



Urban development using cellular automata based on machine learning techniques

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DESCRIPTION

Urbanization is defined as the migration of people in huge numbers from rural to urban areas and this process happens due to the concentration of resources and infrastructure facilities in towns and cities. Urbanization as the increase in population of cities, so that higher proportion of population lives in urban areas. In 1950, only 30% of the world population was urbanized, but since 2014 about 54% of the world population resides in urban areas. Based on 2014 reports of United Nation, by 2050, about 66% of the world population is projected to live in urban areas. Increasing number of urban population has significantly increased the number of megacities in the world. There were only 10 megacities in 1990, which increased to 28 megacities in 2014. In 2018, there were 33 megacities and it is projected that there will be 41 urban agglomerations or megacities in 2030.

The urban population especially in Asian countries is growing faster than ever before and there will be more than 1.1 billion people living in urban areas in 2030. Rapid urbanization has been identified as the key driving factor for Asia's economic development. Urbanization and rapid urban development in several Asian countries are marked by increasing physical growth which extends beyond metropolitan and city boundaries. Urbanization is a process that will continue in the upcoming years, hence sustainable development challenges will be concentrated in cities, particularly in the developing countries which experiences rapid urbanization which attracts people to migrate for businesses, investments, infrastructure facilities and lifestyle betterments and so on.

The degree of urbanization in India has also increased significantly over the years. The urbanization trends of India over the decades. Such rapid urbanization in the country seems to have transformed the urban landscape leading to changes in land use and land cover considerably

and causing severe pressure on various natural resources. It is projected that urban population of India will nearly double reaching 600 million by 2031. It is expected that with this increasing urbanization, Indian cities will suffer from local environmental problems and unhealthy living conditions.

Sustainable development is possible only through the implementation of successful urban planning but a city can become gradually unsuitable for living if the urbanization process is unplanned and haphazard. Though the process of urbanization brings numerous benefits including monetary growth, expansion of business activities, social and cultural incorporation, as well as utilization of resources, there are certain serious issues due to rapid and unplanned urbanization. Effects of unplanned urbanization are the major concerns for planners and policy developers because it declines the quality of living for urban inhabitants.

CONCLUSION

Due to unplanned urbanization, there is environmental degradation especially in the quality of water, air and noise. One of the main effects of rapid urbanization is the air pollution which has increased due to the emissions from motor vehicles, industries and use of fuel sources which harm the environment. The noise pollution is produced from various human actions which also degrade the environment and ultimately affect the human health. The growth of population has generated a very high quantity of solid waste and there is a pressure to provide a waste disposal place in the urban areas. With the influx of more people in cities, there is great demand of facilities such as housing, commercial complexes, education and health infrastructure etc. As the metropolis becomes a developed city, the land value will also increase.