An assessment of Seasonal Water Quality Variation in Mahaweli River

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Water is an abundant natural resource in Sri Lanka. Rivers and lakes are mostly affected by pollutants. The Mahaweli River is especially polluted because an arm of the river flows through industrial areas.The purpose of this study is to investigate how the water quality changed seasonally and spatially. The water was analyzed before and after filtration. Water quality analyses before filtration give the natural conditions of water. Then the water was filtered using 0.45 micron filter paper to remove all the suspended matter and analyzed parameters indicate the dissolved matter of water. The water quality parameters such as pH, colour, turbidity, organic carbon content and potassium permanganate ($KMnO_4$) consumption were measured in collected water samples before and after filtration, and the data were analyzed statistically using MINITAB statistical package version 17.0. In this study, results indicate that the Mahaweli river water contains a higher amount of colour, Turbidity with comparing WHO and SLS standards, Organic carbon and the $KMnO_4$ consumption for raw water also was higher and the water quality parameters were differed due to the seasonal variation of the environment. Based on the statistical analysis, the water quality parameters of raw water samples have differed significantly from the filtered water samples; the apparent colour of the river water depends on the organic carbon MR and the $KMnO_4$ consumption. Therefore, it can be concluded that the Mahaweli River was polluted significantly due to the Organic carbon, colour and turbidity. Based on the results, it can be proved that the filtering process affects the water quality of the sample; there is a relationship between apparent colour with the organic carbon MR and the $KMnO_4$ consumption and there was no relationship between the true colour with the mentioned water quality parameters.

Keywords: - apparent rever water colour; organic carbon; surface water pollution