World Academy of Science, Engineering and Technology
International Journal of Urban and Civil Engineering
Vol:12, No:09, 2018

Horizontal Development of Built-up Area and Its Impacts on the Agricultural Land of Peshawar City District (1991-2014)

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Abstract : Peshawar City is experiencing a rapid spatial urban growth primarily as a result of high rate of urbanization along with economic development. This paper was designed to understand the impacts of urbanization on agriculture land use change by particularly focusing on land use change trajectories from the past (1991-2014). We used Landsat imageries (30 meters) for1991along with Spot images (2.5 meters) for year 2014. . The ground truthing of the satellite data was performed by collecting information from Peshawar Development Authority, revenue department, real estate agents and interviews with the officials of city administration. The temporal satellite images were processed by applying supervised maximum likelihood classification technique in ArcGIS 9.3. The procedure resulted into five main classes of land use i.e. built-up area, farmland, barren land, cultivable-wasteland and water bodies. The analysis revealed that, in Peshawar City the built-up environment has been doubled from 8.1 percent in 1991 to over 18.2 percent in 2014 by predominantly encroaching land producing food. Furthermore, the CA-Markov Model predicted that the area under impervious surfaces would continue to flourish during the next three decades. This rapid increase in built-up area is accredited to the lack of proper land use planning and management, which has caused chaotic urban sprawl with detrimental social and environmental consequences.

Keywords : Urban Expansion, Land use, GIS, Remote Sensing, Markov Model, Peshawar City
Conference Title : ICUGUP 2018 : International Conference on Urban Geography and Urban Planning
Conference Location : Paris, France
Conference Dates : September 20-21, 2018