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Assessment of Physico-Chemical Properties of Coal Mine Water for Sustainable Water Resource Management

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Abstract: *The aim of our study is to gather various facts from coal mine water regarding seasonal changes, water quality, and abiotic variables. Mine water from coal mines is recycled in the Indian state of Chhattisgarh and used as a thermal energy source as well as in the public sector and on agricultural ground. With the onset of Summer, water samples were obtained for this investigation from coal mine in the Korba district of Chhattisgarh. To evaluate the quality of water ,analyses were made of sixteen different physiochemical parameters, such as pH, alkanity, total hardness, fluorides, chlorides, BOD, COD, and DO. The Water Quality Index (WQI), ,. The most useful indicator of the quality of the water is the Water Quality Index (WQI), which is produced by averaging any or all of the features. Therefore, it is safe and there is plenty of source to use mine water as an additional resource for aquatic ecosystems. The preservation and restoration of aquatic ecosystems, as well as the scientific distribution and management of water resources, are essential to the effective use of freshwater. The complete usage and ideal allocation mode of mine water must be taken into consideration based on actual conditions because of the variations in the quantity and quality of coal mine water as well as the notable variations in the surrounding conventional water resource conditions. Additionally, they must include the full utilization of mine water resources into their development plans for the circular economy and local communities.*

Keywords: coal mine water, Monthly variation, Opencast mine .WQI, Physio-chemical parameters

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