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Application of GIS in designing of an environmental modeling system for entire state of Gujarat, India

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Over the past 50 years India has been experiencing rapid population growth, causing migration of large population to the cities looking for livelihood. This resulted in massive increments of population in the cities that have laid to increase of pollution. Gujarat being a highly industrialized state is a case in point. The systems for treatment and water disposal of this state are highly challenged. The north western state of Gujarat has no effective systems for treatment or disposal of waste water. In order

to address this problem, a Geographic Information System (GIS) approach has been introduced to record the characterization, analyze the needs and generate a conceptual GIS database in the state. This paper outlines the background, suggested methodology for the development of a GIS database pollution dependent control of water pollution in the state of Gujarat in India. The present research is to install a document management system that has been developed in providing organizing chart, sorting, querying and retrieving of key data. A computerized laboratory information system on monitoring of quality of ambient air has been developed. Front-end application programs have been developed in Visual Basic and the back-end database to integrate the laboratory data and the existing data in oracle database. Finally, an integrated GIS database has been generated involving creation of pollutant contours, querying and visualizing the query output in spatial and non-spatial form.