Decision Support System in Air Pollution Using Data Mining

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Abstract : Environmental pollution is not limited to a specific region or country; that is why sustainable development, as a necessary process for improvement, pays attention to issues such as destruction of natural resources, degradation of biological system, global pollution, and climate change in the world, especially in the developing countries. According to the World Health Organization, as a developing city, Tehran (capital of Iran) is one of the most polluted cities in the world in terms of air pollution. In this study, three pollutants including particulate matter less than 10 microns, nitrogen oxides, and sulfur dioxide were evaluated in Tehran using data mining techniques and through Crisp approach. The data from 21 air pollution measuring stations in different areas of Tehran were collected from 1999 to 2013. Commercial softwares Clementine was selected for this study. Tehran was divided into distinct clusters in terms of the mentioned pollutants using the software. As a data mining technique, clustering is usually used as a prologue for other analyses, therefore, the similarity of clusters was evaluated in this study through analyzing local conditions, traffic behavior, and industrial activities. In fact, the results of this research can support decision-making system, help managers improve the performance and decision making, and assist in urban studies.