

# Assessment of Effects of Wastewater Effluent on the Yamuna River in Haryana

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**Abstract**—A significant water source for many towns and cities in Haryana, India, is the Yamuna River. However, because of the discharge of domestic and industrial pollution, the quality of its water has been declining. This essay attempts to analyze the effects of wastewater dumping on the Yamuna River's water quality in Haryana. To begin this experiment, water samples were first taken at 8 places in Haryana from a variety of open drains as well as from the Yamuna River before and after encountering open drains. This study examined numerous indicators, including pH, Chemical Oxygen Demand (COD), Dissolved Oxygen (DO), and Biochemical Oxygen Demand (BOD), to determine the effects of effluent discharge on the river's water quality. The analysis revealed that the river and drain had COD values of 96 mg/l and 192 mg/l, respectively. The COD concentrations increased to 128 mg/l when the two were mixed. Similar to this, the river's DO levels were 2.9 mg/l while the drain's were 2.1 mg/l. The DO levels dropped to 2.4 mg/l when the two were mixed. When the BOD levels from the river and drain were combined, they fell to 26.4 mg/l from 16.4 mg/l and 62 mg/l, respectively. Last but not least, the combined pH of the river and drain was steady at 7.5 and 7.4, respectively. Overall, the study shows that the Haryana Yamuna River's water quality has been significantly impacted by the effluent discharge. The rise in COD levels suggests increased amounts of both organic and inorganic pollutants. The decline in DO levels could have an impact on aquatic life, and the increase in BOD levels suggests that the river's dissolved oxygen levels are declining, further harming the ecology. The results of the study highlight the necessity of strict wastewater treatment regulations and disposal maintains to protect the river's water quality and maintain its natural balance.

**Keywords:** Physico-chemical parameters, Open drains, Wastewater effluent, and Yamuna River.