

ABSTRACT

Fast urbanization results in a variety of complex urban land-use patterns at various scales in recent years. Urbanization has increased rapidly in the past few years which gives rise to increase urban growth. Urban growth has been a focus of research for many scholars for a long time. Urban Growth in Sahiwal Division is increasing day by day leading to urbanization issues in the division. Sahiwal Division is the major contributor in the economy of Pakistan due to its agricultural and farming activities. The population of Sahiwal Division is increasing and moving towards the hazard zone along the floodplains of River Ravi and Sutlej. The aims of this research are to identify the Spatio-temporal trend of urban growth in Sahiwal Division and to model and predict the future urban growth in Sahiwal Division. Secondary Data is utilized in this research. To analyze the Spatiotemporal trend of urban growth in Sahiwal Division, satellite images of five years (2000, 2005, 2010, 2015 and 2020) were downloaded from USGS. Supervised Classification was performed on these images in order to obtain the Land Cover of Sahiwal Division to justify the objective of Spatio-temporal trend. To predict and model future urbanization, MOLUSCE Model is utilized as it is one of the most appropriate model for future urban growth prediction. The six parameters of MOLUSCE Model were processed and analyzed in this research. Six parameters includes, Slope, Land Cover Classification, Excluded Area, Urban Area, Transport Network and Hillshade. Slope and Hillshade were extracted from DEM of Sahiwal Division while Excluded Area, Urban Area and LULC were extracted from the satellite images of Sahiwal Division. All these parameters were processed to model the future urbanization. These parameters were then exported into QGIS for future prediction. MOLUSCE is a QGIS plugin which is used to Model land use change elevation. The results shows that the population of Sahiwal is increasing with the passage of time but the vegetation cover is not decreased to a large extent because Sahiwal is important for its agriculture and farming activities. However, it is revealed from the results that the urban population of Sahiwal is moving towards the flood plains of river Ravi and Sutlej. The predicted map of 2050 reveals that in near future the water content in river Ravi and Sutlej can be retained and population will also increase. This can be a serious situation according to the predicted results