Fundamentals of Spatial Analysis

THRISSUR CITY

Flood Vulnerability Assessment through Overlay Analysis

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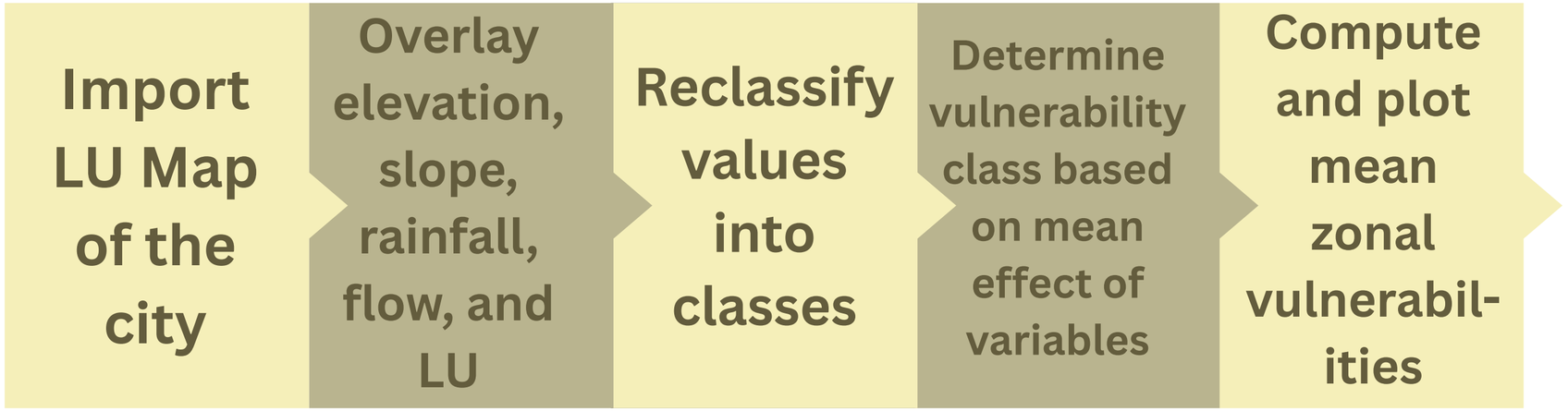
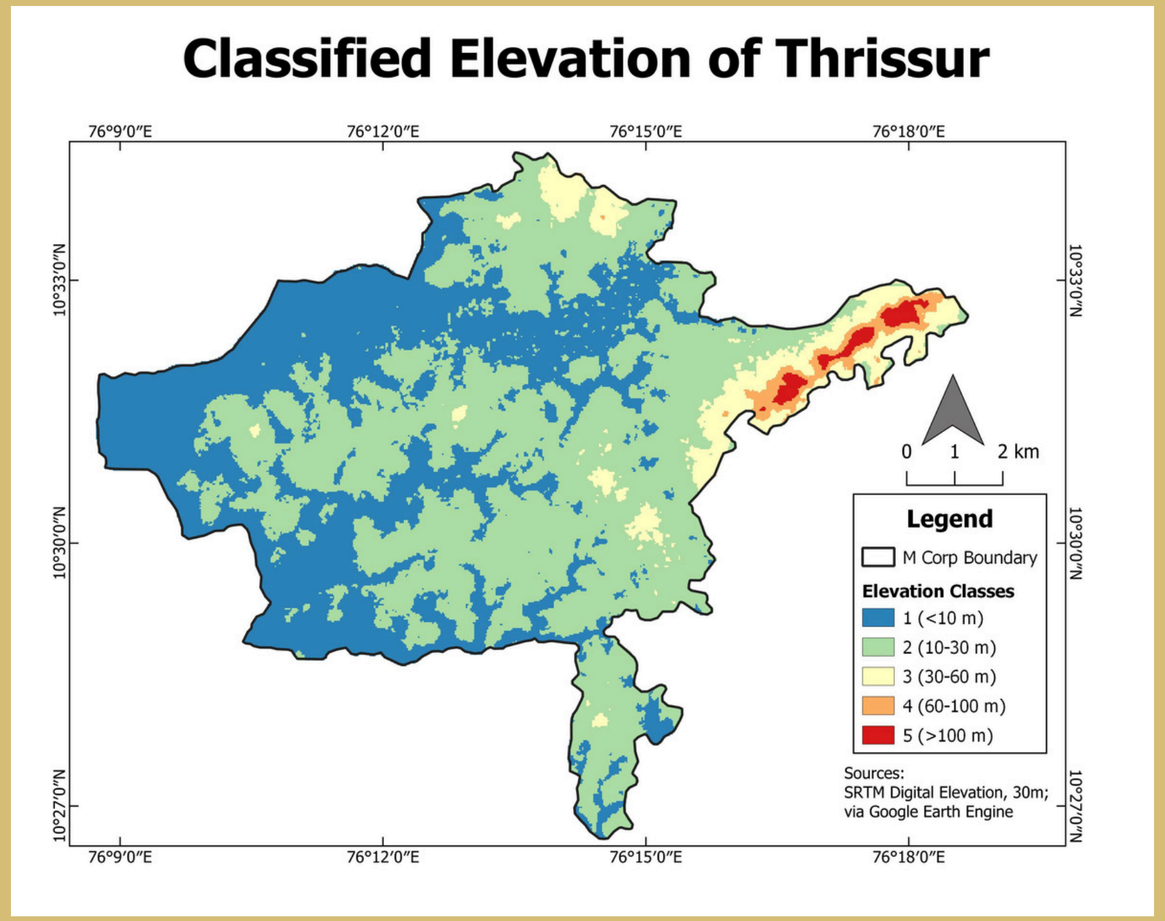
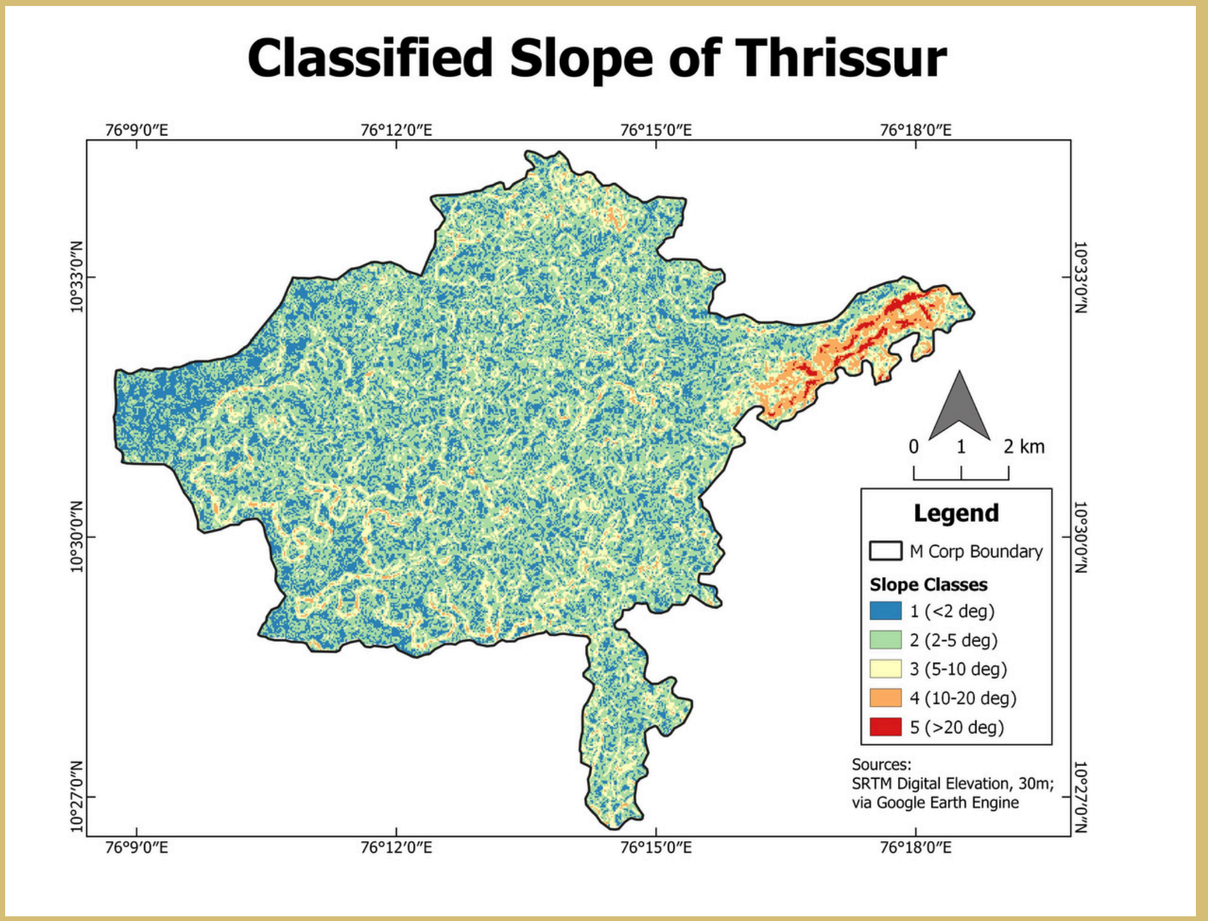
Overlay Analysis for Flood Vulnerability: Methodology



Variables for Overlay Analysis





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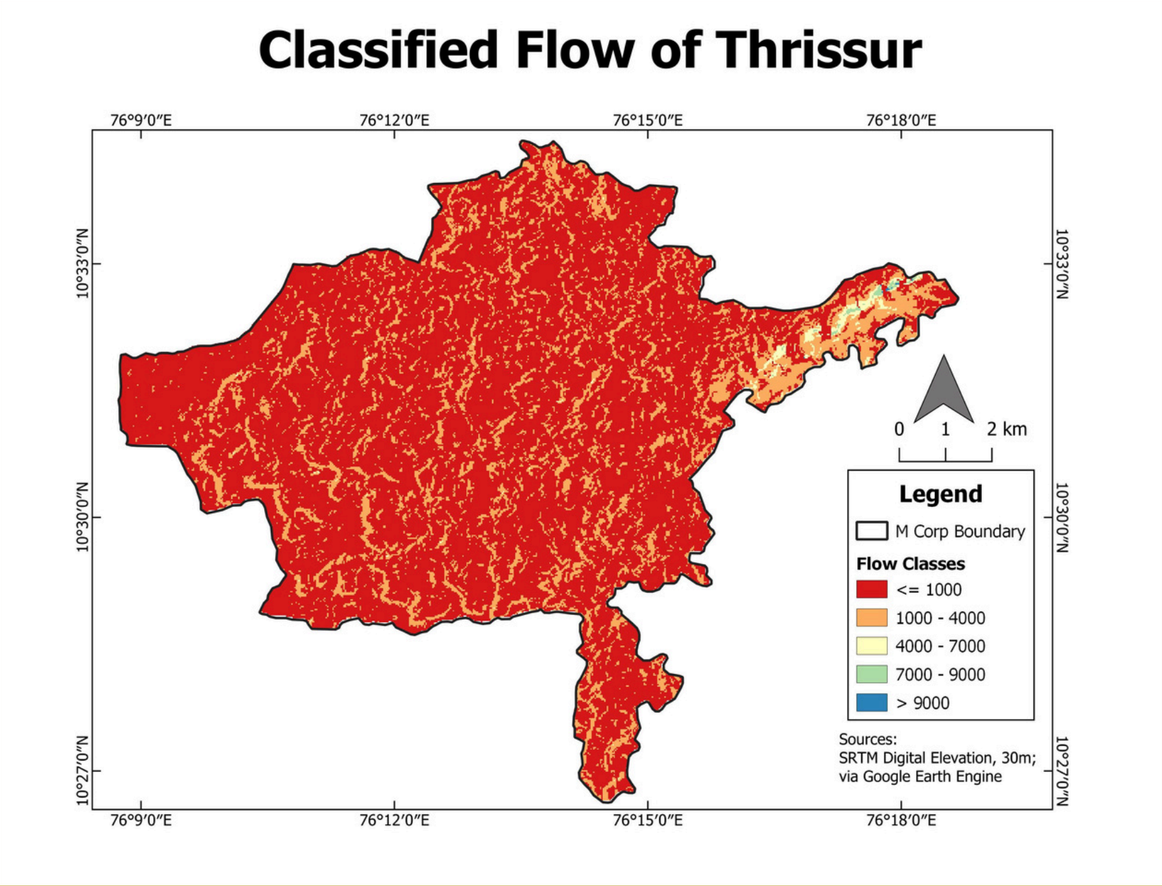
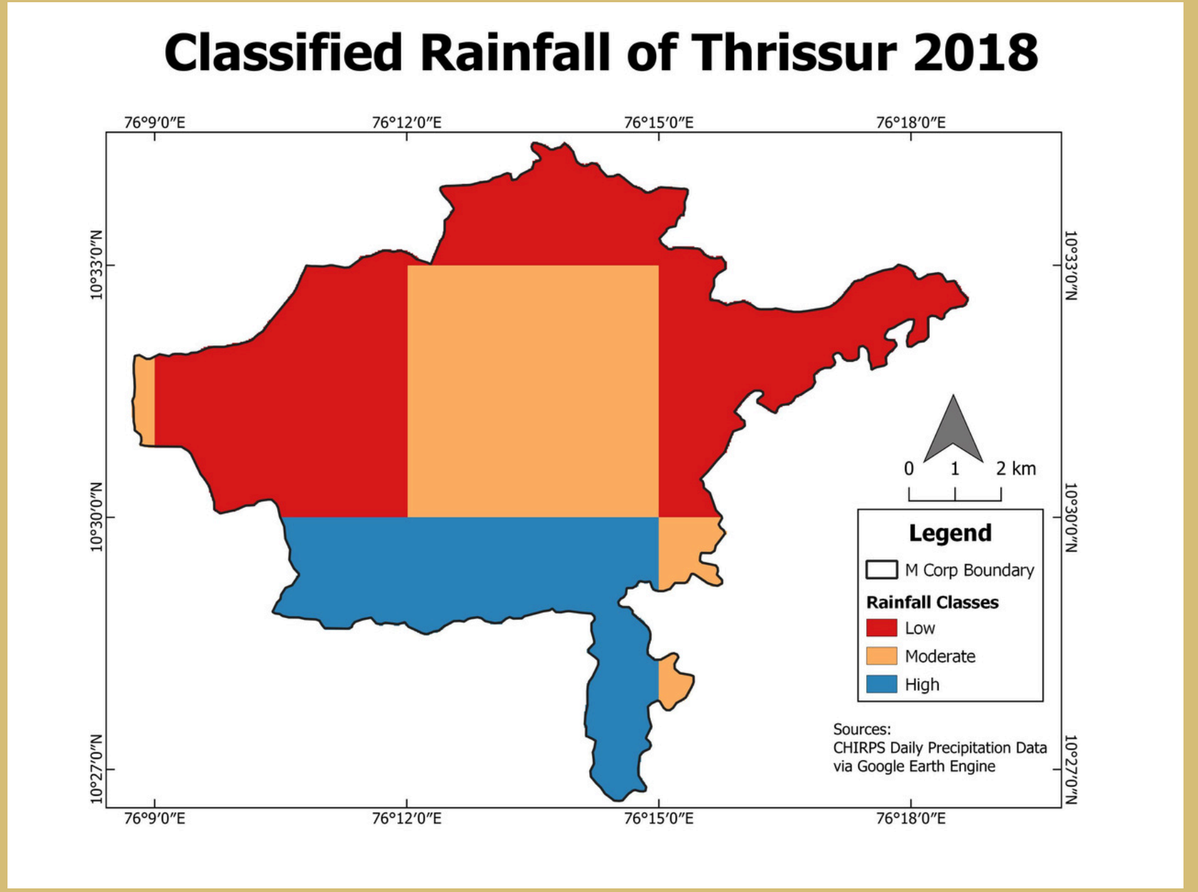




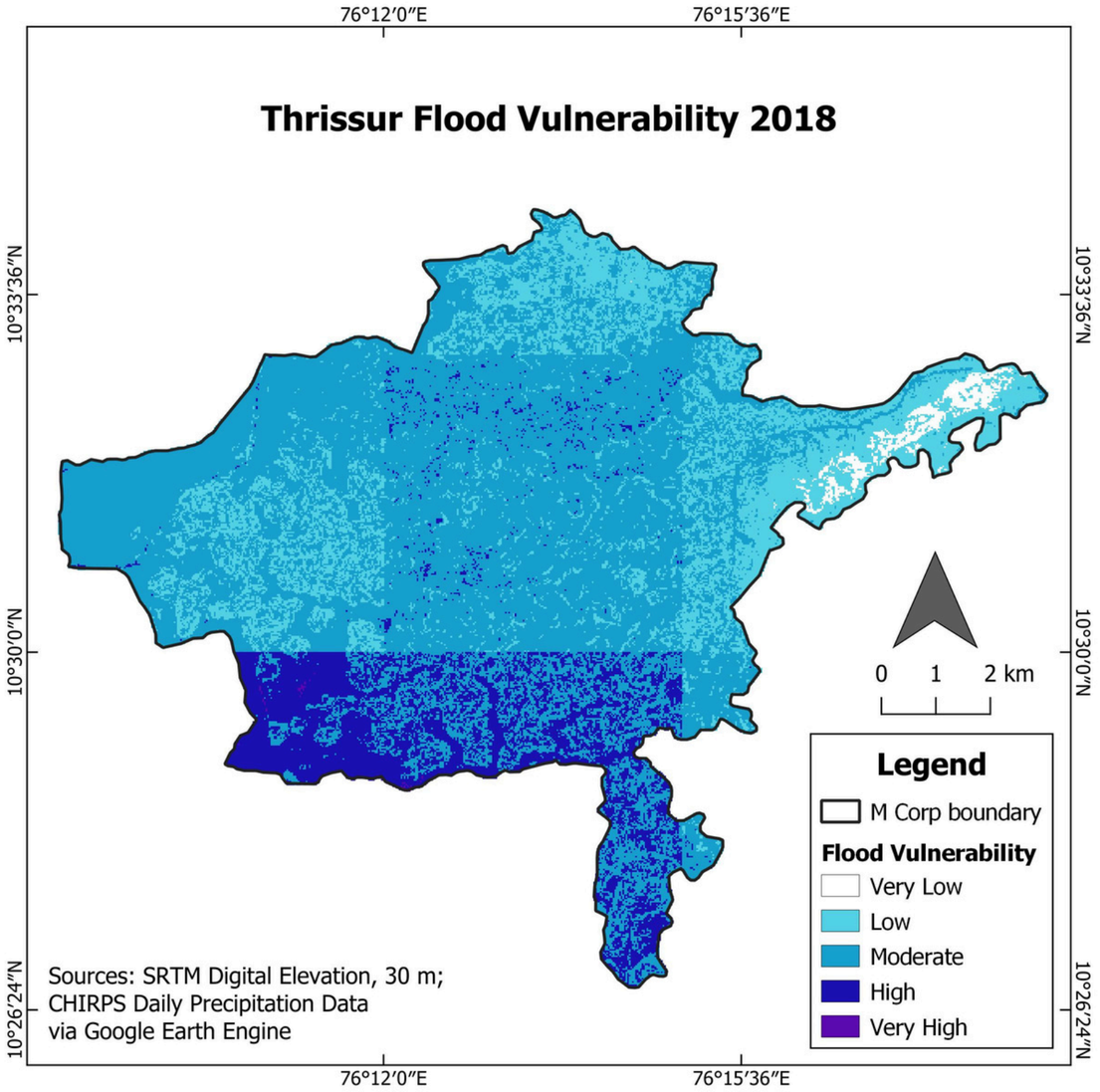
Topographical Profile

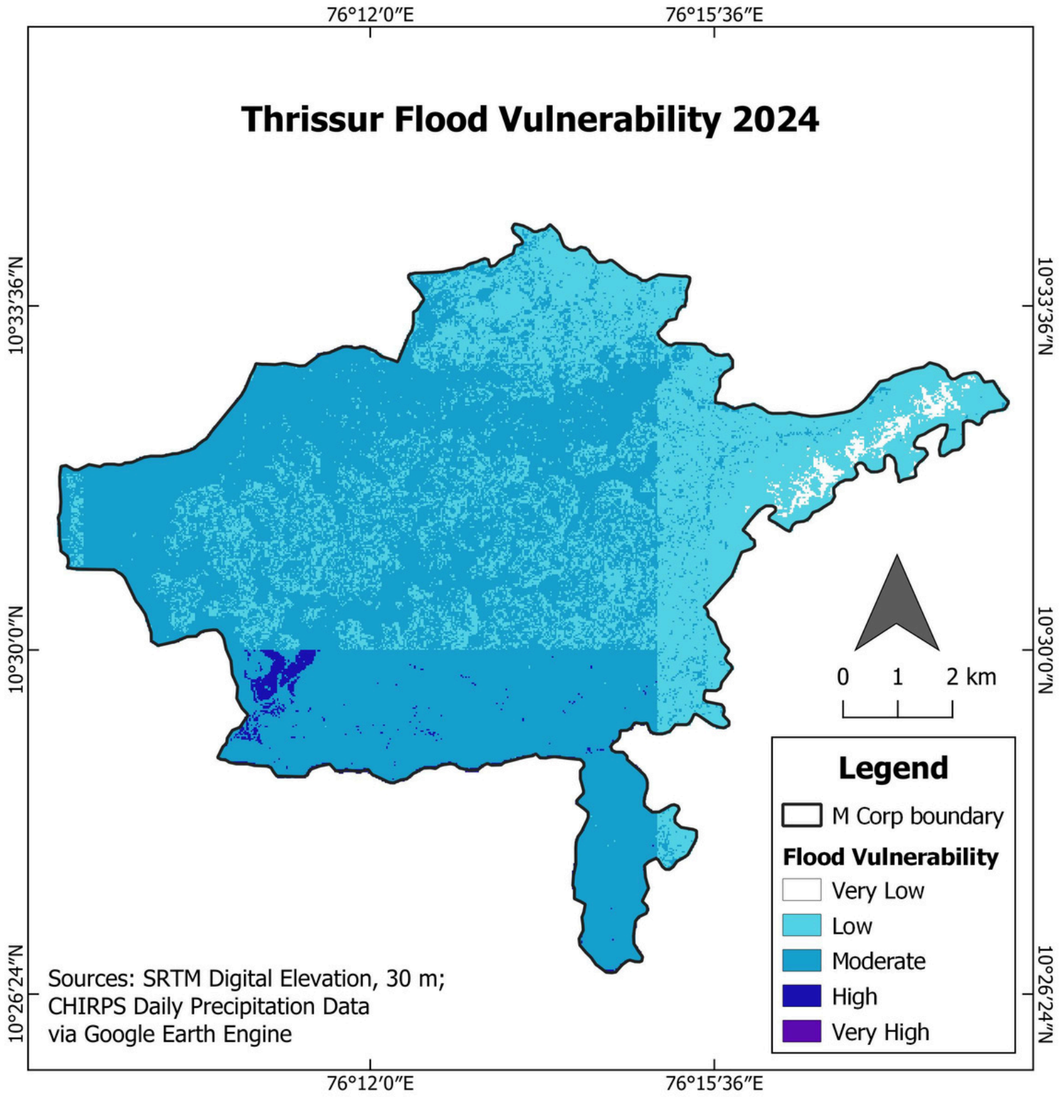
Variable	Min	Max
Elevation (m)	-10	152
Slope (degrees)	0	32.25
Flow (aspect * ratio)	0	10728.53

Year-wise and Season-wise Rainfall Statistics

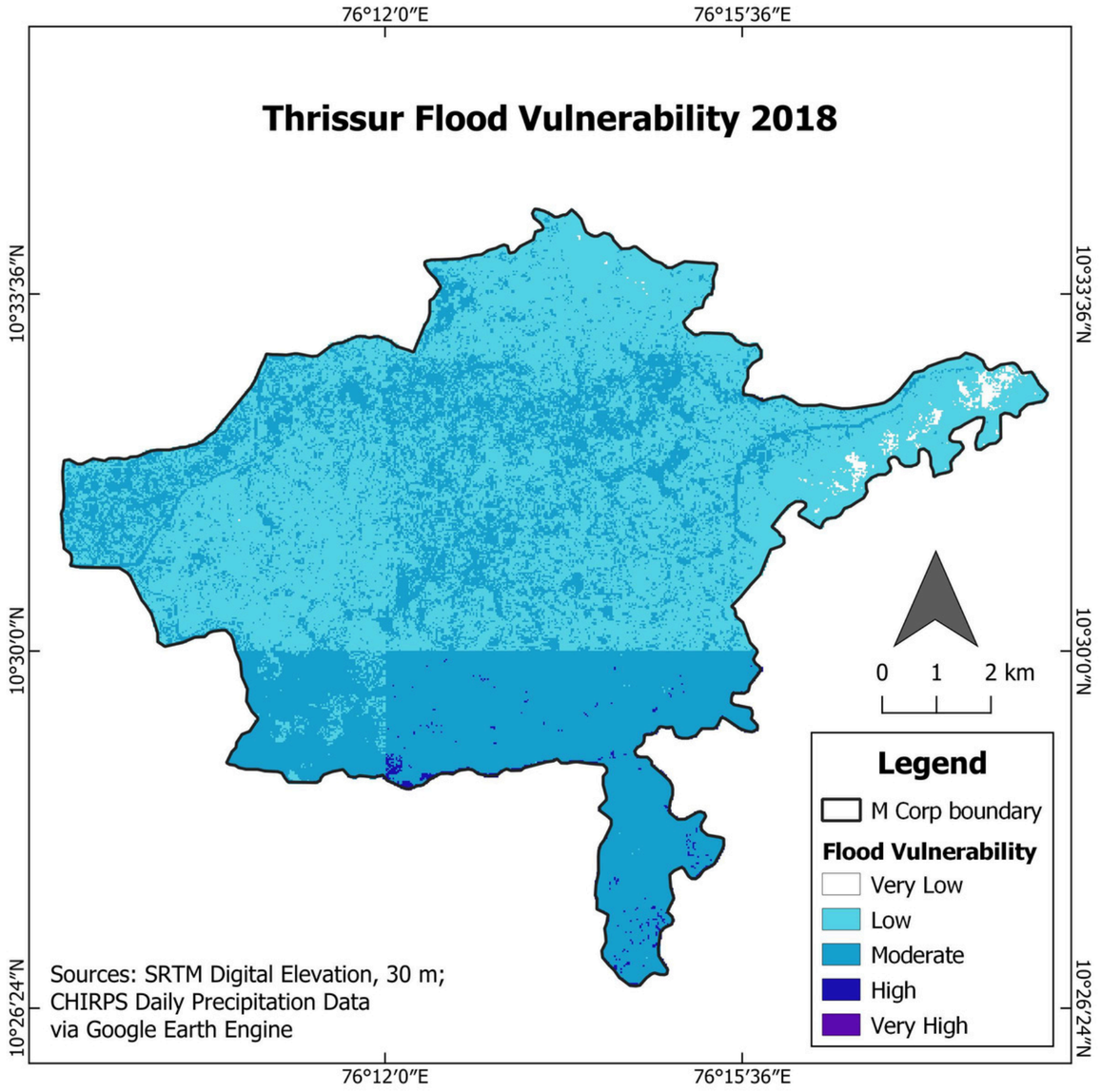
	Rainfall (in mm)			
	SW Monsoon		NE Monsoon	
Year	Min	Max	Min	Max
2018	2649.46	2869.97	416.08	465.01
2024	2077.27	2274.73	514.56	542.06

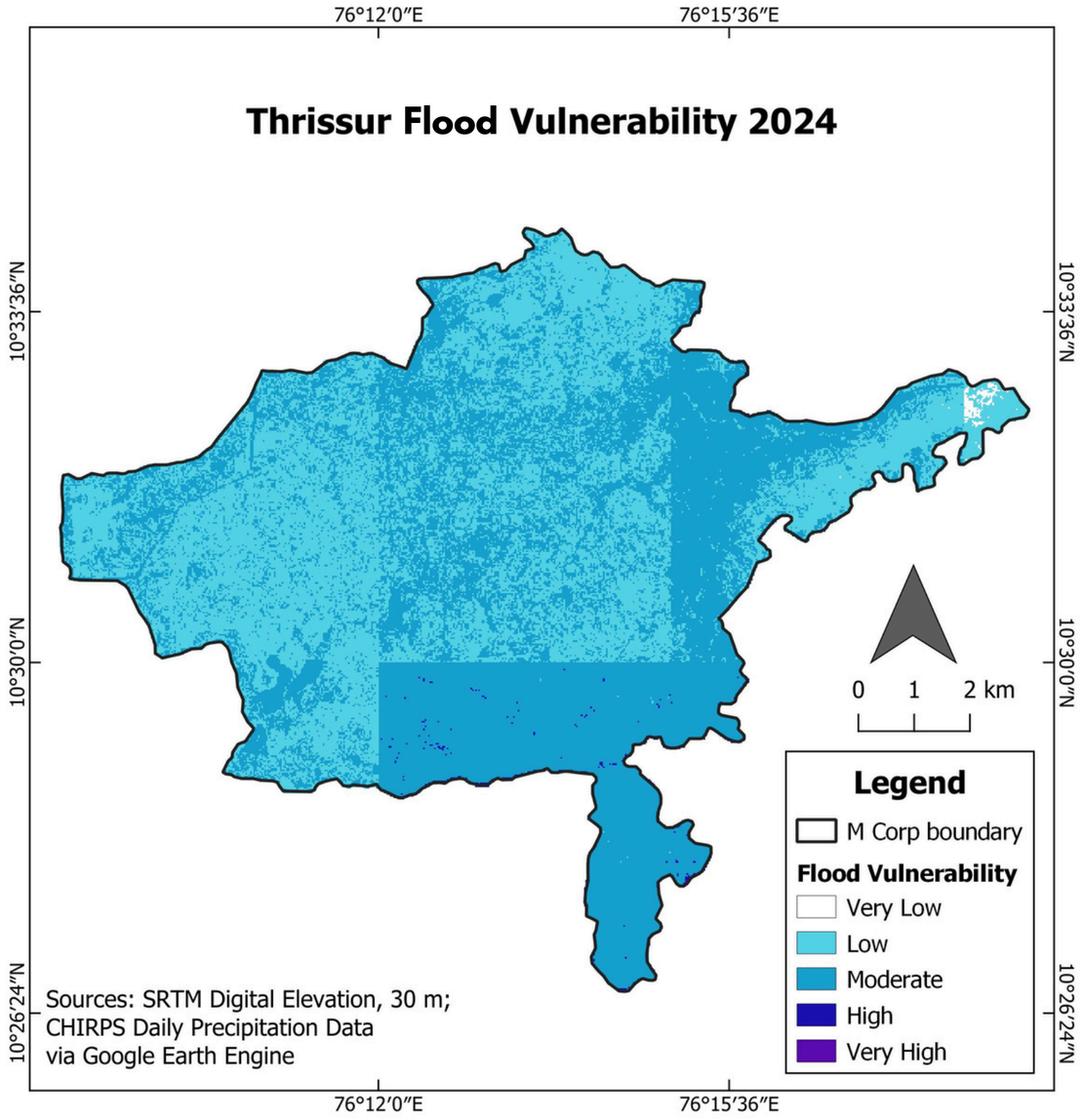
Flood Vulnerability during Southwest Monsoon (2018 vs. 2024)



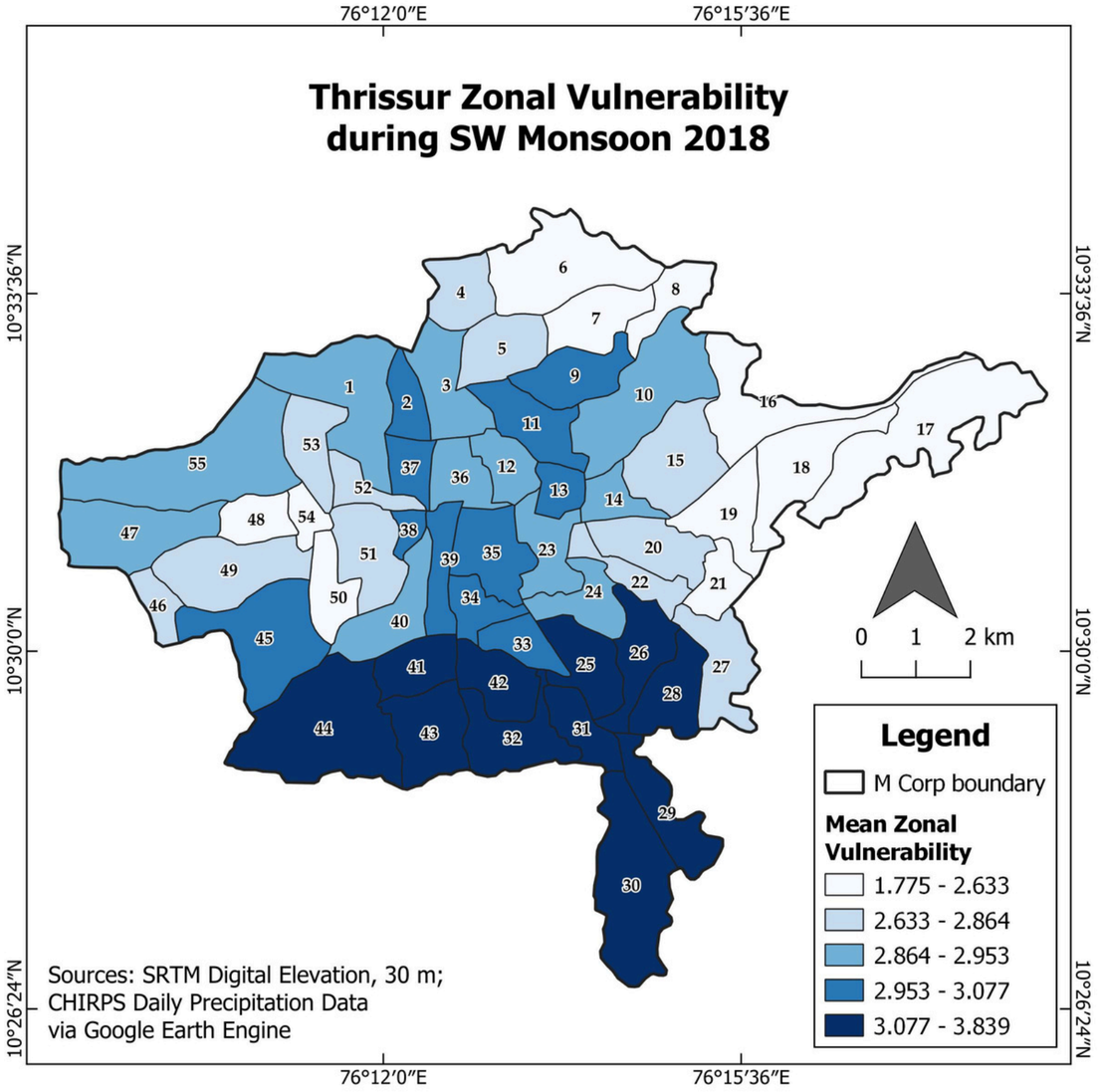


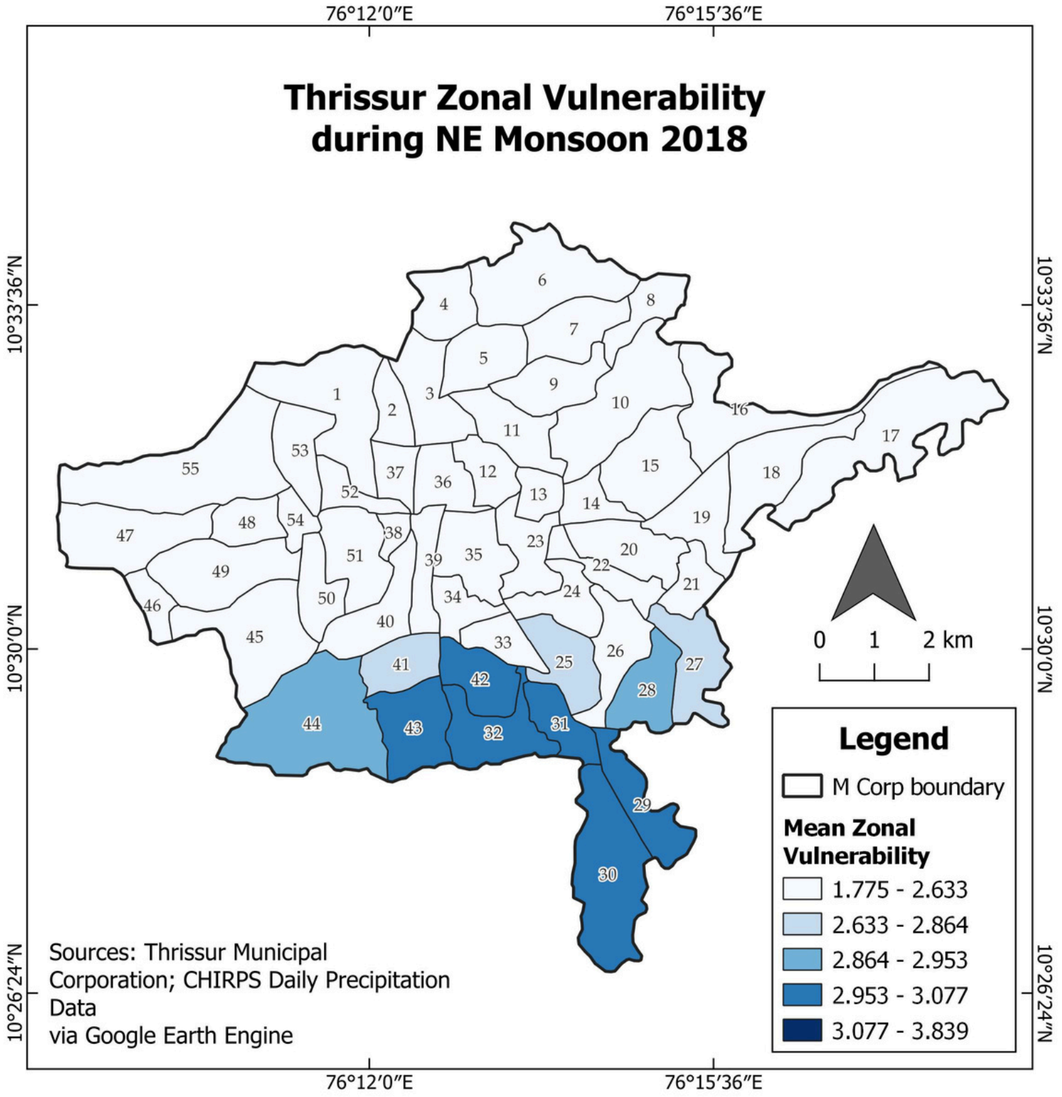
Flood Vulnerability during Northeast Monsoon 2018



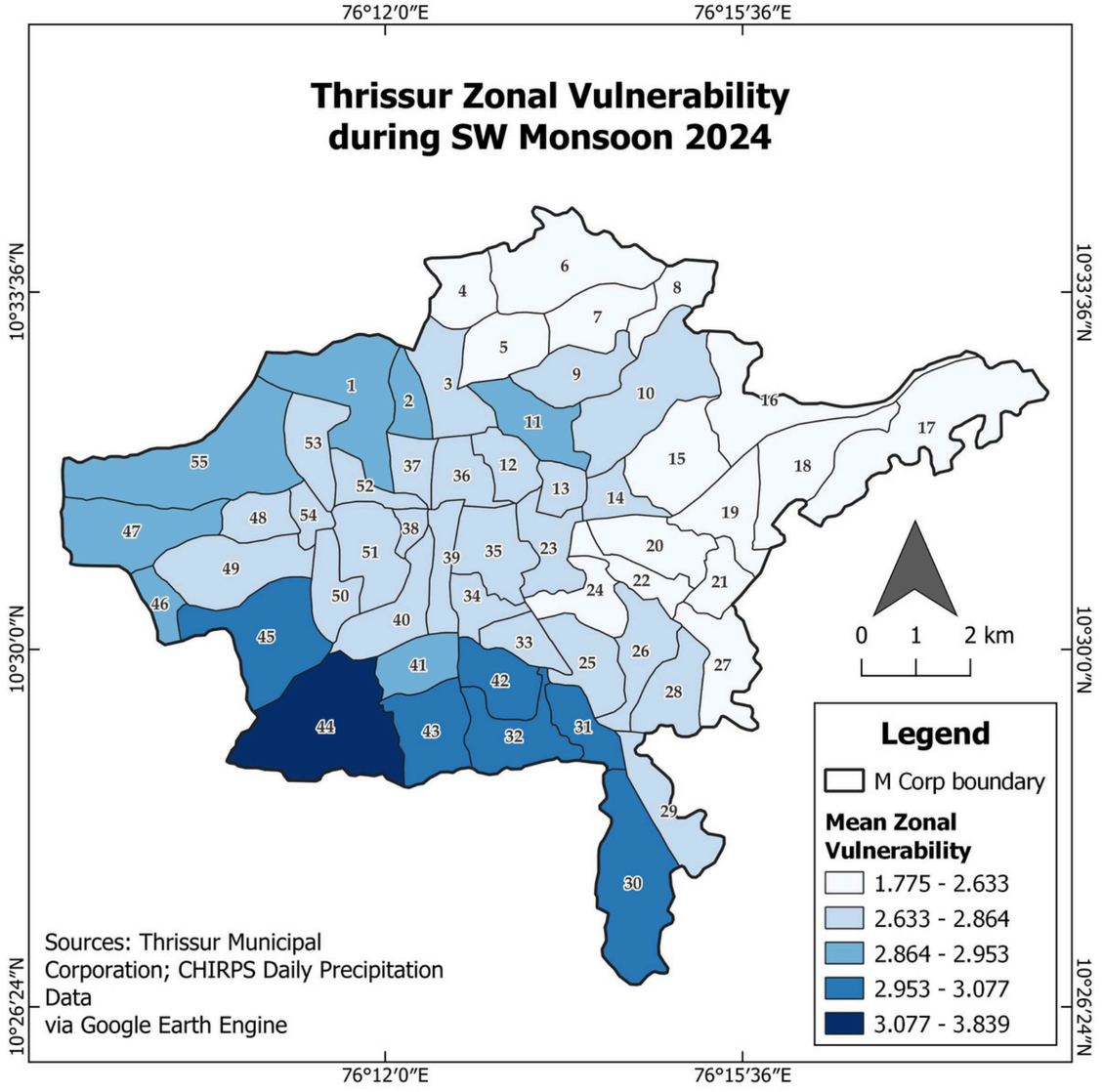


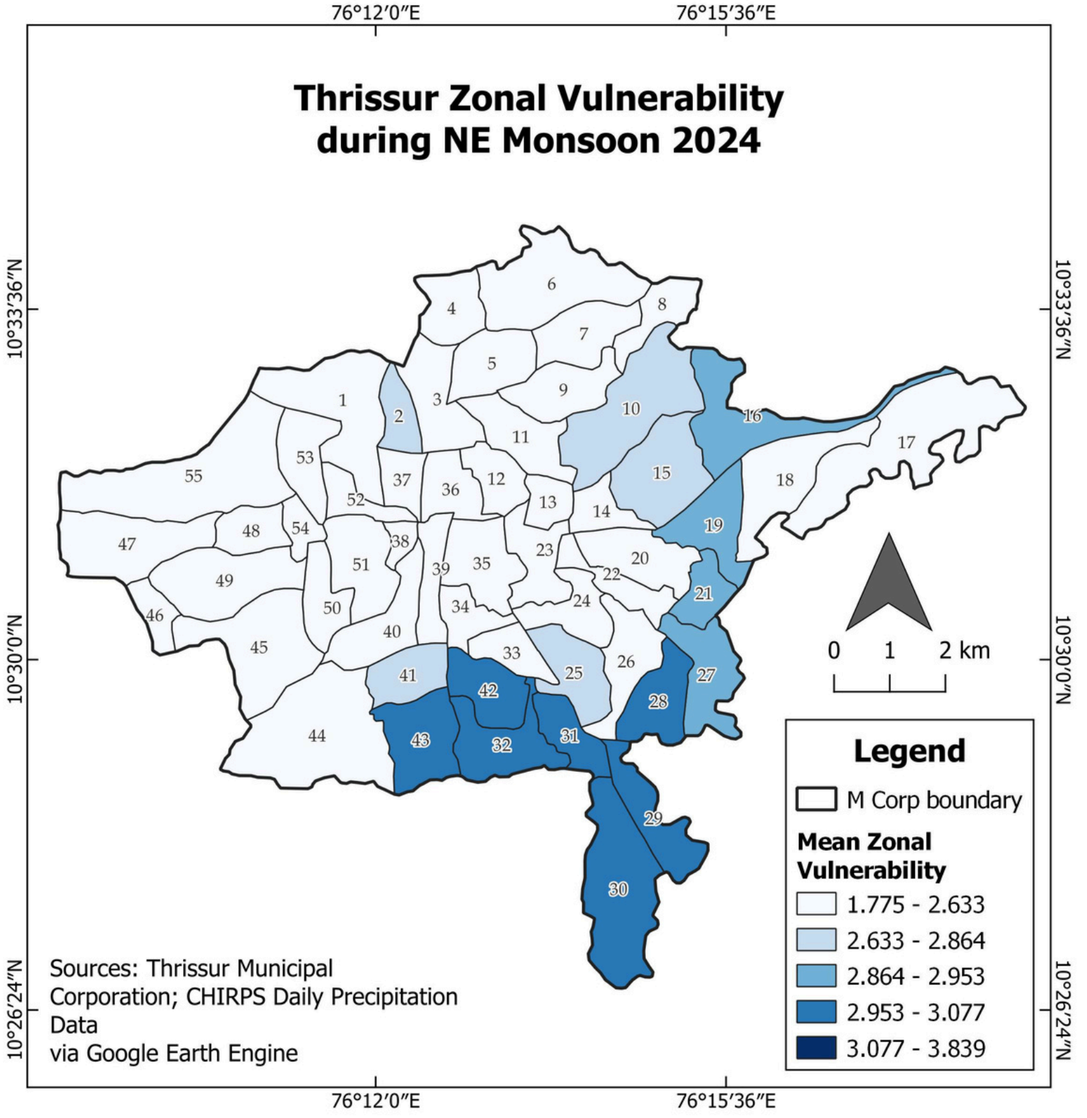
Zonal Vulnerability in 2018
SW vs. NE Monsoon



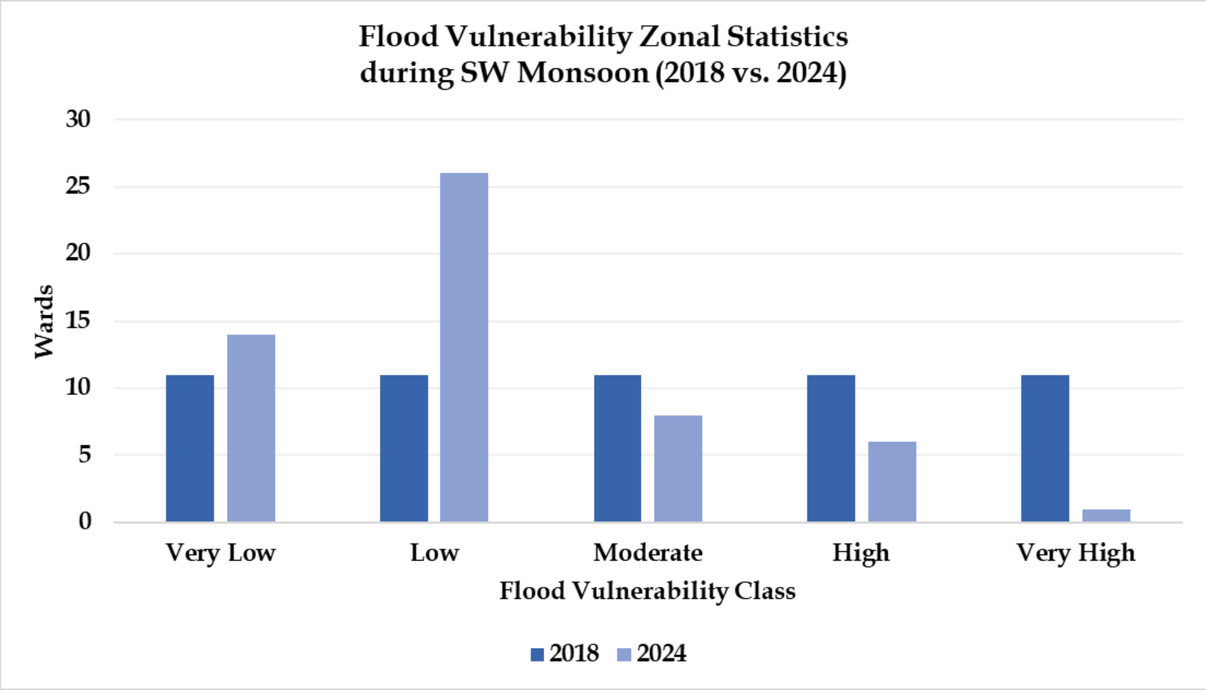


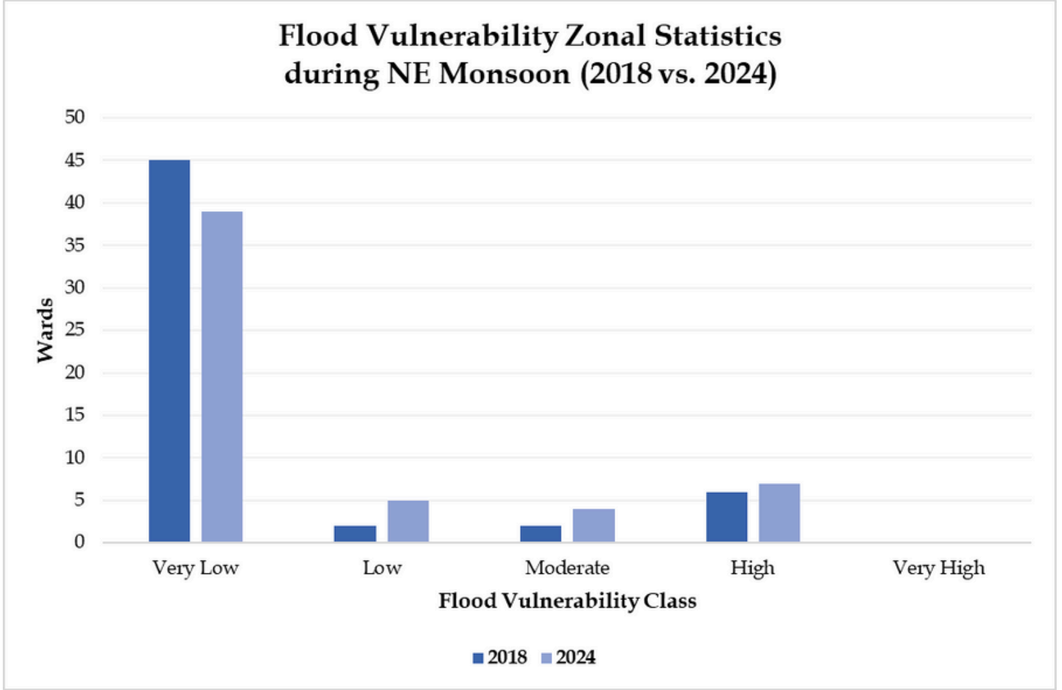
Zonal Vulnerability in 2024 during SW and NE Monsoon





Year-wise and Season-wise Change in Vulnerability Classes





Applications

1. Heavy rainfall warrants the need to integrate ***rainwater harvesting systems*** with existing built-up infrastructure.
2. Vulnerable LU classes, i.e. agriculture and built-up, require ***effective drainage systems, percolation, and embankments***.
3. Planning the growth of the city ***along the natural flow paths*** rather than against them.
4. Infrastructure in low-lying areas should be developed on ***raised platforms***.
5. Planning for ***relief measures*** by assessing most vulnerable areas and water-logged zones.

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