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Stormwater Quality Assessment through different sources in a sub-tropical town of India

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In the last few decades, the world has witnessed rapid urbanization. One of the many complex problems which have come up with increased urbanization is that of rapid drainage of stormwater from the inhabited areas. Roorkee, a sub-tropical urban town in India, has shown rapid unplanned growth in the past. The three-year wet weather flow data has been collected for this research. In order to study of pollutants in runoff emanating from different urban source areas, simple sampling devices were fabricated to contain polyethylene and glass bottles and installed in various source areas to collect runoff samples. The collected samples were analyzed for pH, solids, nutrients, organics and metals. From the study the rainwater ions concentration was observed to follow the pattern $\text{Ca}^{2+} > \text{HCO}_3^- > \text{Cl}^- > \text{NO}_3^- > \text{Na}^+ > \text{Mg}^{2+} > \text{SO}_4^{2-} > \text{K}^+$. Stormwater Runoff results indicated a significant enhancement in the concentration of most measured constituents over their rainfall levels. The values of the runoff coefficient varied between 0.05 and 0.62, with the high values displayed by the paved areas. This paper presents the findings of a study of characteristics of rainwater and runoff emanating from different sources areas and the stormwater flows in the drains.