Integrated Geospatial Analysis for Rural Development Metrics

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Introduction

This study presents a comprehensive framework for analysing village infrastructure, focusing on statistical correctness, unbiasedness, and diversity in data representation. The primary goal is to establish a detailed, data-driven description for the development of all Ukrainian villages, utilizing freely accessible data sources. This approach aims to provide a robust foundation for understanding and improving village infrastructure at a granular level.

Data and Method

Our analysis leverages geospatial data from OpenStreetMap (OSM) to assess the quality and extent of village infrastructure. This includes examining the locations and specific features of various infrastructure elements, such as urban areas, parks, financial institutions, religious establishments, educational facilities, accommodations, early childhood education centres, libraries, healthcare services, and retail outlets. By applying statistical tools to this data, we aim to create a nuanced description of infrastructure development for each village, highlighting both strengths and areas needing improvement.

Results

A key outcome of this study is the development of a comprehensive methodology for constructing a dataset that accurately describes the level of infrastructure development in villages. This dataset integrates geospatial data with information from independent sources and private companies, including postal services and telecommunications providers. The combination of these diverse data sources results in a rich, multi-dimensional view of village infrastructure, offering insights into various aspects of community development.

Conclusion

Focusing on villages in Ukraine, this study has successfully categorized and described each type of accessible data. The resulting comprehensive dataset provides a valuable resource for future research endeavours. It lays the groundwork for more targeted and effective strategies to enhance village infrastructure, considering the unique characteristics and needs of each community.

Keywords

Geospatial Infrastructure Analysis, Statistical Data Integration, Rural Development Metrics, Open Data Utilization