

Impure Water, a Future Disaster: A Case Study of Lahore Ground Water Quality with GIS Techniques

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Abstract : This research has been conducted to assess the water quality in and around Lahore Metropolitan area on the basis of three different land uses, i.e. residential, commercial, and industrial land uses. For this, 29 sample sites have been selected on the basis of simple random sampling technique. Samples were collected at the source (WASA tube wells). The criteria for selecting sample sites are to have a maximum concentration of population in the selected land uses. The results showed that in the residential land use the proportion of nitrate and turbidity is at their highest level in the areas of Allama Iqbal Town and Samanabad Town. Commercial land use of Gulberg and Data Gunj Bakhsh Town have highest level of proportion of chlorides, calcium, TDS, pH, Mg, total hardness, arsenic and alkalinity. Whereas in industrial type of land use in Ravi and Wahga Town have the proportion of arsenic, Mg, nitrate, pH, and turbidity are at their highest level. The high rate of concentration of these parameters in these areas is basically due to the old and fractured pipelines that allow bacterial as well as physiochemical contaminants to contaminate the portable water at the sources. Furthermore, it is seen in most areas that waste water from domestic, industrial, as well as municipal sources may get easy discharge into open spaces and water bodies, like, canals, rivers, lakes that seeps and become a part of ground water. In addition, huge dumps located in Lahore are becoming the cause of ground water contamination as when the rain falls, the water gets seep into the ground and impures the ground water quality. On the basis of the derived results with the help of Geo-spatial technology ACRGIS 9.3 Interpolation (IDW), it is recommended that water filtration plants must be installed with specific parameter control. A separate team for proper inspection has to be made for water quality check at the source. Old water pipelines must be replaced with the new pipelines, and safe water depth must be ensured at the source end.

Keywords : GIS, remote sensing, pH, nitrate, disaster, IDW

Conference Title : ICGISGDM 2017 : International Conference on GIS and Geomatics for Disaster Management

Conference Location : Dubai, United Arab Emirates

Conference Dates : November 24-25, 2017