

<https://doi.org/10.7250/CONNECT.2025.026>

GEOSPATIAL ANALYSIS FOR ENVIRONMENTAL ENGINEERING: A LITERATURE REVIEW

Anna KUBULE^{1*}, Lauma BALODE², Līga SNIEGA³

¹⁻³ *Institute of Energy Systems and Environment, Riga Technical University, Āzenes iela 12/1, Riga, LV-1048, Latvia*

* **Corresponding author.** Email address: anna.kubule@rtu.lv

Abstract – The recently increased availability of open geospatial datasets and the increased availability of publicly available remote sensing imagery provide possibilities to advance their use in environmental engineering analysis. The analysis of remote sensing imagery, especially using machine learning technology, to improve pattern recognition, allows to tackle such problems as land cover change, illegal waste landfills, vegetation analysis. The limitation of this approach is mainly the fact that remote sensing can detect only changes that have already happened, and it is complicated to use it for the detection of causes of environmental problems. This research aims to discover the latest tendencies and gaps for the potential to use open remote sensing data to investigate environmental engineering related issues, for example, renewable energy potential, causes of greenhouse gas emissions and environmental pollution detection. To reach the aim of the study a literature analysis and content analysis methods are applied. The literature analysis focuses on ability and limitations of geospatial analysis to assess environmental engineering related issues by using Earth Observation data and without investing into dedicated data acquisition. In addition to the literature analysis, the existing sources of other geospatial open data at the European Union scale are overviewed to determine their applicability.

Keywords – *Environmental engineering; geospatial analysis; literature review; remote sensing*