

A Decision Tree Approach to Estimate Permanent Residents Using Remote Sensing Data in Lebanese Municipalities

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Abstract : Population estimation using Geographic Information System (GIS) and remote sensing faces many obstacles such as the determination of permanent residents. A permanent resident is an individual who stays and works during all four seasons in his village. So, all those who move towards other cities or villages are excluded from this category. The aim of this study is to identify the factors affecting the percentage of permanent residents in a village and to determine the attributed weight to each factor. To do so, six factors have been chosen (slope, precipitation, temperature, number of services, time to Central Business District (CBD) and the proximity to conflict zones) and each one of those factors has been evaluated using one of the following data: the contour lines map of 50 m, the precipitation map, four temperature maps and data collected through surveys. The weighting procedure has been done using decision tree method. As a result of this procedure, temperature (50.8%) and percentage of precipitation (46.5%) are the most influencing factors.

Keywords : remote sensing, GIS, permanent residence, decision tree, Lebanon

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