URBAN EXPANSION AND THERMAL ENVIRONMENT: EXPLORING THE URBAN HEAT ISLAND EFFECT IN SILIGURI CITY OF WEST BENGAL, INDIA

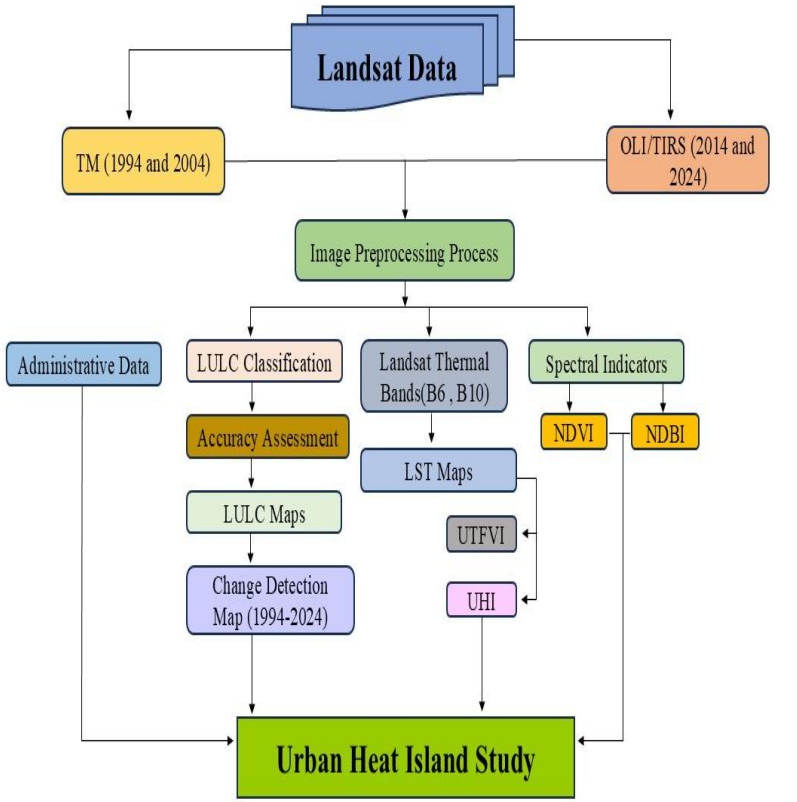
Name: Sneha Ghosh
Designation: Research Intern
Institution: ISTAR

Internal Guide: Dr. Krunal Suthar
Contact e-mail: krunal.suthar@cvmu.edu.in
External Guide: Dr. Monjit Borthakur
Contact e-mail: monjit.borthakur@cottonuniversity.ac.in

16th Dec 2024 to
14th April 2025

Major Objectives:

- ❑ To determine the spatial-temporal changes in LULC over Siliguri city and surrounding areas from 1994 to 2024.
- ❑ To evaluate LST variations and their correlation with NDVI and NDBI to assess urbanization effects..
- ❑ To assess the Urban Heat Island (UHI) scenario.



1.

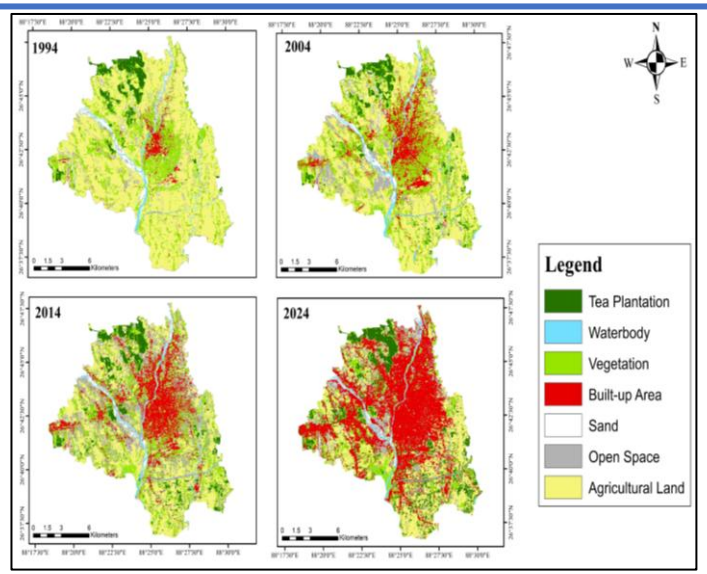


Figure (1) shows the Land Use Land Cover (LULC) map, which indicates the urban expansion of Siliguri and its outgrowth areas from 1994-2024.

2.

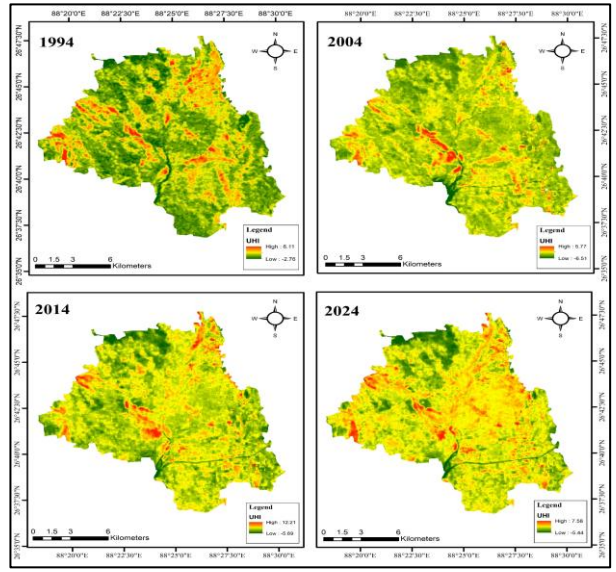


Figure (2) shows the Urban Heat Island (UHI) scenario, indicating temperature variations due to urbanization from 1994 to 2024.

Conclusion:

The study highlights that the UHI (Urban Heat Island) effect in Siliguri and its outgrowth area is driven by the rapid expansion of built-up areas and the loss of vegetation and agricultural land. A positive correlation between LST and NDBI shows that man-made land use contributes to rising temperatures. These findings can guide future efforts in mitigating UHI through sustainable urban development and LULC management.