

# Water Quality Assessment of Drinking Water Source in the Mid-hills of Central Nepal

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## ABSTRACT

The study is based on investigation of water quality status of the drinking water sources of Kathmandu, Banepa and Panauti valley. Twelve streams were considered for ecological assessment by using macroinvertebrates as biological indicators. Benthic invertebrates were collected with hand nets of mesh size 250  $\mu$ m, 0.5 mm and 1 mm from all possible micro-habitats. In addition, dissolved oxygen and biological oxygen demand were analyzed and sensory features like turbidity, foam, waste dumping, ferrosulphide reduction, periphyton, filamentous green algae were considered. Altogether, 69 families were recorded and categorized into 5 groups from very sensitive organisms (8 to 10) to extremely tolerant organisms (1 to 2). The saprobic approach has been used to classify the water quality in terms of diversity and abundance of benthic macroinvertebrates. Two saprobic Water Quality Class (WQC I and II), as Oligosaprobic to beta-mesosaprobic and WQC II as Beta-mesosaprobic have been identified. The Dissolved Oxygen (DO) value ranged from 6.2 mg/l to 8.5 mg/l and Biological Oxygen Demand (BOD) value ranged from 0.3 mg/l to 2.1 mg/l. Regarding bacteriological parameters with respect to saprobic class, WQC I–II with full physical and chemical treatment with disinfection and WQC II with intensive physical and chemical treatment with disinfection can be used as raw water for drinking water abstraction.

*Key Words:* Biodiversity, Bio-indicators, Sensory features, Water Quality Class

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