

Applied Spatial Mapping and Monitoring of Illegal Landfills for Deprived Urban Areas in Romania

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Abstract : The rise and mitigation of unauthorized illegal waste dumps are a significant global issue within waste management ecosystems, impacting disadvantaged communities. Globally, including in Romania, many individuals live in houses without legal recognition, lacking ownership or construction permits, in areas known as "informal settlements". An increasing number of regions and cities in Romania are struggling to manage their illegal waste dumps, especially in the context of increasing poverty and lack of regulation related to informal settlements. One such informal settlement is located at the end of Bistra Street in Călnic, within the Reșița Municipality of Caras Severin County. The article presents a case study that focuses on employing remote sensing techniques and spatial data to monitor and map illegal waste practices, with subsequent integration into a geographic information system tailored for the Reșița community. In addition, the paper outlines the steps involved in devising strategies aimed at enhancing waste management practices in disadvantaged areas, aligning with the shift toward a circular economy. Results presented in the paper contain a spatial mapping and visualization methodology calibrated with in situ data collection applicable for identifying illegal landfills. The emergence and neutralization of illegal dumps pose a challenge in the field of waste management. These approaches, which prove effective where conventional solutions have failed, need to be replicated and adopted more wisely.

Keywords : waste dumps, waste management, monitoring, GIS, informal settlements

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