

Multi-temporal Monitoring of the Cancerous Urban Growth in the Nile Delta, Egypt

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SUMMARY

Egypt, as a developing country, is facing a serious problem with food security. There are many reasons affecting this problem among them, the rapid expansion and growth of urban areas over the cultivated lands in the Nile plain and delta. Indeed this is due to the rapid growth of the population. The government of Egypt is started a national projects of land reclamation, especially in the prime targeted areas such as Sinai, eastern and western margins of the delta and southwest desert. Actually, the soil quality of the desert lands is less than that of the Nile delta, which is cut from the cultivated lands and added to the urban areas.

Monitoring of urban growth, over the cultivated lands of the Nile delta, became very urgent. Without a robust monitoring program for this issue, we can not manage and decide the right decision to stop the cancerous expansion of the urban areas over the cultivated lands. Multi-temporal remotely sensed data is a real-time source of information to monitor and control the trend analysis of the urban growth.

This paper aims at monitoring the urban growth and its trend on a selected site in the Nile delta, using multi-temporal satellite data to support the decision/policy makers and planners to manage and protect the cultivated lands.

Digital image processing techniques were applied for geometric and radiometric corrections. The maximum likelihood classification techniques resulted in high ratio of urban growth since 1982. The average urban expansion from 1982 to 2000 is about 35% with approximate expansion of 2% per year.

Results also indicated that this cancerous urban growth inside the selected site in the Nile delta has a direct impact on the cultivated land losses and thereafter the food security. It is also appeared that there is an urgent necessity for real-time measures and regular monitoring program for this crisis. Recommendations are also presented.

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