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Pattern of Urban Growth of Kafr el sheikh City : A simulated study using ANN and GIS..

Abstract

For regulating urban growth, it is imperative to produce urban growth maps, in which future urbanizable areas, along with their urban growth potential, are delineated. These maps provide a rational and scientific basis for taking future decisions regarding the growth of the city.

This study investigates urban growth pattern in Kafr El Shiekh city, to help predicting future trends of that growth depending on establishing geographical information system (GIS) database to be applied with artificial neural network (ANN) activated for this purpose using ARC GIS $_{10}$ and MATLAB$_7$ software. The database required for ANN-based urban growth has been compiled from existing maps and field work.

The main goal of this paper is surveying urban growth patterns of Kafr El Shiekh city between 1960 and 2012and presenting a demonstration of these patterns at the period between 2002 and 2012 in order to simulate these patterns causatives for predicting future (2022) urban growth.

The results showed that, the city area was multiplied from 934199.5 ^{sq} meters in 1960 to 5316016 ^{sq} meters in 2012 . on the other hand, the city may be expanded by 1004400 $^{sq.}$ Meters in 2022, and the northern and southern parts (with construction of the international road branch passing through them) have the major portion of them.