

GIS applications in population dynamics: changes of population gravity along with population density in Western Province, Sri Lanka

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Population is a dynamic feature in both global and regional contexts. The Department of Census and Statistics estimated population growth in Sri Lanka for 2014 as 0.86% and fertility rate in 2012 is 2.35 births per woman, along with more than 20 million people in the country. Even from these facts it is clear that the population is increasing and it will continue to be. Understanding the spatial distribution of people will provide a solid foundation when planning for the necessities of this population. Not only the distribution of population density, but also the gravity of population can be used as an analytical tools when identifying the spatial patterns. The main objective of this study is to identify the spatial patterns of distribution of Population Density and Population Gravity in the Western Province. Geographical Information Systems (GIS) is one of the best tools available in analyzing the spatial patterns of population. To study the spatial distribution of population two concepts have been used. i.e. normal population density and population gravity or mean centre of the population. When population is normalized by the area it is known as population density. When calculating the mean centre it is identifies as the geographic centre or the centre of concentration of a given features or features. The mean center is the average x- and y-coordinate of all the features in the study area. The study is entirely based on secondary data obtain from the Department of Census and Statistics and the change was identified from 1971 to 2012 based on available censuses data. The study focused on western province since it shows the most dynamic behavior of population along with growing urban agglomerations. When analyzing the Population Gravity and the Density, both Grama Niladari (GN) level and Divisional Secretariat Division (DSD) were considered. As the study shows, a shift of Population Gravity was identified though it was not significant. When analyzing the distribution of Population Density it is clear that the coastal region of the Western Province is becoming denser.

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