The research study was conducted to estimate the pollution level and the potential sources of contamination in wastewater stream of Nalla Lai in the Rawalpindi region, Pakistan. A total of 19 wastewater samples were collected for the analyses of physicochemical parameters in the Clean laboratory of Pak-EPA (Pakistan Environmental Agency), Islamabad. The experimental results of pH, temperature, sulfate (SO42-), chloride (Cl-), copper (Cu), manganese (Mn), lead (Pb), and zinc (Zn) values of the wastewater samples were within the standard limit range and values of NEQs, 1997 whereas dissolved oxygen (DO), electric conductivity (EC), iron (Fe) and cadmium (Cd) was detected above the recommended permissible limit value in many wastewater samples. Biological oxygen demand (BOD), chemical oxygen demand (COD), and turbidity results of all the wastewater samples were elevated from the standard limit values of National Environmental Quality Standards (NEQs, 1997) and Environmental Protection Agency, Ghana (EPA, Ghana). The potential sources of water contamination are the discharge of industrial effluents of the I-9 and I-10 sectors of Islamabad. Likewise, commercial, institutional and domestic effluents from Islamabad and Rawalpindi city also enhance the pollution level of Nalla Lai stream by discharging the effluents directly into Nalla Lai. The above findings point out that the wastewater stream of Nalla Lai cannot support any aquatic life and the water cannot be used for any purpose and cannot discharge directly into any water body without appropriate treatment in the wastewater treatment plant.

**Keywords:** Nalla Lai, Wastewater, Rawalpindi, Pollution, National Environmental Quality Standards,

* The research evaluates the pollution level in the wastewater stream of Nalla Lai, Rawalpindi
* Potential sources of contamination of the Nalla Lai stream are Industrial, commercial, and domestic effluents.
* Temperature, pH, SO42-, Cl-, Cu, Mn, Pb, and Zn results of Nalla Lai wastewater samples were detected within the permissible limit value of NEQs, 1997.
* EC, Fe, and Cd results of analyzed wastewater samples of Nalla Lai were beyond the standard limit value of EPA Ghana and NEQs 1997 in many wastewater samples.
* BOD, COD, and turbidity values of all the wastewater samples were beyond the standard limit value of NEQs, 1997 and EPA, Ghana.