

Health Hazards Due to Waste Water Treatment Plant

K. Suganya¹, C.N. Hariprasath², S. SenthilNathan³, G. Swathiga², B. Sivakumar²

¹Department of Environmental Sciences, Tamil Nadu Agricultural University, Coimbatore

²Forest College and Research Institute, Mettupalayam, ³Department of Agricultural Economics, Tamil Nadu Agricultural University, Coimbatore

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Introduction

Globally, increasing in urbanization as well industrialization, population explosion, and due to many other anthropogenic activities, huge volume of wastewater/ effluents are released into the environment. These effluents if discharged without undergoing any proper treatment, then there will be the chance of environmental deterioration and negative impacts on human health (McCunney RJ, 1986). Some of the occupational health hazards caused due to improper handling of this wastewater for the employees are given below,

Inhalation

The inhalation of toxic chemicals / compounds seems to be a main entry point for substances or living things into the body. Wastewater contains some compounds that are air-stripped. Other sludge processes (chemical inhalation also occurs during drying, compacting, and incineration). Inhalable droplets and particles are also released into the air during the aeration and dewatering processes.

Skin Contact

Additionally, diseases and toxins can enter through skin contact. When chemicals come into contact with sludge or wastewater, they can be absorbed via the skin (Dickin SK et al., 2016). Additionally, injuries or abrasions might allow disease organisms to enter the body. Additionally, a wastewater worker was reported to have been injured by a needle stick while removing screens from a bar screen. The upper respiratory tract becomes irritated when highly soluble gases and chemicals dissolve in the mucous membrane lining of the nose and throat. The worker may detect this nearly instantly in large doses. Since the materials dissolve in the fluid that coats the eye's conjunctival membrane, inflammation of the upper respiratory tract nearly invariably coexists with irritation of the eyes. There are fewer soluble gasses as a result.

The deeper lung structures become irritated when there are less soluble gases present. Systemic poisoning can occur when extremely weakly soluble chemicals enter the bloodstream directly from the inhaled air. Aerosols have the potential to contaminate food or drink and cause



digestive tract infections. Some enteric viruses and Mycobacterium tuberculosis are among the organisms that can infect the lungs. Waterborne infections are caused by bacteria, viruses, and protozoa (parasites) and can result in a number of ailments, such as:

Viral Disease

Disease	Agents
Gastroenteritis (“24-hour flu”)	Enteroviruses (67 types), Rotaviruses, parvoviruses, Reoviruses, Astrovirus, Calcivirus, Norwalk agent
Infectious Hepatitis	Hepatitis A, Hepatitis B
Respiratory disease	Adenoviruses (31 types), Reo viruses, Corona virus
Poliomyelitis	Polio viruses

Bacterial Disease

Salmonellosis, Typhoid Fever	<i>Salmonellae</i> (approx. 1700 types)
Shigellosis	<i>Shigellae</i> (4 spp.)
Cholera	<i>Vibrio Cholerae</i>
Gastroenteritis	<i>Escherichia coli</i> (enteropathogenic types)

Protozoan

Amoebic Dysentery, Ameobiasis	<i>Entamoeba histolytica</i>
Giardiasis	<i>Giardia lambila</i>

Bacterial endotoxins

Toxins released from the cell walls of gram-negative bacteria after their death can produce fever and chest tightness in exposed individuals. This appears to be a problem during sludge heat-treatment operations for sludge drying, at land application sites, and at composting operations.

Conclusion

Handling of wastewater/effluent discharged from wastewater treatment plant or industries needs to be paid more attention and utmost care. Precautionary and preventive measures are required for the labors/ technical people working or handling the wastewater, to avoid ill effects of this wastewater.

References

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