



DEVELOPMENT OF AN ASSESSMENT SYSTEM TO EVALUATE THE ECOLOGICAL STATUS OF RIVERS IN THE HINDU-KUSH HIMALAYAN REGION



Comprising over 70% of the Earth's surface, water is undoubtedly the most precious natural resource that is essential for everything on our planet to grow and prosper. Although we as humans recognize this fact, but we disregard it by polluting our rivers, lakes, and oceans and slowly but surely harming our planet to the point where organisms are dying at a very alarming rate.

Dying off aquatic organisms is a solid indication that our drinking water is getting polluted. To combat the water pollution, it is important to understand the problems and become part of the solution. The factors which are contributing to deterioration of quality include; unsafe disposal of sewage, industrial effluent, hospital waste and solid waste and excessive use of pesticides and weedicides. Pakistan Council of Research in Water Resources (PCRWR) has initiated the chain of activities to monitor water quality to gauge extent of pollution. In addition to water sample analysis diversity of macro-invertebrates and rapid bioassessment are two major tools to monitor river water quality. HINDU-KUSH HIMALAYAN REGION (HKH) is world-famous for its beauty and benefits covering some 3,500 km² over eight countries from Pakistan in the west to Myanmar in the east. It sustains approximately 140 million people and affects the lives of more than three times as many in the plains and river basins below. The intense pressure in the water resources in the HKH region is due to population growth of typically 2% per annum, urbanization, industrialization, increased irrigation and hydropower generation. ASSESS-HKH is a research work with objective of international cooperation by enabling collaboration of European and South Asian country scientists to

access state of the art knowledge and technology in the fields of ecosystem management with a focus on the sustainable use of surface waters. Fortunately, PCRWR is a participant of this international research work from Pakistan. Under this research work, water quality in streams/rivers will be monitored by utilizing the macro-invertebrate population. Several studies have proven that bioassessment is an excellent indicator to examine the water quality. Rapid bioassessment using macro-invertebrates is one of the best methods for a number of reasons. The first being that macro invertebrates are abundant in most streams, is fairly stationary, and are easy to collect. Most importantly, they are sensitive to human disturbance and a great deal is known about their sensitivities and tolerances. Also, they are more diverse in streams than fish and their numbers aren't affected by events such as sport fishing and introduction of species so diversity metrics are more useful.

This programme will provide a qualitative and quantitative analysis of possible causes of degradation to help direct future management for maintaining and improving public health, enhancing economical productivity and development of socio-economic infrastructure. This programme will also provide sufficient information for comparison of chemical/microbiological monitoring and bioassessment. Strategies, progress and outcome of the programme can be seen on the ASSESS-HKH home page: www.ASSESS-HKH.at.

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