

GIS BASED SPATIAL ANALYSIS ON SOCIO-ENVIRONMENTAL FACTORS AFFECTING SCHOOLS

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Sri Lankan Education has walked through two millennia successfully providing quality free education to children all around the country. Though Sri Lanka is known as a third world country, the literacy level of the people has reached 98.1 percent. Educators today are faced with a growing challenge of maintaining the nation's education level while at the same time they are held accountable for student achievements regardless of other social factors that has an impact on students such as the environment and people around schools that takes advantage of these young blooming buds.

Therefore, this research addresses the question of how location affects educational outcomes, through analyses of the relationships between schools and local socio-demographic characteristics.

Though the technology has taken a huge leap, still we are not equipped with a system or a map that provides necessary data to analyze possible crisis. Accordingly, the main objective of this research is to develop a new spatial analysis strategy to identify socio-environmental risk factors that could affect school children and sum them up to an informative map that could support decision makers to avoid crisis. Geospatial tools allow us to carry out an analysis which could not be done otherwise which have enabled this study to assess on how the spatial distribution of identified risk factors affect school children.

The positive factors and risk factors are studied and the required data layers are list down with the aid of Professionals. The required data is collected through relevant departments while creating data layers using GPS and downloading required data from JOSM. Accordingly, Personal Geo-Database is created to analyze using ArcGIS 10.1, through which a Model Builder is created to use Euclidean Distance for Distance Factors and use Kernel Density for Density Factors. Later, results were reclassified using "Weighted Overlay" tool which was used to assign scale values according to factors and assign influence percentage for factors. The final output was analyzed and put into an Informative Map. Different personnel using this for different inspection views could easily adopt this map according to their requirements by customizing scale values in proportion to their preferences which allows this Model Builder to be a consistently useful tool. The informative maps are also published through a web for the convenience of the users.

This system is meant to help decision makers on the education system understand what should be done to prevent complications and crisis from occurring. Accordingly, the Informative Map and the Model Builder produced by this research could be invaluable for personnel in different sectors since they could alter the risk factors and their values according to their choice which could play a major role in their decision making.