

Urban Expansion and Its Consequences: Impacts on Food Security and Environmental Sustainability

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SUMMARY

Understanding the effects of urbanization and developing sustainable planning strategies necessitates a comprehensive analysis of urban growth patterns across different spatial and temporal scales. Urbanization is a rapidly evolving phenomenon, particularly in developing countries, where it often leads to significant changes in land use and land cover. This study investigates the spatial and temporal patterns of urban expansion in Godawari Municipality, located in the Lalitpur District of Kathmandu Valley, over a period of twenty years, from 2000 to 2019. Using land cover data sourced from the International Centre for Integrated Mountain Development (ICIMOD) and advanced GIS analysis techniques, this study quantifies the changes in key land cover categories: built-up areas, forests, and croplands. The findings of this research reveal a dramatic increase in built-up areas, which expanded from 910,720 square meters in 2000 to 6,381,869 square meters in 2019. This expansion has predominantly occurred at the expense of forests and croplands. Forest areas, after an initial increase, ultimately decreased from 55,716,658 square meters in 2000 to 55,467,127 square meters in 2019. Similarly, cropland areas experienced a reduction, declining from 38,353,881 square meters in 2000 to 33,304,791 square meters in 2019. The implications of these changes are profound. The conversion of croplands to urban areas poses a significant threat to local food security, as the reduction in agricultural land limits the capacity for food production. Additionally, the loss of forest areas affects biodiversity and the provision of essential ecosystem services, contributing to environmental degradation. This paper underscores the critical need for sustainable urban planning strategies that balance development with environmental conservation. By highlighting the adverse impacts of unchecked urban expansion, this study aims to inform policymakers and urban planners about the necessity of integrating sustainable practices to mitigate the negative consequences on natural resources. The findings emphasize the importance of a holistic approach to urban development that ensures economic growth while preserving vital ecological and agricultural landscapes.

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