

**Prediction modelling of Land Use/Land Cover
changes and its impact on Urban Heat Island
intensity over the Greater Kovai Region: A**

Geomatics Approach



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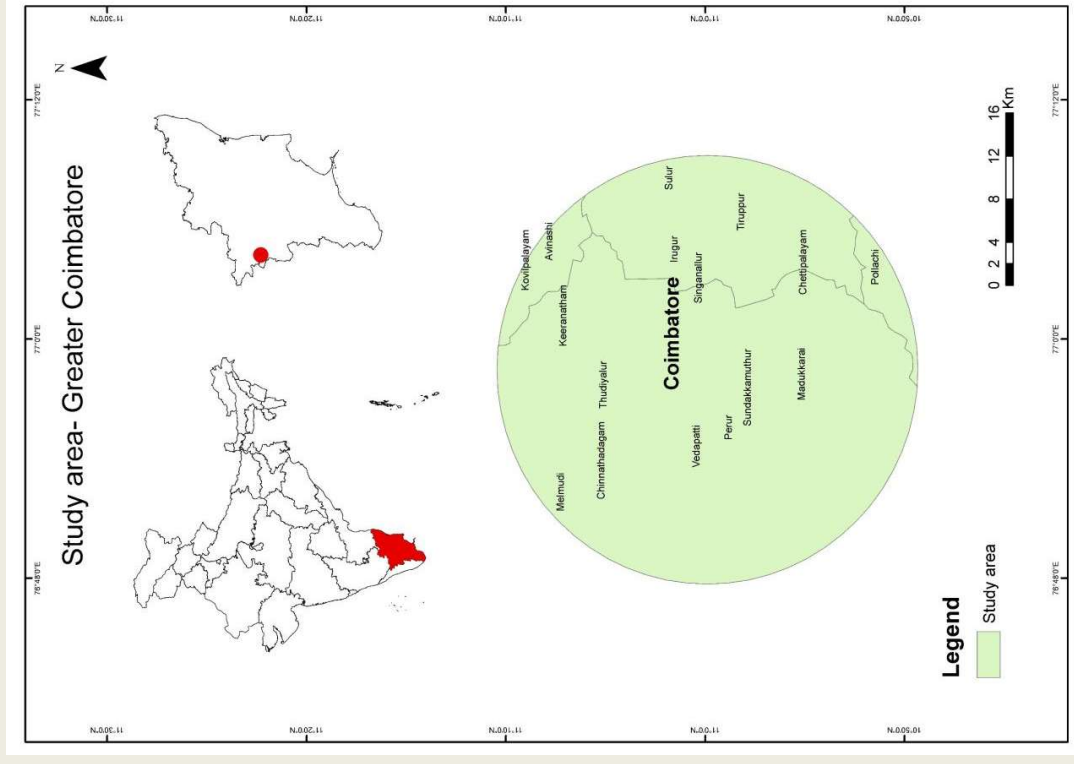
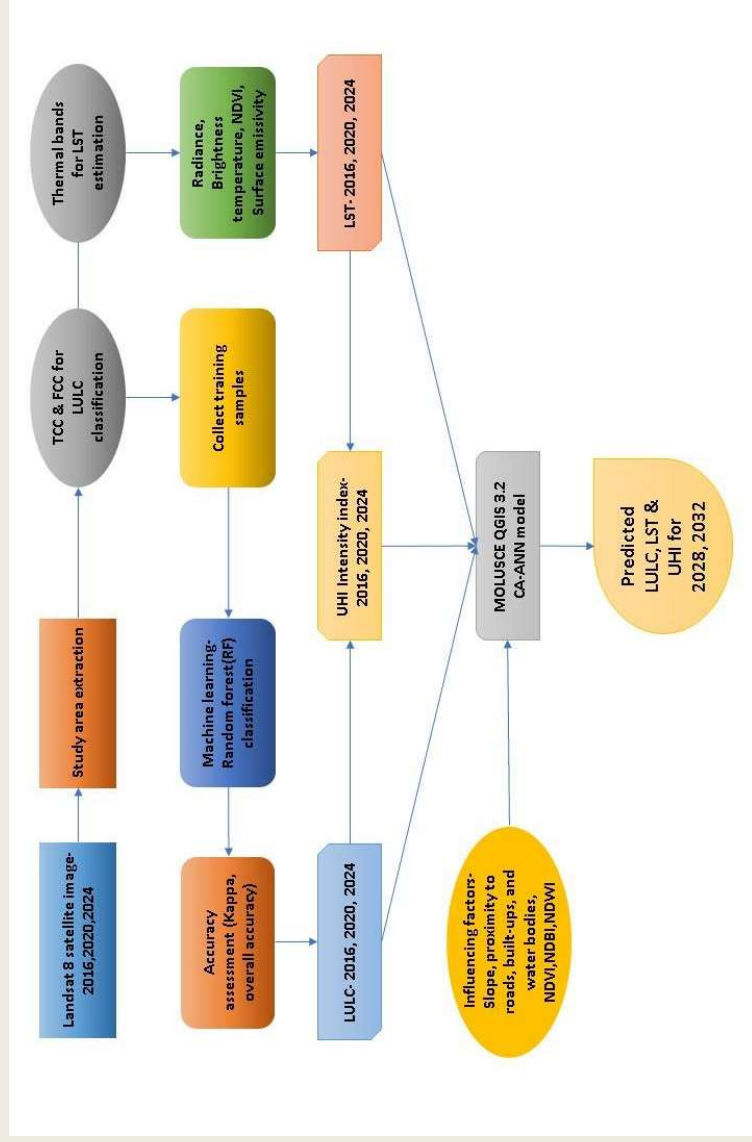
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Development and Management

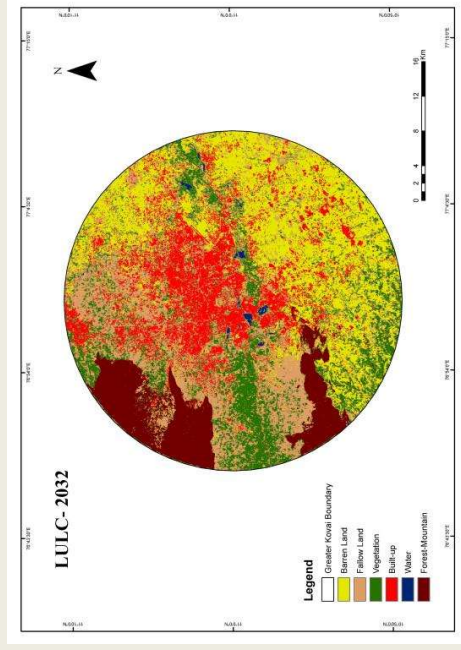
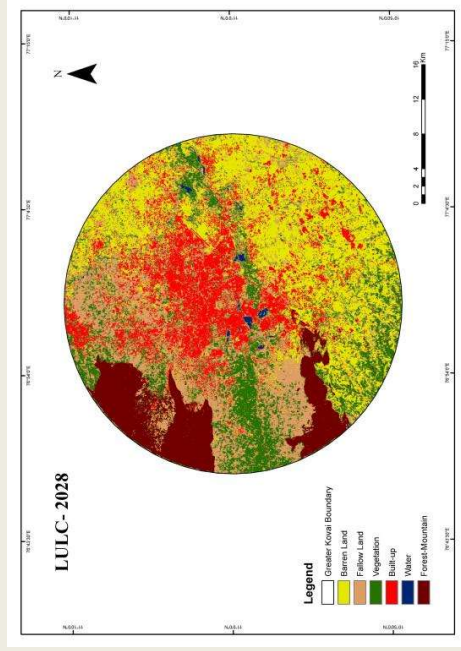
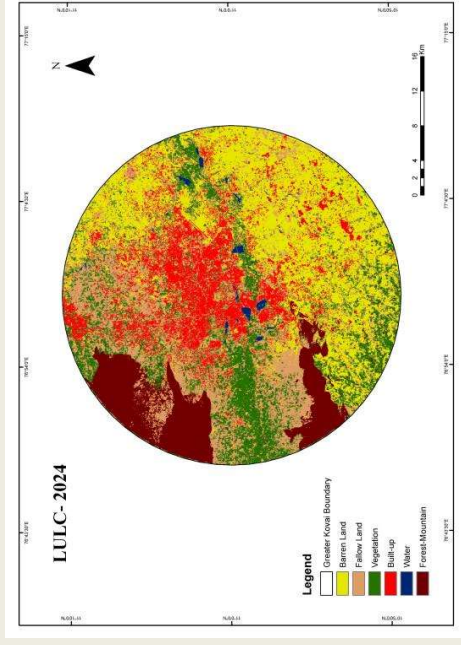
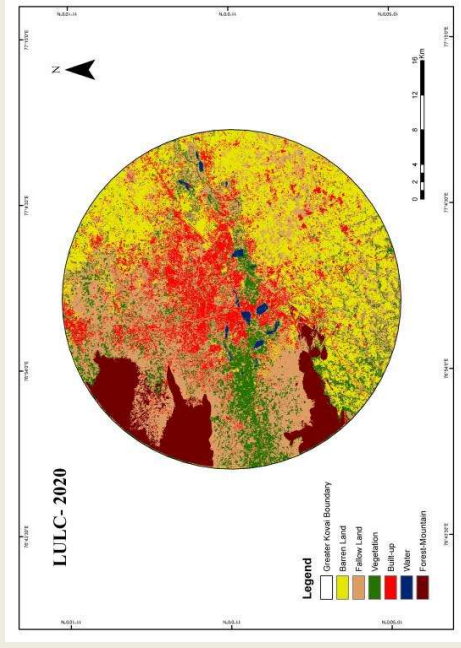
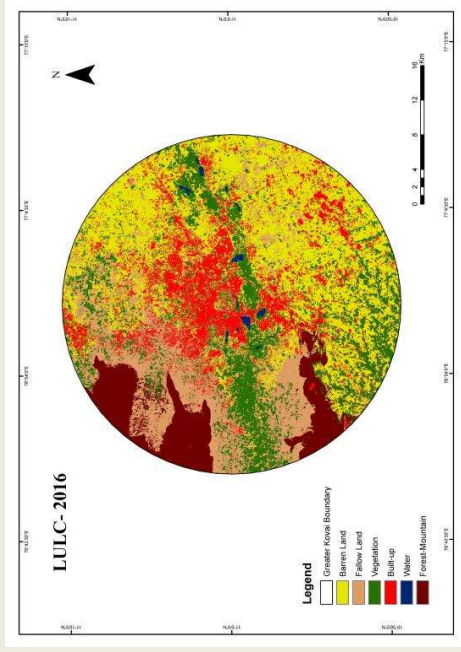
METHODOLOGY



RESULTS

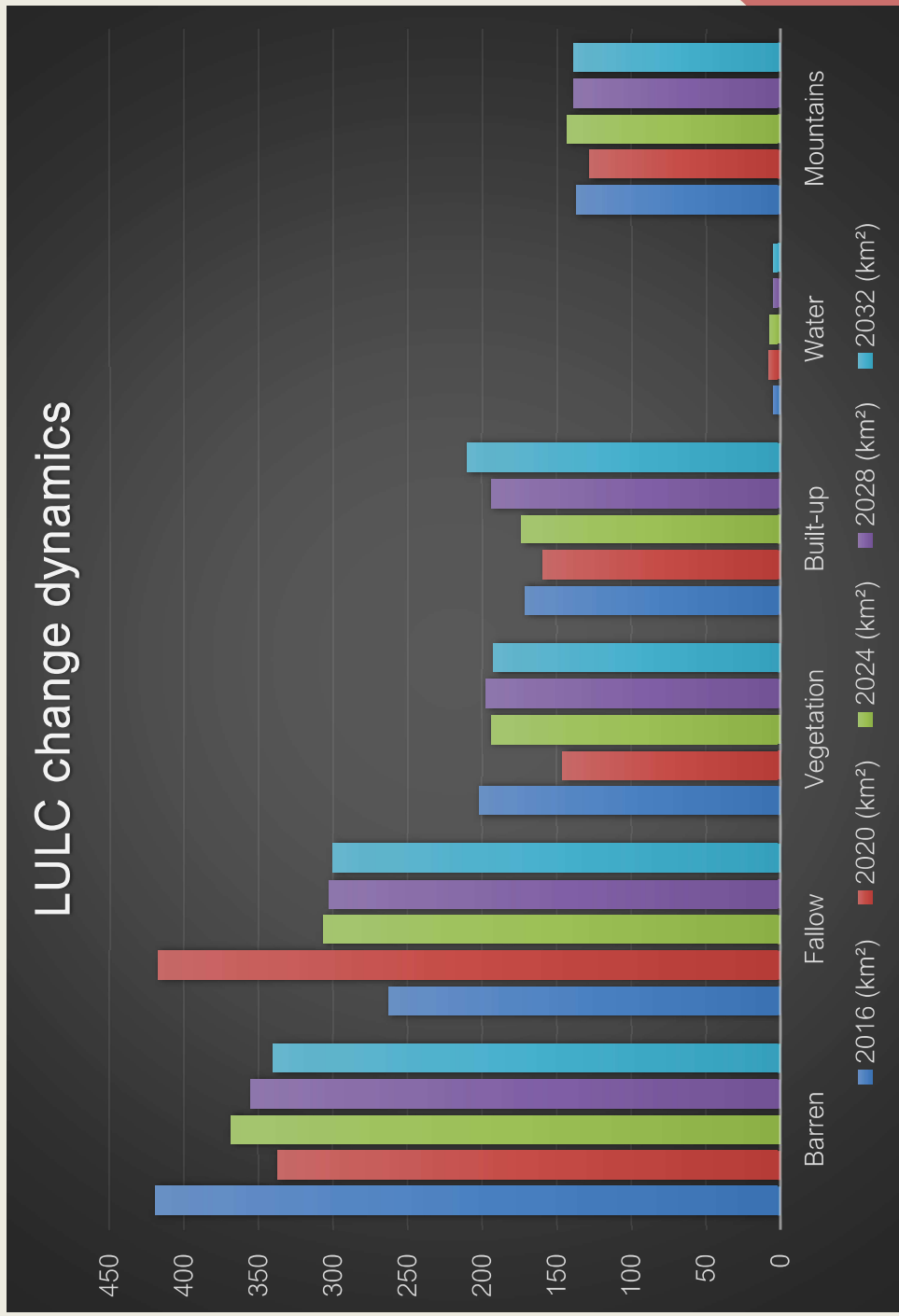
- Accuracy assessment of LULC

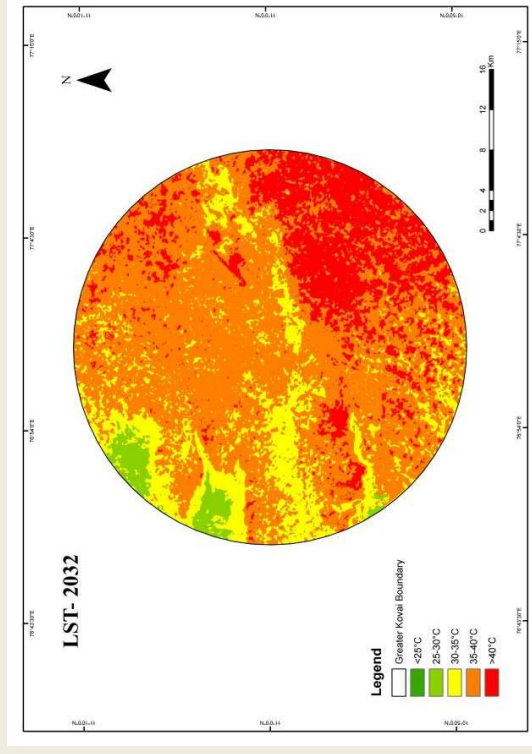
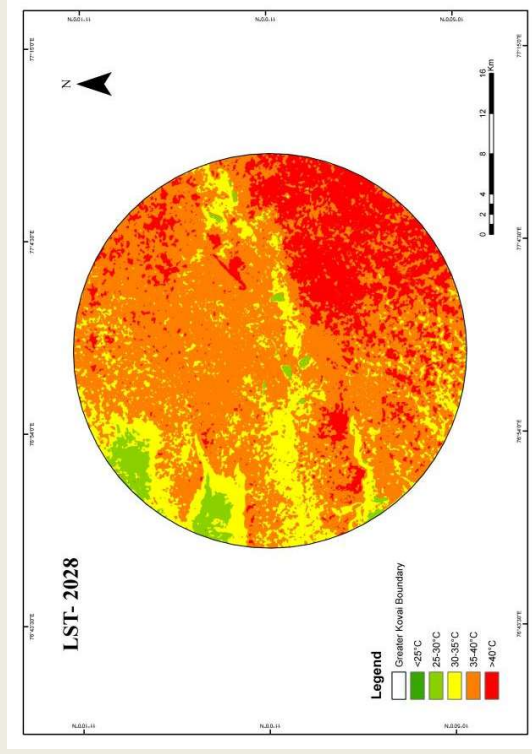
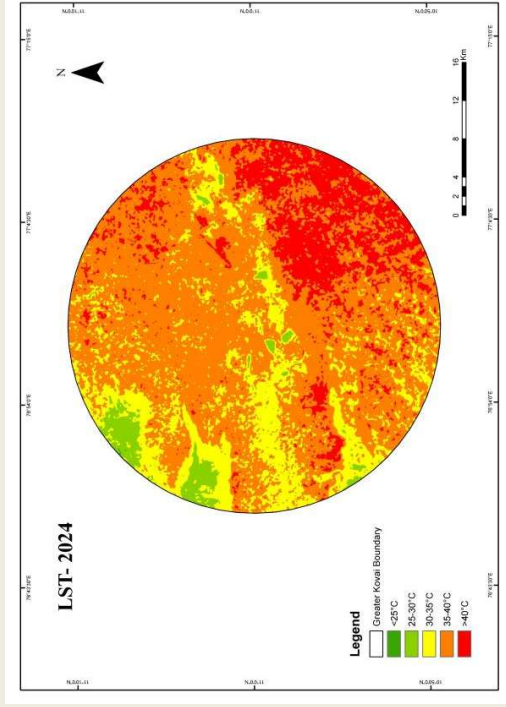
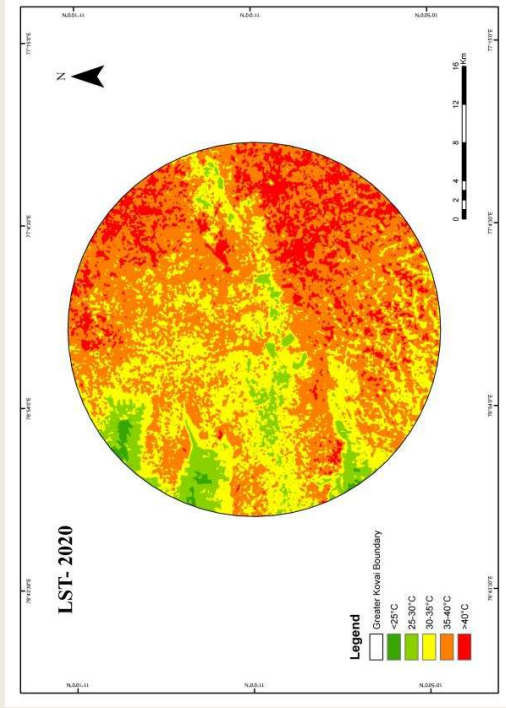
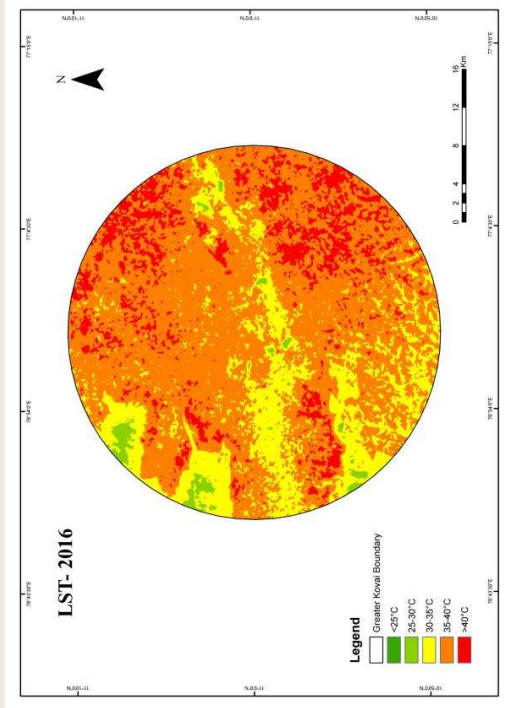
Time	Overall accuracy	Kappa coefficient
2016	88%	0.91
2020	90%	0.87
2024	83%	0.81



RESULTS

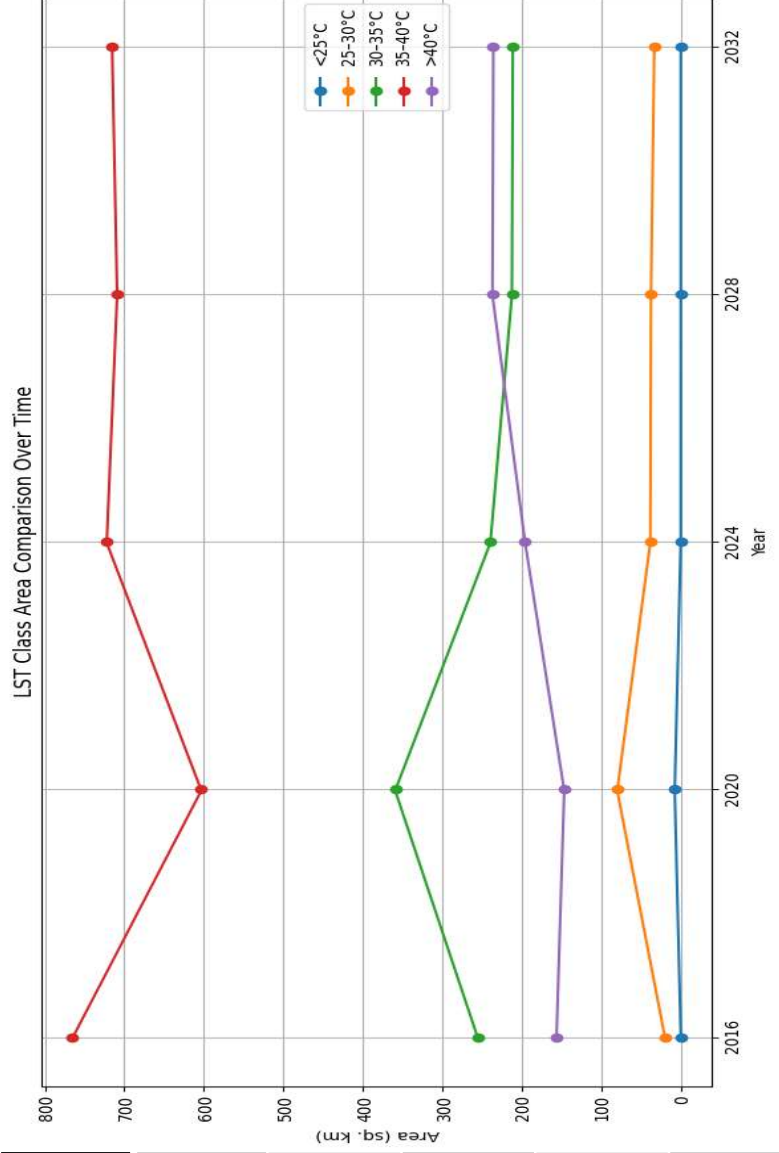
- LULC Trend: 2016 - 2032

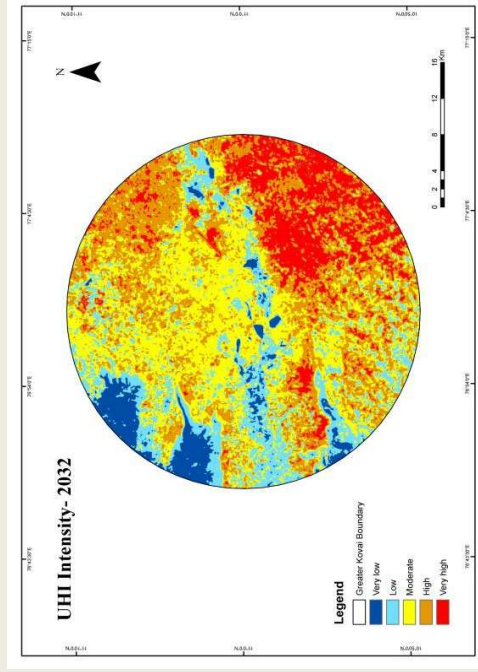
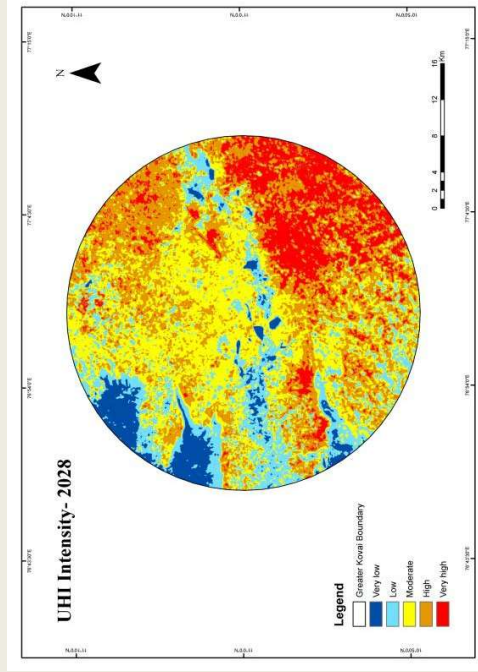
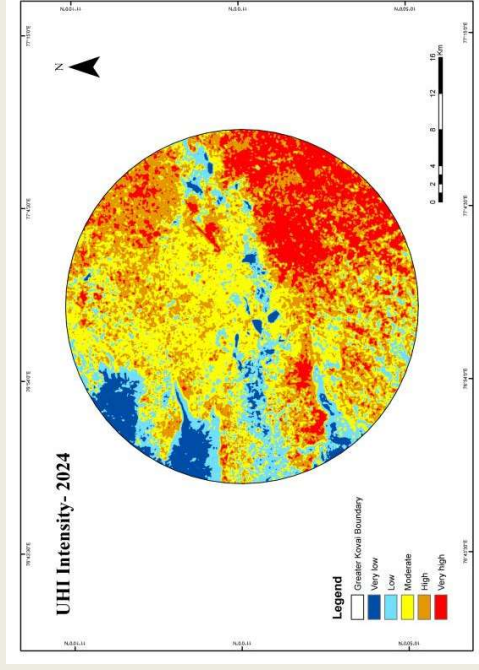
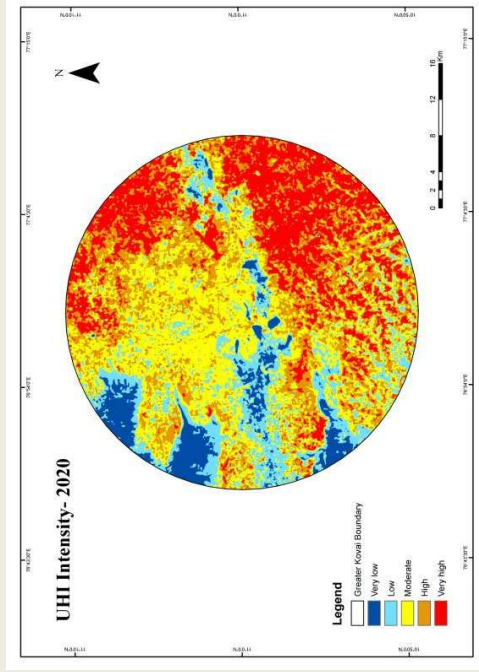
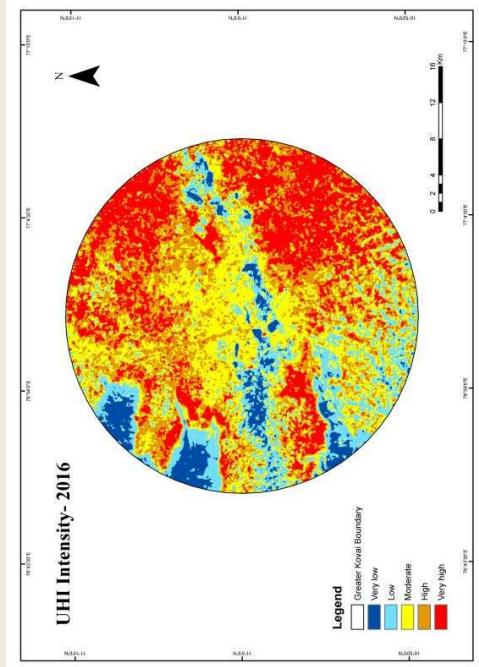




• LST Distribution:

Year	<25°C	25-30°C	30-35°C	35-40°C	>40°C
2016	0.0153	19.8432	255.2994	765.4383	156.465
2020	7.74	80.0757	359.3538	603.1683	146.7162
2024	0.1431	38.43	239.6142	722.1708	195.8697
2028	0.0828	37.5696	212.4999	709.0632	237.0123
2032	0.0828	33.444	211.4163	715.392	235.8927





RESULTS

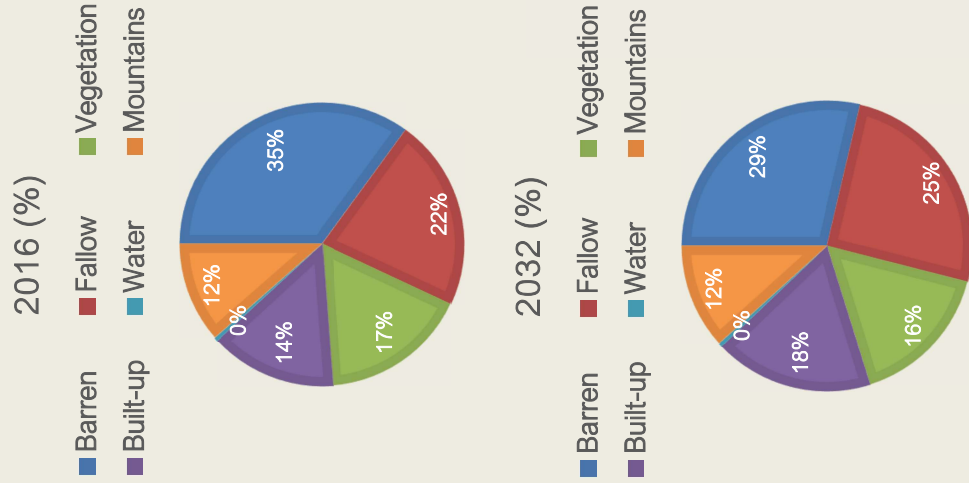
- UHI Intensity distribution: 2016 – 2032

Year	Very Low (Sq. km)	Low (Sq. km)	Moderate (Sq. km)	High (Sq. km)	Very High (Sq. km)
2016	67.1022	176.0184	315.2844	341.6886	296.9676
2020	78.0759	171.8523	354.2301	329.544	263.3517
2024	67.5414	172.9881	400.0716	354.2166	201.4101
2028	67.4469	197.6058	374.8059	386.8191	169.5501
2032	67.437	197.55	374.8014	387.4401	168.9993

DISCUSSION

- LULC Comparison

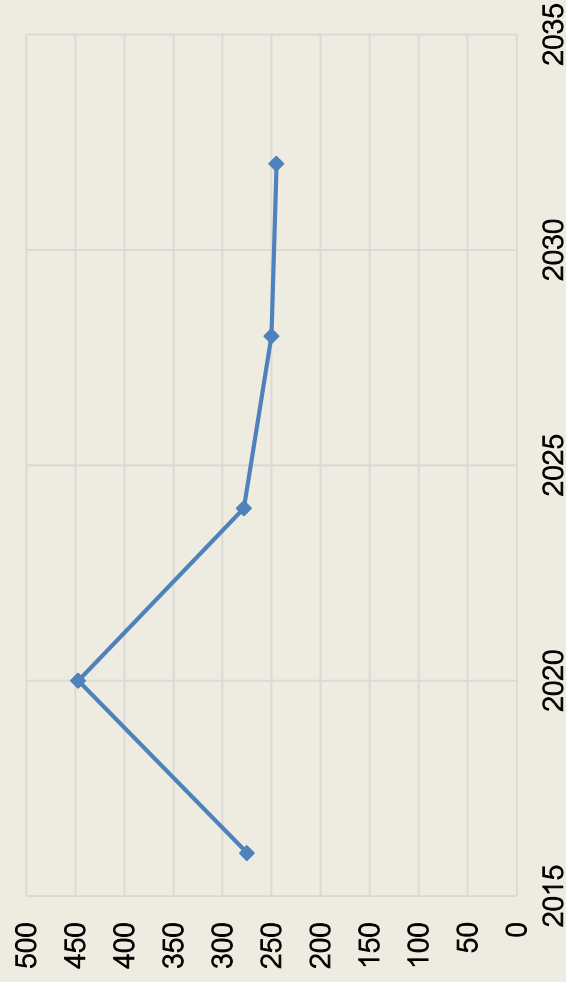
Class	2016 (%)	2032 (%)
Barren	35	28.49
Fallow	21.95	25.14
Vegetation	16.87	16.09
Built-up	14.3	17.6
Water	0.43	0.44
Mountain	11.45	11.6



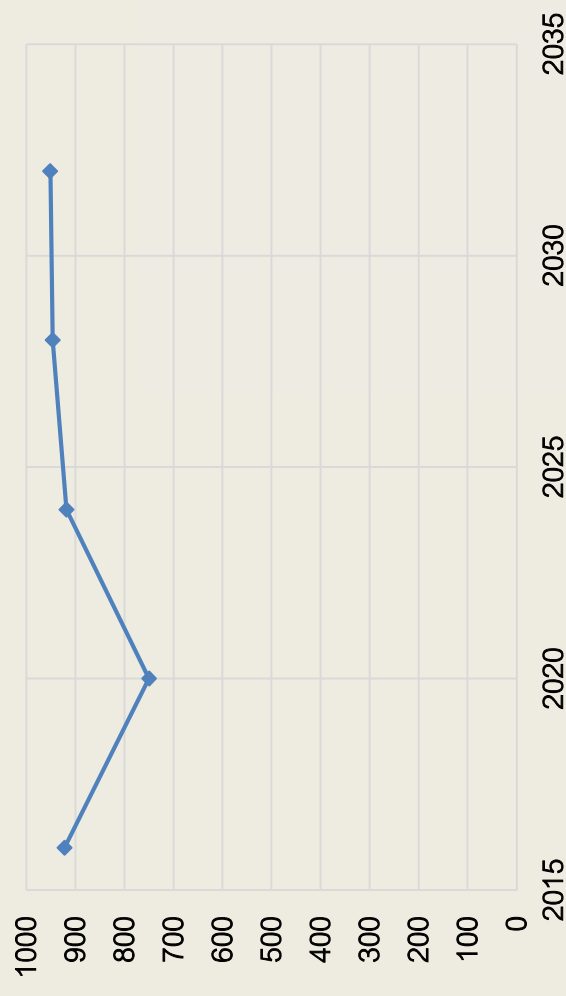
RESULTS

- LST- Inference

AREA $\leq 35^{\circ}\text{C}$



AREA $\geq 35^{\circ}\text{C}$



SUMMARY

- The urban areas increased from 14 % to almost 18%, a 4% increase.
- Fallow lands also increased from 22% to 25%.
- Barren Lands, from 35% in 2016 to 29% in 2032.
- The area under the >40°C increased from 156 sq. km to 235 sq. km in 2016 to 2032
- UHI Intensity: 2016- 2032
 - **Low: +12.23%**
 - **Moderate: +18.88%**
 - **High: +13.39%**