Prioritization of Site Selection for Subsidence Mitigation of Abandoned Mine Lands using GIS andAttribute Criteria Hierarchy [1]

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Abstract: Across the world, countries with historically mined landscapes have begun implementing programs to manage underground abandoned mines and mitigate subsidence, but a need exists to prioritize rehabilitating these sites. This research presented in this discussion hypnotizes a hierarchical criterion for site prioritization, coupled with the use of Geographic Information Systems (GIS) to spatially analyze criteria and data to simplify the complex decision process when attempting to reduce public hazards caused by abandoned mines. Historical records, risk assessment, jurisdictionpolicy, and geologic investigations are all critical components to site priority. The model developed and discussed for this presentation uses Esri's Arc Pro 2.8 Model Builder and has been tested on two study areas for Wyoming Abandoned Mine Lands Program. Results include a prioritization model that highlights an area with criterion for site investigation, potential for reducing human bias througha GIS solution and a means for better community engagement through the publishing of prioritization factors and consistent spatial analysis results.

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