

A NEW APPROACH TO WATER QUALITY TESTING FOR SUSTAINABLE WATERWAY MONITORING

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ABSTRACT

Water is a basic requirement for survival of all living beings, and one of the most precious natural resources. Hence, as environmental standards in the world are becoming more demanding, the water quality issues hold a special significance. Potential water usage depends on its quality - the physical, chemical and biological composition and concentration of certain substances in the water. Water quality varies, as well as the criteria used to evaluate it. For Bosnia and Herzegovina, with its abundant water resources, the challenges of preserving surface water quality and the issues of water resources management are becoming increasingly pronounced. In this paper, the overall stream water quality was estimated by the Neretva Water Quality Index (NWQI). The grouping of selected quality parameters, each representing a specific impairment category, allows efficient and precise estimation of the overall quality of water.

This simple and quick method is suitable for routine monitoring of water quality and can be conducted entirely on site. The composite index was calculated as the harmonic mean of analytical values of: water temperature, pH, electrical conductivity, oxygen saturation, nitrogen, total phosphorus, and faecal coliforms. These parameters, crucial for the assessment of water quality have been selected according to the major criteria of stream health, whilst taking into account the hydrological and climatic factors specific to the studied area. Analysis of environmental impacts on

water quality in the Neretva River can serve as the basis for an accentuated need for implementation and management of monitoring programmes aimed at protection and sustainability of waterways. NWQI allows the most impaired variable to make the largest impact on the value of the index, and takes into account the spatial and temporal differences that a variable will exert on the overall water quality.