

Water Quality Assessment and Associated Stressing Factors of the Seti River Basin, Pokhara Sub Metropolitan City

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ABSTRACT

The ASSESS-HKH Field Screening Methodology was carried out to assess the ecological river water quality status of nineteen small to medium sized rivers of the Seti River basin within Pokhara sub-metropolitan city during the lean flow period in March 2007. Multi habitat qualitative samplings for forty-six sites were conducted with 100 m stretch in each study river section. Five river water quality classes; class I (high), class II (good), class III (moderate), class IV (poor) and class V (bad) have been used to describe the effect of organic degradable pollution (saprobic approach). The response of benthic macroinvertebrates varied with organic pollution, sediment extraction and river crossings. The Harpan and Orlan (inlets) and Boksira (outlet) rivers of Phewa lake have water quality class III (moderately polluted) except Phirke river (outlet) which has class V. Most of the rivers outside the municipal boundaries have been identified as Class II indicating good water quality. The whole stretches of the Phusre and the Seti Rivers are still in good ecological condition. A total of 19 stressing factors have been identified along the river stretches, which have been grouped into five broad groups i.e., solid waste, effluent factors, activities and facilities, hydro-morphological degradation and ecological disturbances, and sanitation activity. The results are visualized by a colored water quality map which indicates the present ecological status of the Seti River basin. This map serves as an easy readable tool to identify hot spots and to show where immediate action is required. It also attracts the attention of the decision makers and enables timely measures to be taken for improving the deteriorating water quality of the rivers.

Key words: screening methodology, benthic macroinvertebrates, water quality, Seti River basin, river pollution
