

Geospatial Analysis of Spatio-Temporal Dynamic and Environmental Impact of Informal Settlement: A Case of Adama City, Ethiopia

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Abstract : Informal settlements behave dynamically over space and time and the number of people living in such housing areas is growing worldwide. In the cities of developing countries especially in sub-Saharan Africa, poverty, unemployment rate, poor living condition, lack transparency and accountability, lack of good governance are the major factors to contribute for the people to hold land informally and built houses for residential or other purposes. In most of Ethiopian cities informal settlement is highly seen in peripheral areas this is because people can easily to hold land for housing from local farmers, brokers, speculators without permission from concerning bodies. In Adama informal settlement has created risky living conditions and led to environmental problems in natural areas the main reason for this was the lack of sufficient knowledge about informal settlement development. On the other side there is a strong need to transform informal into formal settlements and to gain more control about the actual spatial development of informal settlements. In another hand to tackle the issue it is at least very important to understand the scale of the problem. To understand the scale of the problem it is important to use up-to-date technology. For this specific problem, it is good to use high-resolution imagery to detect informal settlement in Adama city. The main objective of this study is to assess the spatiotemporal dynamics and environmental impacts of informal settlement using OBIA. Specifically, the objective of this study is to; identify informal settlement in the study area, determine the change in the extent and pattern of informal settlement and to assess the environmental and social impacts of informal settlement in the study area. The methods to be used to detect the informal settlement is object-oriented image analysis. Consequently, reliable procedures for detecting the spatial behavior of informal settlements are required in order to react at an early stage to changing housing situations. Thus, obtaining spatial information about informal settlement areas which is up to date is vital for any actions of enhancement in terms of urban or regional planning. Using data for this study aerial photography for growth and change of informal settlements in Adama city. Software ECognition software for classy to built-up and non-built areas. Thus, obtaining spatial information about informal settlement areas which is up to date is vital for any actions of enhancement in terms of urban or regional planning.

Keywords : informal settlement, change detection, environmental impact, object based analysis

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