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## Integrated land use-transportation approach in controlling the growth of urban sprawl using remote sensing and GIS application (Conference Paper)

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### Abstract

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Integrated land use-transportation approach in urban planning has provided a new direction in urban sprawl studies. The spatial analysis of the current land use will provide an insight of the development density and the effect of active transportation activities on urban sprawl growth. This paper focuses on the integrated land use-transportation approach in controlling the urban sprawl by assimilating the application of remote sensing and GIS with Land Use Geospatial Indices (LUGI). Remote sensing and GIS is applied in measuring the phases of urban sprawl growth focusing on the aspect of the land use-transportation relationship. Two components of LUGI; 1) strip sprawl and 2) leapfrog development sprawl are designated to measure the spatial interruption caused by the urban sprawl. Strip and leapfrog analyses are useful in determining the existence of urban sprawl from the transportation perspectives. Transportation elements of road hierarchy and geometric, as well as transportation infrastructure are included as variables in the measurement process to validate the indication of both types of sprawl. Kuala Lumpur, Malaysia is chosen as the study area. Currently, the city served as capital and premier location that accommodates the regional headquarters of national and multinational business companies. Thus, the rapid population growth has contributed to the growth of urban sprawl in Kuala Lumpur, yet there are no substantial measures to identify the type, pattern and how to curb it. The findings proved that Kuala Lumpur is currently facing the urban sprawl issues pertinent to the two components of LUGI calculated. These geospatial indices sprawl not only occurred at the city fringe but currently transpired within the city as well. The integrated land use-transportation approach is necessary for controlling the settlement development within the city to reduce the sprawling effects to the land use density and transportation system. © Published under licence by IOP Publishing Ltd.

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- 1 Gori, S., Nigro, M., Petrelli, M.  
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(2012) *European Transport Research Review*, 4 (3), pp. 153-166. Cited 19 times.  
doi: 10.1007/s12544-012-0077-6

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- 2 Bhatta, B.  
Causes and consequences of urban growth and sprawl  
(2010) *Analysis of Urban Growth and Sprawl from Remote Sensing Data*, pp. 17-37. Cited 17 times.  
(Berlin Heidelberg: Springer-Verlag)

- 3 Verbeek, T., Boussauw, K., Pisman, A.  
Presence and trends of linear sprawl: Explaining ribbon development in the north of Belgium

(2014) *Landscape and Urban Planning*, 128, pp. 48-59. Cited 10 times.  
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