

Accessibility Assessment of School Facilities Using Geospatial Technologies: A Case Study of District Sheikhpura

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Abstract : Education is vital for inclusive growth of an economy and a critical contributor for investment in human capital. Like other developing countries, Pakistan is facing enormous challenges regarding the provision of public facilities, improper infrastructure planning, accelerating rate of population and poor accessibility. The influence of the rapid advancement and innovations in GIS and RS techniques have proved to be a useful tool for better planning and decision making to encounter these challenges. Therefore present study incorporates GIS and RS techniques to investigate the spatial distribution of school facilities, identifies settlements with served and unserved population, finds potential areas for new schools based on population and develops an accessibility index to evaluate the higher accessibility for schools. For this purpose high-resolution worldview imagery was used to develop road network, settlements and school facilities and to generate school accessibility for each level. Landsat 8 imagery was utilized to extract built-up area by applying pre and post-processing models and Landsat 8 imagery was used to analyze population statistics. Service area analysis was performed using network analyst extension in ArcGIS 10.3v and results were evaluated for served and underserved areas and population. An accessibility tool was used to evaluate a set of potential destinations to determine which is the most accessible with the given population distribution. Findings of the study may contribute to facilitating the town planners and education authorities for understanding the existing patterns of school facilities. It is concluded that GIS and remote sensing can be effectively used in urban transport and facility planning.

Keywords : accessibility, geographic information system, landsat, worldview

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