

Building a management and pollution warning system for Dong Van Industrial Park using GIS

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Abstract: This study presents the development of a management and early warning system for industrial pollution in the Dong Van Industrial Zone using Geographic Information Systems (GIS). The research addresses the critical need for real-time environmental monitoring in rapidly industrializing areas. By integrating spatial data with sensor-based pollution measurements, the system enables the continuous tracking of key pollutants, including air emissions and wastewater discharge. GIS technology facilitates the visualization of pollution distribution, identification of high-risk zones, and analysis of spatial-temporal trends. The system incorporates an automated alert mechanism that triggers notifications when pollutant levels exceed permissible thresholds, allowing for timely intervention by regulatory authorities and factory management. The platform also supports data storage, querying, and reporting functions to aid decision-making and compliance monitoring. Results demonstrate that the GIS-based system significantly enhances the capacity for proactive pollution control and environmental management in industrial zones. This approach offers a scalable and replicable model for mitigating industrial pollution and protecting public health and ecosystems in similar settings.

Keywords: pollution management system, GIS, pollution warning, Dong Van industrial park