Study of water pollution sources effect and control in district Jaunpur (U.P.)

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Abstract

A major environmental and public health concern in the district of Jaunpur, Uttar Pradesh (U.P.), where domestic, industrial, and agricultural activity have increased recently, is water pollution. The main causes of water pollution are investigated in this study, along with their impacts on local ecosystems and water quality as well as mitigation and control measures. Agrochemical runoff from intensive farming, untreated sewage discharge, and industrial effluents from small-scale enterprises are some of the main sources of pollution that have been discovered. In surface and groundwater sources, analytical evaluations showed high concentrations of pollutants like nitrates, phosphates, heavy metals, and biological oxygen demand (BOD), beyond allowable limits set by the Central Pollution Control Board (CPCB). The study emphasizes ecological harm, such as eutrophication in water bodies and the loss of aquatic biodiversity, as well as detrimental consequences on human health, such as the frequency of waterborne illnesses.

Key words : Water quality, Heavy metals, Pollution control.

Water pollution is a serious problem that has attracted attention from all around the world because of its negative effects on ecosystems, human health, and socioeconomic systems. Numerous human activities have resulted in serious water quality issues for the Jaunpur district in Uttar Pradesh (U.P.). The sources, impacts, and mitigation strategies of water pollution are examined in this review of the literature, with an emphasis on research done in similar rural and semi-urban areas.

The following are Jaunpur's main

causes of water pollution:

Domestic Wastewater : Untreated domestic sewage is one of the main sources of contamination in both rural and urban regions. Water contamination is largely caused by improper sanitation infrastructure, according to studies⁸, with untreated sewage being deposited straight into rivers and streams. Industrial Effluents Hazardous chemicals have been released into adjacent water bodies as a result of Jaunpur's industrialization, especially in the agricultural sector. Many small and medium-sized companies release untreated wastewater into rivers, raising the levels of harmful compounds including pesticides and heavy metals in the water³.

Agricultural Runoff : Water contamination has been connected to the overuse of pesticides and fertilizers in agriculture. Chemicals from adjacent water sources are carried by runoff from agricultural fields, causing pollution. According to Singh *et al.*,⁶, a major cause of the eutrophication of Jaunpur's water bodies was agricultural runoff.

Water contamination is also a result of improper solid waste management, which includes the improper disposal of plastics and non-biodegradable items. According to Shukla and Sharma⁵, garbage buildup in rivers and lakes causes obstructions and impairs water movement, worsening the pollution problem. Jaunpur's water pollution has wide-ranging consequences for aquatic life, human health, and the local economy:

Health Effects: Typhoid, dysentery, and cholera are among the waterborne illnesses that are primarily brought on by contaminated water. Over 80% of waterborne illnesses in rural India are brought on by inadequate sanitation and unclean water, according to the WHO¹⁰. In Jaunpur, drinking contaminated water has been connected to outbreaks of several illnesses. Degradation of the Environment: Pollution causes biodiversity to decrease. According to Gupta and Agarwal², the existence of harmful substances like pesticides and heavy metals can destroy aquatic life, disturb ecosystems, and decrease the amount of clean water available for drinking and irrigation.

Economic Losses: The degradation of water quality affects local agriculture and fisheries, two of the key economic activities in Jaunpur. The reduction in water quality hampers crop productivity and the livelihoods of fishermen. Studies by Verma⁹ highlighted the financial losses incurred due to reduced water availability and contamination of irrigation water. Both official and non-governmental approaches have been used in Jaunpur's efforts to reduce water pollution:

Government Policies and Schemes: To combat water pollution, the government has launched a number of initiatives, including the Namami Gange Programme and the National Ganga River Basin Authority (NGRBA). Additionally, the district government has been working to improve sanitation infrastructure and develop sewage treatment plants (STPs)¹.

Community knowledge Programs: To raise public knowledge of the value of water conservation, waste management, and sanitation, NGOs and local groups in Jaunpur have started awareness programs. These initiatives have raised awareness and brought about certain behavioral changes in rural populations, claim Singh *et al.*,⁷.

Better Waste Management: There has been a focus on putting in place better waste management systems, such as solid waste segregation and appropriate disposal. To lessen the amount of solid waste that is thrown into water bodies, local governments have started to promote waste-to-compost technology⁴.

References :

- Bhardwaj, R., M. Yadav, and N. Patel, (2021). *Water Policy Review*, 39(5): 215-225.
- Gupta, A., and N. Agarwal, (2016). *Environmental Research*, 63(4): 145-150.
- Kumar, S., S. Yadav, and D. Sharma, (2017). Water Quality Review, 45(2): 112-120.
- Sharma, D., and R. Soni, (2020). Journal of Environmental Protection, 33(2): 118-125.
- 5. Shukla, S., and V. Sharma, (2019). Environmental Impact Journal, 14(2):

50-58.

- Singh, P., R. Saini, and M. Kumar, (2018). Journal of Environmental Management, 56(4): 234-241.
- Singh, V., R. Kaur, and H. Sharma, (2020). *Journal of Community Health*, 22(3): 100-108.
- Tiwari, A., P. Mishra and R. Gupta (2015). *Environmental Science Journal*, 12(3): 89-95.
- 9. Verma, P. (2019). Journal of Rural *Economics*, 71(1): 87-93.
- 10. WHO (2020). *Waterborne diseases and their impact on public health in rural India*. World Health Organization Report, 82-85.