

Analysis of Spatial Distribution of Urban Population using GIS: Reference to Municipal Councils in Sri Lanka

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Abstract

Understanding the spatial distribution of the urban population is significant to urban planners and decision makers for the future planning process. The global urban population has grown rapidly from 751 million in 1950 to 4.2 billion in 2018 and the urbanization rate increased from 34% in 1960 to 55% in 2018. Thus, Sri Lanka experiencing rapid urbanization and it has uneven urban population distribution. Therefore, this study explores the spatial distribution of urban population using GIS. According to 2012 census data, some Municipal and Urban Council areas show minus population growth rate and identification of spatial form of these areas are significant for future planning. Hence, this study attempted to analyse spatial distribution pattern of these urban areas. Due to time limitations study mainly focus on ten municipal councils, which show minus population growth from 2001 to 2012. Based on that, study fulfil this main objective through two specific objectives such as, to analyze past and existing population and, to compare the population distribution pattern with housing distribution pattern. The methodology for carrying out this research entailed qualitative and quantitative approaches. 2001 and 2012 population data, published from the Department of Census and Statistics consider for the analysis as secondary data. These data were analyzed using GIS-based spatial interpolation and density gradients. The findings of the research highlighted the areas, with minus growth within the MC limits and gradual population distribution pattern. Results concluded that, specific junctions and its surrounding areas show the highest population density within the municipal councils and it gradually decreases from the centers to outside. When compared 2001 and 2011 population densities, high-density area's population is gradually decreased and the low-density area's population density is increased. Housing distribution shows similar pattern with population distribution.

Keywords: Spatial Distribution, Urban Population, Urban Area, Population Density