

Urban Sprawl and Its Effect on Water Bodies of Kathauta Jheel

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Abstract:

Now in this paper we will identify the problems, and speed of urban growth took place with the focus mostly on the area of kathauta jheel, the state uttar pradesh is largest in the population in the country. Kathauta Jheel is a crucial case study of how urban development affects the hydrological and ecological integrity of water systems. With an emphasis on pollution, habitat destruction, and modifications to hydrological patterns, this study investigates the connection between urban growth and Kathauta Jheel's health. Water quality and biodiversity have declined as a result of increased runoff, waste contamination, and the loss of nearby wetlands brought on by the lake's uncontrolled urban growth and growing population density. To examine the lake's current condition, this study combines field surveys, remote sensing data, and water quality assessments.

Keywords: Lack of Urban Planning, Rapid Increase in Population, Declining Water Quality, Impact on Ecology, Remote sensing, Kathauta jheel, Urban Sprawl.

Introduction-

Located near a growing metropolitan area, Kathauta Jheel is an important body of water that provides both recreational opportunities and an important biological resource for the local population. This jheel is crucial for maintaining biodiversity and giving a variety of aquatic and terrestrial species a place to live. However, its ecological health has faced serious challenges due to the recent fast urban growth. The natural hydrology and water quality of Kathauta Jheel are in danger due to the encroachment of residential and commercial developments on its borders. The future of this body of water is seriously called into question by the interaction between environmental sustainability and urban expansion. It is crucial to understand how urbanisation affects Kathauta Jheel in order to preserve its ecological integrity and to ensure the welfare of the populations that depend on it for recreational and environmental reasons. In order to provide insights into the necessary actions for its conservation and sustainable management, this study intends to investigate the various effects of urban sprawl on Kathauta Jheel.

Study Area-



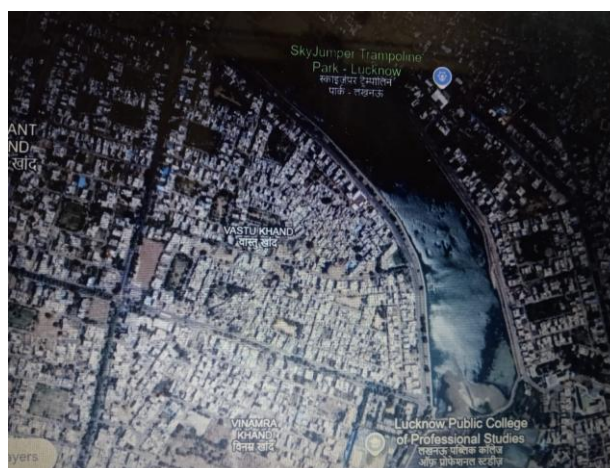
India



Uttar Pradesh



Lucknow



Kathaut Jheel

Aims and Objective-

1. Evaluate Water Quality: To determine the extent of contamination in Kathaut Jheel, measure important water quality indicators.
2. Assess Biodiversity: Examine how urbanisation has affected the variety of terrestrial and marine ecosystems surrounding the lake.
3. Determine Pollution Sources: Determine and classify the main pollution sources that have an impact on Kathaut Jheel.

4. Provide Sustainable Management Strategies: To lessen the effects of urban sprawl, make suggestions for environmental management and urban planning.

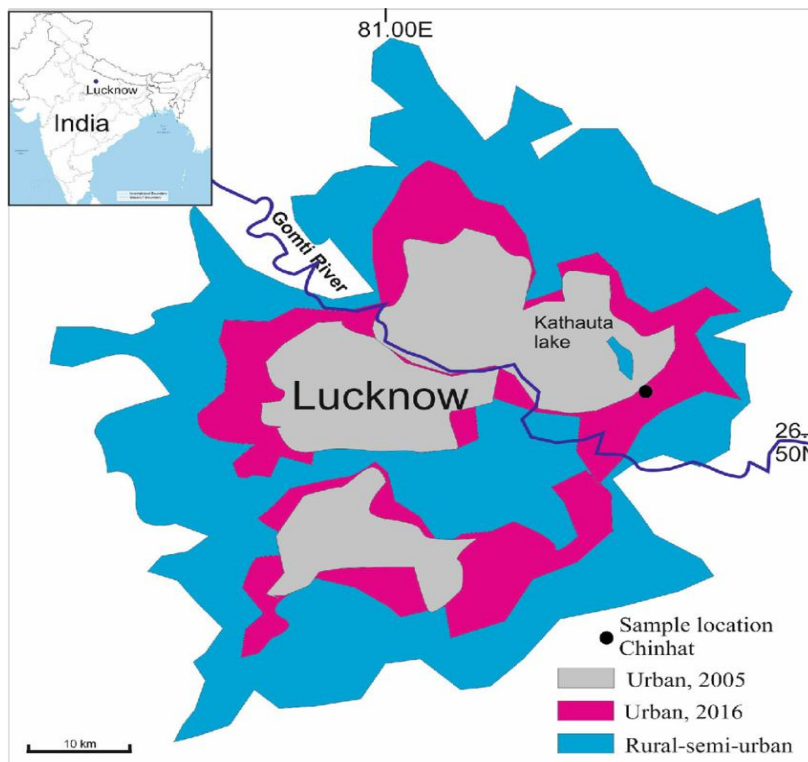
Methodology-

1. Literature Review: To develop a theoretical framework, thoroughly examine research and public research on urban sprawl and its impacts on water bodies.
2. The field Surveys: Measure water quality parameters like pH, turbidity, and nutrient levels at various points surrounding Kathauta Jheel using systematic sampling.
3. By collecting ground truth data
4. Interaction by people for gathering information
5. The primary data collection
6. The secondary data collection
7. Comparing the statistical data

Finding-

The water body and the ecology around it face serious challenges as a result of urban sprawl and its effects on Kathauta Jheel. Increased impermeable surfaces brought about by urbanisation increase runoff, which in turn adds pollutants, sediments, and nutrients into the jheel, causing eutrophication and deteriorating water quality.

Many species are losing their vital dwelling spaces as a result of development encroaching on natural ecosystems, endangering the region's biodiversity. Additionally, changes in groundwater extraction and drainage patterns have led to decreasing water levels, which has exacerbated habitat loss and made the jheel more susceptible to flooding.



Result Discussion-

The ecological health and hydrological balance of the water body have significantly deteriorated, according to the findings of the study on urban sprawl and its consequences on Kathauta Jheel. According to analysis, urban runoff, which is full of pollutants from nearby constructions, has raised contaminant levels, which has a negative impact on aquatic life and water quality. Assessments of biodiversity revealed a significant drop in native species, which was ascribed to habitat loss and the introduction of exotic species made possible by urban sprawl. The hydrological effects were clear, as changed drainage patterns led to lower water levels during dry spells and flooding during heavy rains. According to community surveys, there is a growing disconnection between urban expansion and environmental sustainability, which is reflected in the jheel's decreasing recreational activities and aesthetic value. These results highlight the critical necessity for integrated urban planning approaches that prioritise the ecological integrity of Kathauta Jheel while yet allowing for growth.

Conclusion-

To sum up, the research on the impact of urban sprawl on Kathauta Jheel shows how urgently a balanced strategy for urban growth that puts environmental sustainability first is needed. The results show notable deteriorations in biodiversity, water quality, and the jheel's ecological health, which are made worse by pollution, habitat loss, and changed hydrology. Implementing integrated management techniques that encourage responsible land use, raise community knowledge, and support conservation initiatives is crucial to preserve this important body of water. Preserving Kathauta Jheel ensures future generations' enjoyment of its recreational and aesthetic qualities in addition to maintaining its ecological integrity.

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