



GIS APPLICATIONS FOR RESIDENTIAL SUITABILITY: A CASE STUDY IN KANDY MC

Withanage W.K.N.C.*

Department of Geography, University of Ruhuna, Sri Lanka
neelgisrskln2017@gmail.com

The process of urbanization is a universal phenomenon taking place the world over. Such growth of urban population and economic activities causes a rapidly increasing pressure on the land. Growth of human settlements, both around existing cities and within rural areas, is a major driving force of land use and land cover change. It is therefore imperative that suitable land for residential use has to be identified to maximize space utilization and limit environmental degradation. As the second largest city and one of the world heritage cities in Sri Lanka, Kandy city has developed as a compact city by attracting more urban activities. Therefore, it is very important to guide this growth with finding most suitable locations for residential development. In this respect, Geographic Information Systems (GIS) provide a tool in integrating and analyzing of land resources to determine the suitability for a land use or several land uses. The study objective was developing a GIS model for assessing land suitability for residential development in Kandy Municipal Council (MC). In the study four steps were utilized as selecting criteria, site screening, Analytic Hierarchy Process evaluation and site evaluation. The study focused on major criteria as land use, slope, elevation, land slide areas, distance to road and distance to existing town centers and environment. A questionnaire survey was done for weighting the criteria. GIS overlay process was utilized to combine the factors and to develop final suitability map. The resulted map shown that 46% (596 ha) are highly suitable for residential development and 22% (284 ha) are suitable and 32% least suitable and not suitable for residential development. According to comparison of resulted map with Urban Development Authority zoning map 84% proposed development areas located on highly suitable and suitable land while 16% of the proposed development areas are located on either least suitable or not suitable land. The integration of GIS and Analytic Hierarchy Process has been found to be effective in selecting the residential sites within the Kandy MC. Moreover this method can be applied for in other urban areas as an advance decision supportive tool in urban and regional planning.

Keywords: *Kandy, Urbanization, Geographic Information Systems, Analytic Hierarchy Process, Suitability*