

## Impact of Map Generalization in Spatial Analysis

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**Abstract :** When representing spatial data and their attributes on different types of maps, the scale plays a key role in the process of map generalization. The process is consisted with two main operators such as selection and omission. Once some data were selected, they would undergo of several geometrical changing processes such as elimination, simplification, smoothing, exaggeration, displacement, aggregation and size reduction. As a result of these operations at different levels of data, the geometry of the spatial features such as length, sinuosity, orientation, perimeter and area would be altered. This would be worst in the case of preparation of small scale maps, since the cartographer has not enough space to represent all the features on the map. What the GIS users do is when they wanted to analyze a set of spatial data; they retrieve a data set and does the analysis part without considering very important characteristics such as the scale, the purpose of the map and the degree of generalization. Further, the GIS users use and compare different maps with different degrees of generalization. Sometimes, GIS users are going beyond the scale of the source map using zoom in facility and violate the basic cartographic rule 'it is not suitable to create a larger scale map using a smaller scale map'. In the study, the effect of map generalization for GIS analysis would be discussed as the main objective. It was used three digital maps with different scales such as 1:10000, 1:50000 and 1:250000 which were prepared by the Survey Department of Sri Lanka, the National Mapping Agency of Sri Lanka. It was used common features which were on above three maps and an overlay analysis was done by repeating the data with different combinations. Road data, River data and Land use data sets were used for the study. A simple model, to find the best place for a wild life park, was used to identify the effects. The results show remarkable effects on different degrees of generalization processes. It can see that different locations with different geometries were received as the outputs from this analysis. The study suggests that there should be reasonable methods to overcome this effect. It can be recommended that, as a solution, it would be very reasonable to take all the data sets into a common scale and do the analysis part.

**Keywords :** generalization, GIS, scales, spatial analysis

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