

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

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Abstract : The emergence and neutralization of illegal waste dumps represent a global concern for waste management ecosystems with a particularly pronounced impact on disadvantaged communities. All over the world, and in this particular case in Romania, a relevant number of people resided in houses lacking any legal forms such as land ownership documents or building permits. These areas are referred to as “informal settlements”. An increasing number of regions and cities in Romania are struggling to manage their waste dumps, especially in the context of increasing poverty and lack of regulation related to informal settlements. An example of such informal settlement can be found at the terminus of Bistra Street in Câlnic, which falls under the jurisdiction of the Municipality of Reșița in 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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