ferronato & Torretta, 2019). Groundwater supplies drinking water and other household necessities for those near the dumping site. Individuals who live near a garbage dump or whose water supply has been contaminated by waste dumping or leaks from landfill sites are examples of other people in danger of being wounded or diseased(Kumar & Prakash, 2020). For example, the accumulation of waste in a house may provide ideal conditions for the growth and spread of disease-causing germs. As a result, stagnant bodies of water may develop if solid waste isn't collected regularly. Malaria, chest aches, diarrhea, and cholera are just some of the ailments that may be spread by these waterways(Iqbal et al., 2020). The food chain has been

contaminated due to untreated rubbish being dumped straight into waterways, including rivers, seas, and lakes. Garbage-eating plants and animals are to blame. Exposure to cyanides, mercury, and polychlorinated biphenyls (PCBs) may cause disease or even death if they are not adequately managed before being released(Rana et al., 2018). Water near solid waste dumps was discovered to have higher heavy metals and organic and non-organic pollutants than previously thought. All three kinds of water had these more significant amounts(Singh, 2019). A staggering 120,000 metric tonnes of solid waste is generated daily in India's urban cities. The improper dumping of solid waste has contaminated the ecosystem in almost every one of these towns(Rastogi et al., 2020).

Conclusion:

When we say "domestic waste," we refer to everything that isn't being utilized and isn't fit for human consumption. Brand-new food and vegetable peels, as well as rotting food, discarded papers and plastic bags, a malleable substance (such as old and broken pens and buckets), brand-new cotton fabric, and technical garbage such as cigarette smoke and dust) are all found in this category. Every day, an average person discards between 250 and 1 kilogram of garbage. Food and other organic waste may produce methane and carbon dioxide as they decompose. Because methane is flammable and has the potential to burst, it is a potent greenhouse gas. Carbon dioxide is often the source of the most outstanding greenhouse gas emissions. It contributes to climate change by acting as a heat trap in the atmosphere. Because of disease-carrying rodents and insects such as flies and rats, landfills that are not adequately managed risk becoming eyesores. One strategy for reducing the occurrence of such vectors is to utilize daily cover. Anaerobic digestion of garbage by microorganisms produces gases in landfills.

Human health might be endangered if solid waste is not adequately disposed of. Disease vectors such as rodents and flies, which pose an indirect danger to public health, are becoming more prevalent. Heavy metal accumulation in food chains is directly threatened by the discharge of industrial effluents and the dumping of municipal garbage. Solid waste that comes into contact with a live creature may cause cancer, low birth weight, neurological illnesses, nausea, vomiting, and long-term suffering in everyday life due to soil absorption, uptake, ventilation, leaching, and biofactors. Many health problems may be caused by solid waste. The country of India is seeing a considerable increase in the amount of trash produced due to its rapidly growing population. The development of India's many megacities. As the world's economies, culture, and technology increasingly converge, the formation of megacities becomes inevitable (ISWA 2012). India's megacities include Ahmedabad with 6.3 million inhabitants, Hyderabad with 7.7 million inhabitants, Bangalore with 8.4 million inhabitants, Chennai with 8.6 million inhabitants, and Kolkata with 14.1 million inhabitants, Delhi with 16.3 million inhabitants, and Mumbai with 18.4 million inhabitants (Census of India. 2011). People have no option but to reside in such locations. It is not a naturally occurring process. We are accountable for this situation. We must be concerned about these challenges and endeavour to get them under control.

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