

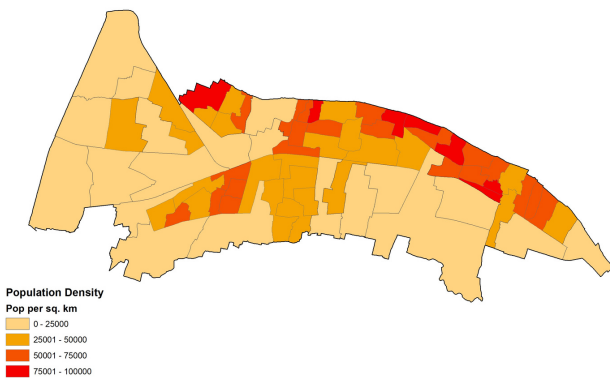
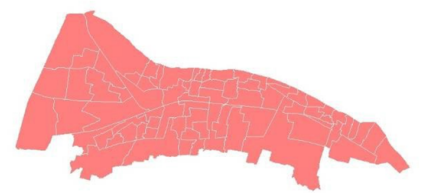
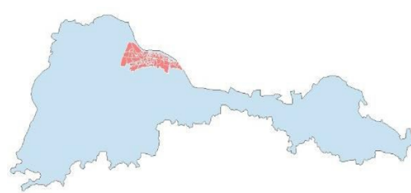
HEAT STRESS OF PATNA MUNICIPAL CORPORATION

A GEOSPATIAL ANALYSIS

Ms. Ghazal Hashmi

Heat waves induced by climate change and the artificial Urban Heat Island effect together pose another major challenge to cities across Bihar. Urban areas experience spells of unusual heatwave conditions which occur every year from March to July. The extreme temperatures combined with high humidity and resultant atmospheric conditions adversely affect people living in these regions leading to physiological stress, and sometimes even death. The state witnessed death of more than 100 people in 2019 due to heat wave in the worst affected districts of Gaya, Patna, and Aurangabad.

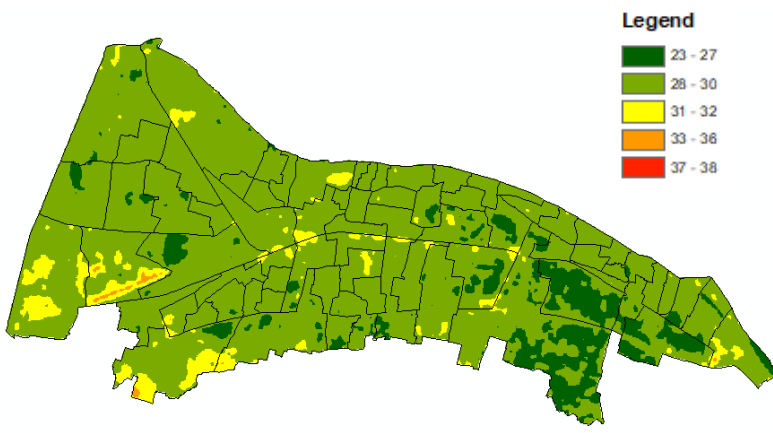
STUDY AREA



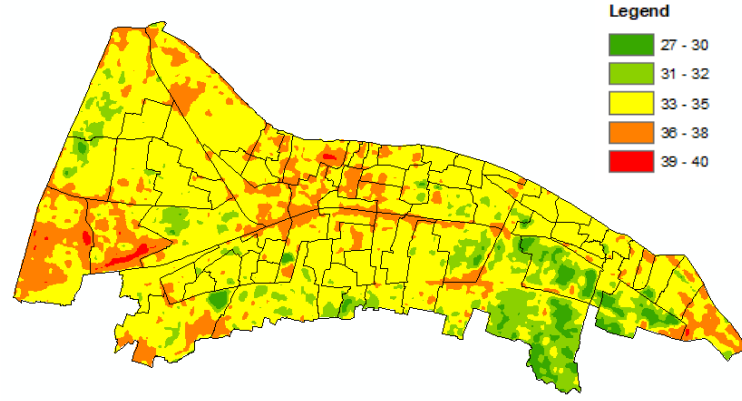
20,310
population per sq. km

shows higher population density per sq. km in the PMC area is due to unplanned and haphazard city development

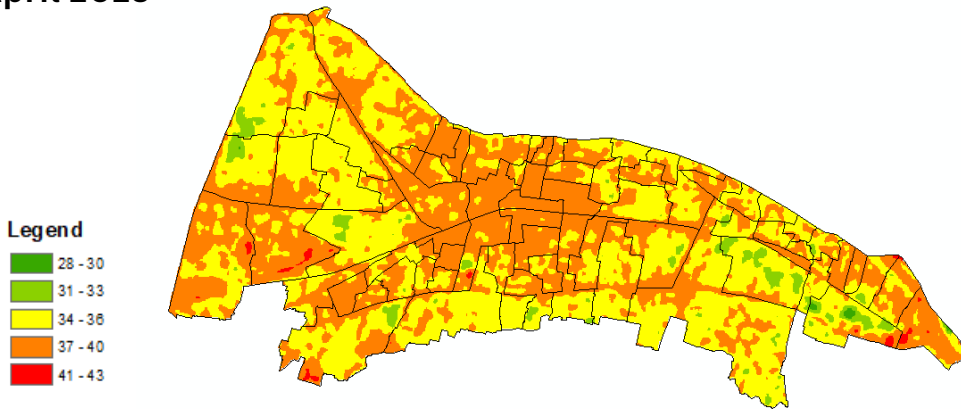
TREND OF LAND SURFACE TEMPERATURE



April 2015

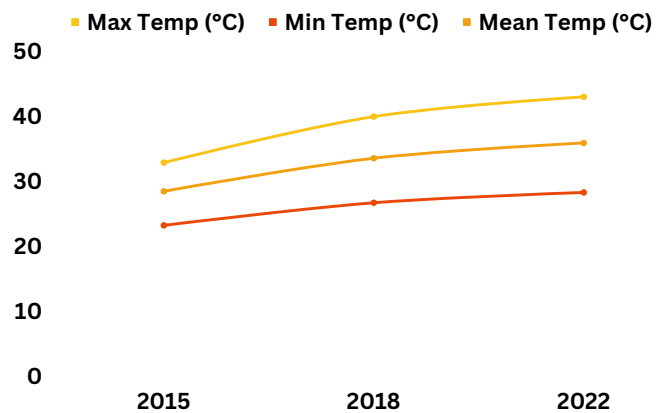


April 2018



April 2022

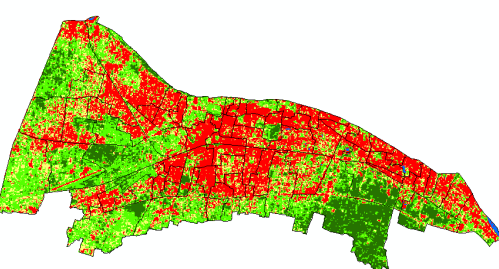
Year	Min (°C)	Max (°C)	Mean (°C)
2015	23.19	32.84	28.43
2018	26.67	39.92	33.52
2022	28.25	42.96	35.87



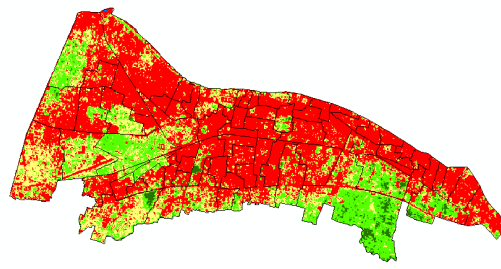
CORRELATION BETWEEN NDVI AND LST

Legend

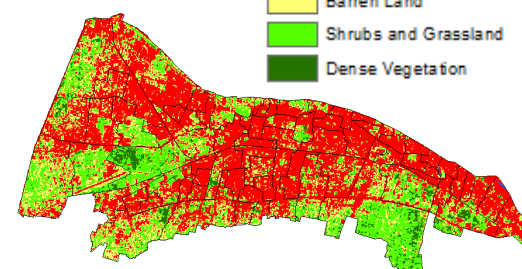
- Water Body
- Built-up Area
- Barren Land
- Shrubs and Grassland
- Dense Vegetation



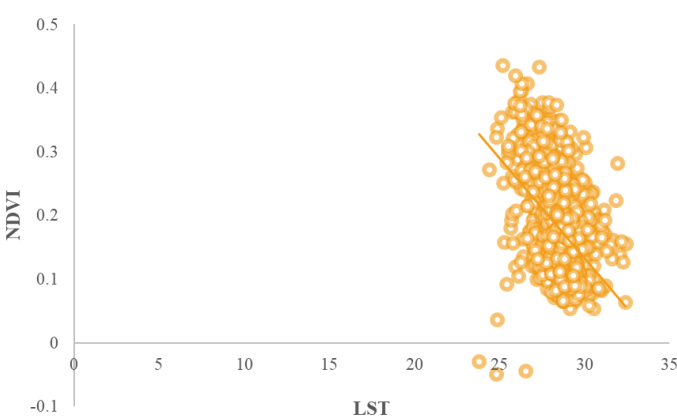
April 2015



April 2018



April 2022



Graph show the link with NDVI and LST. The regression line provided significant clarification, demonstrating a strong inverse link between LST and NDVI. These findings suggest that vegetation-covered areas have decreased as a result of urbanization, which has contributed in the effect of LST. The inverse relation between LST and NDVI demonstrates that the higher the amount of vegetation cover, the lower the LST.