

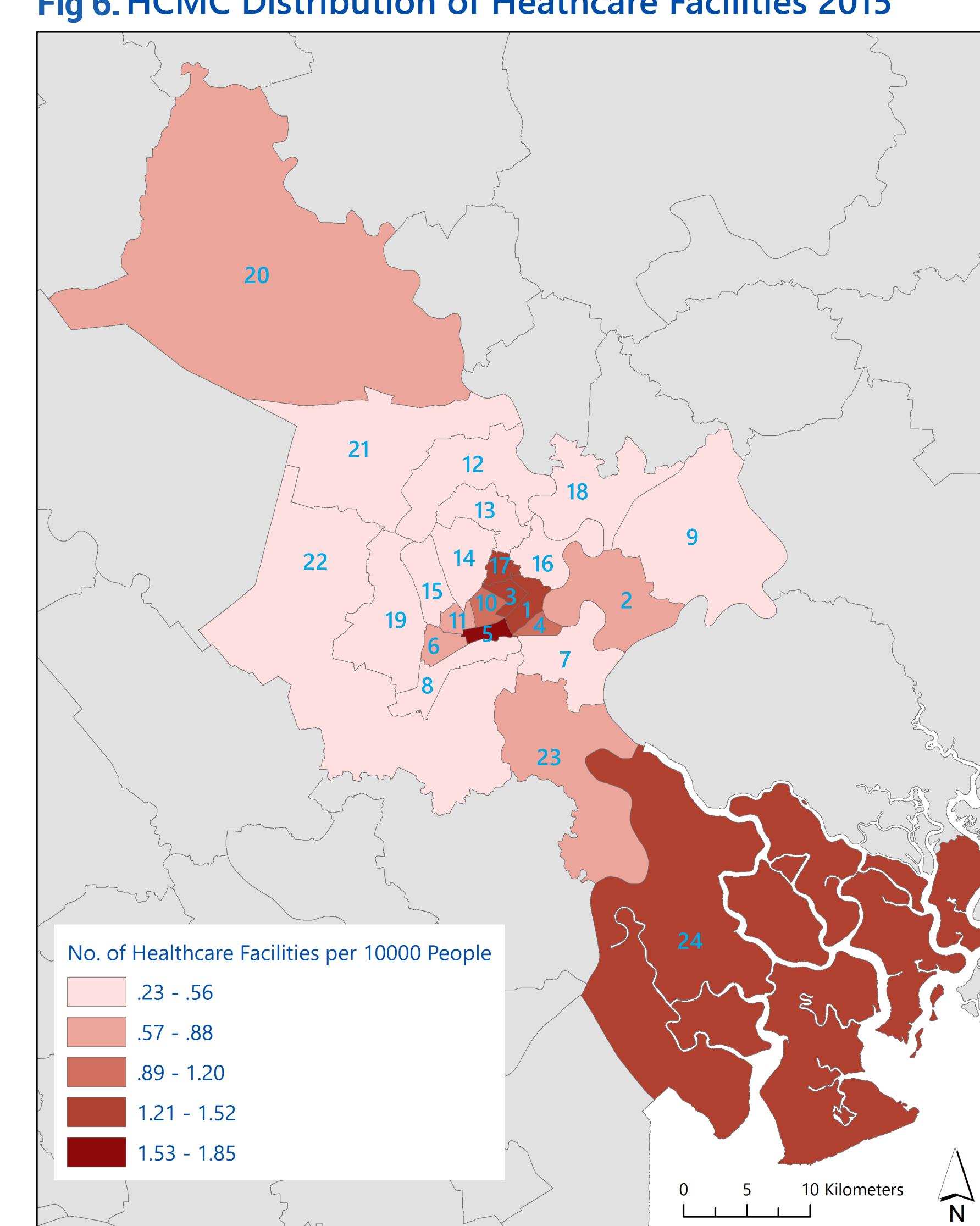
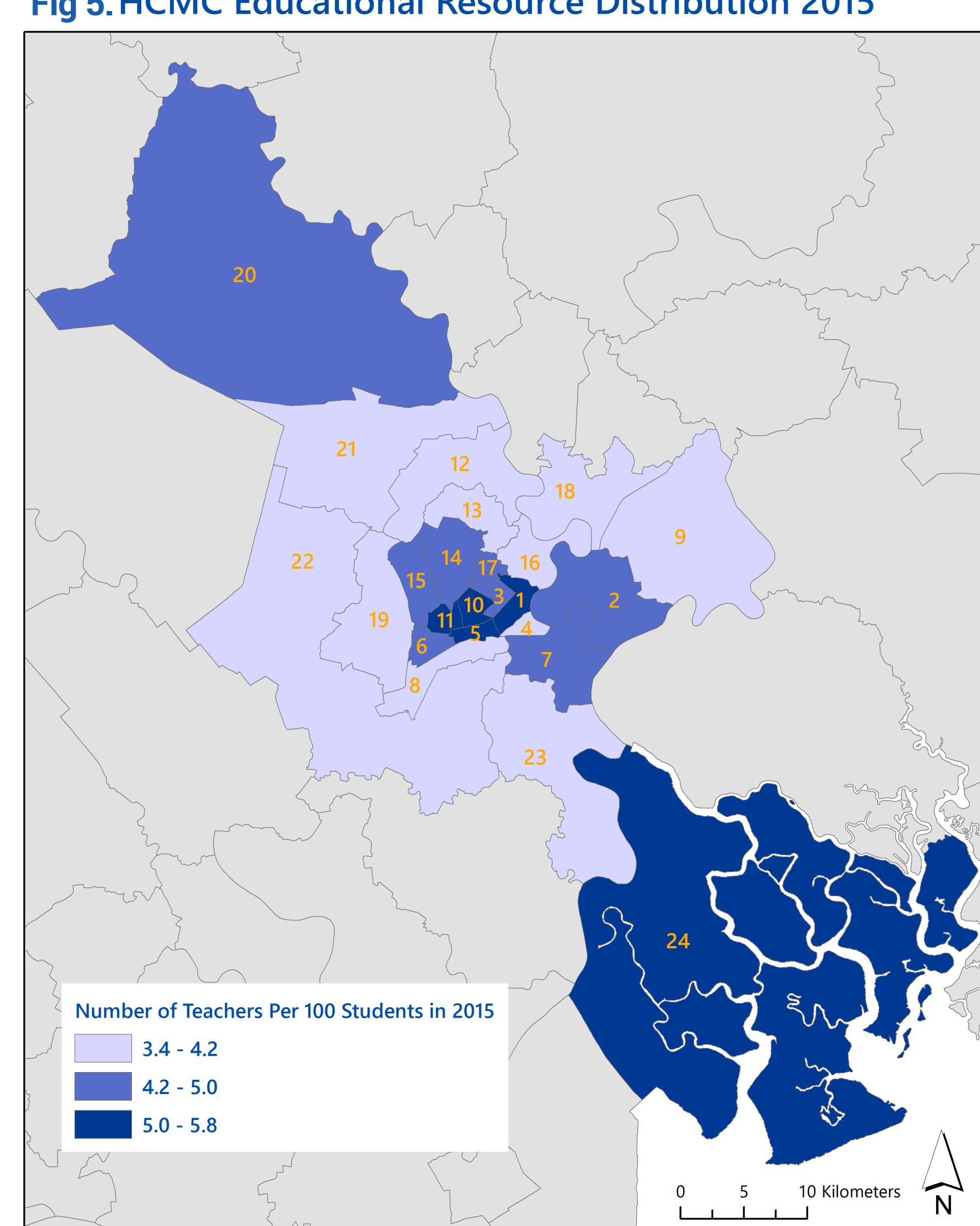
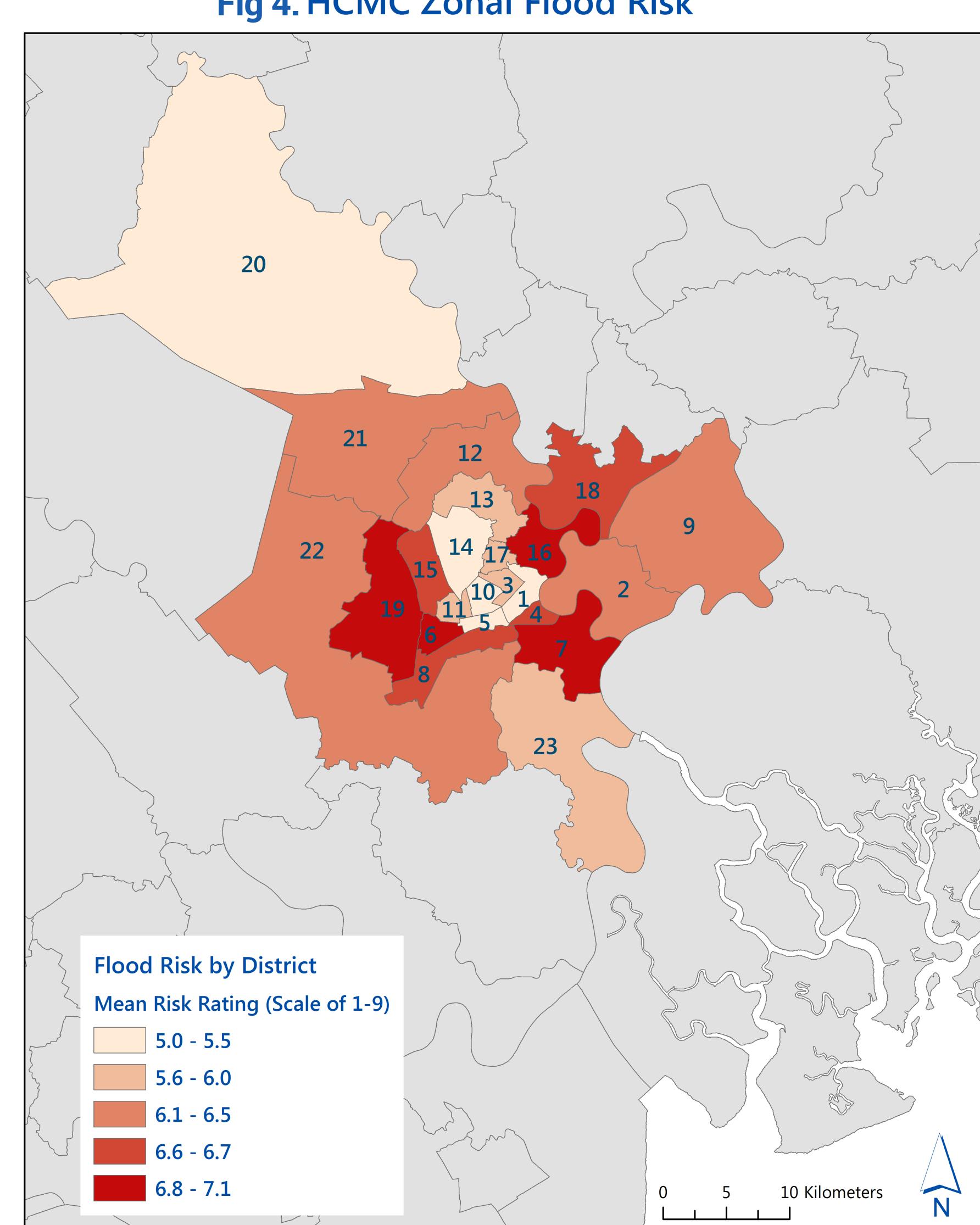
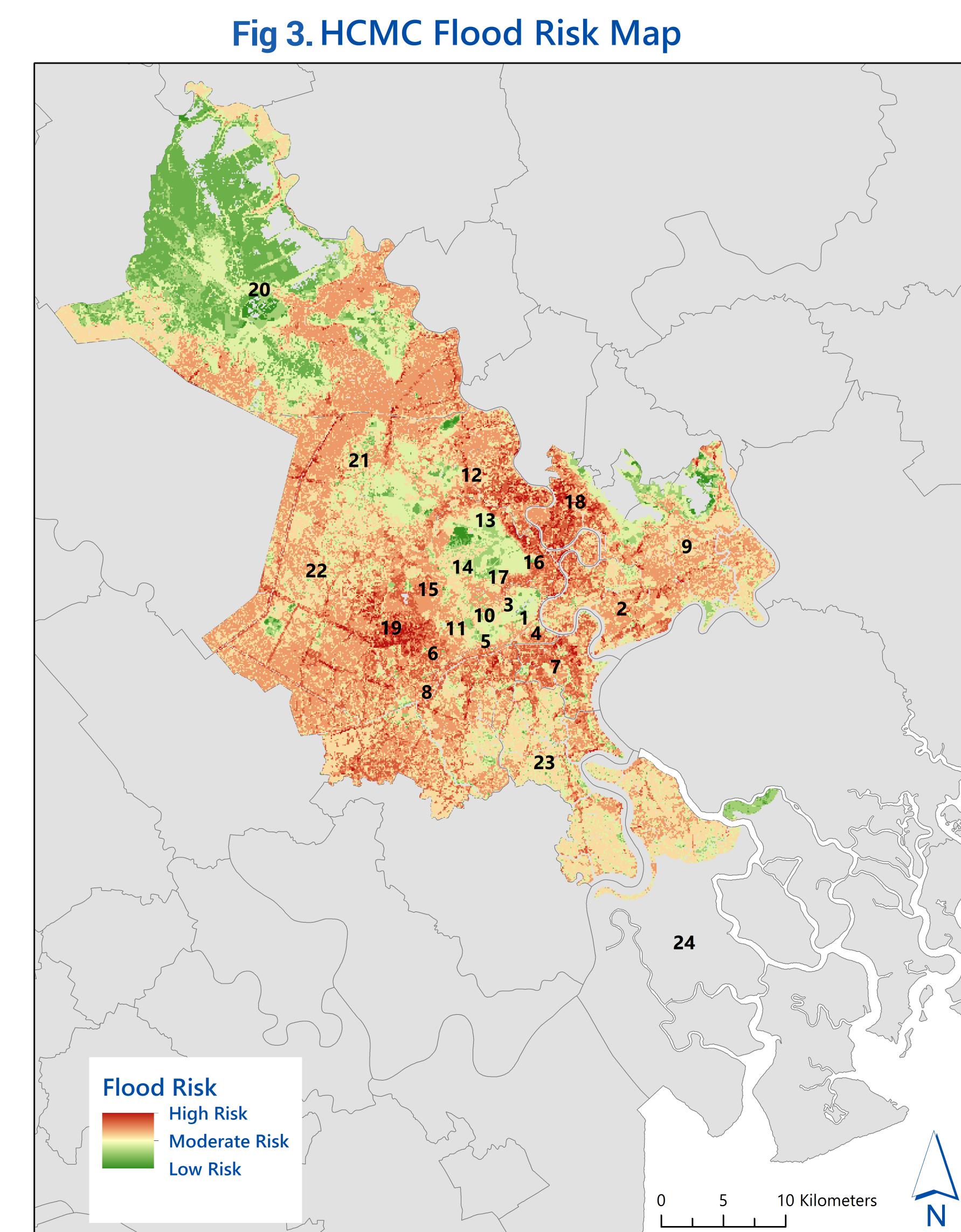
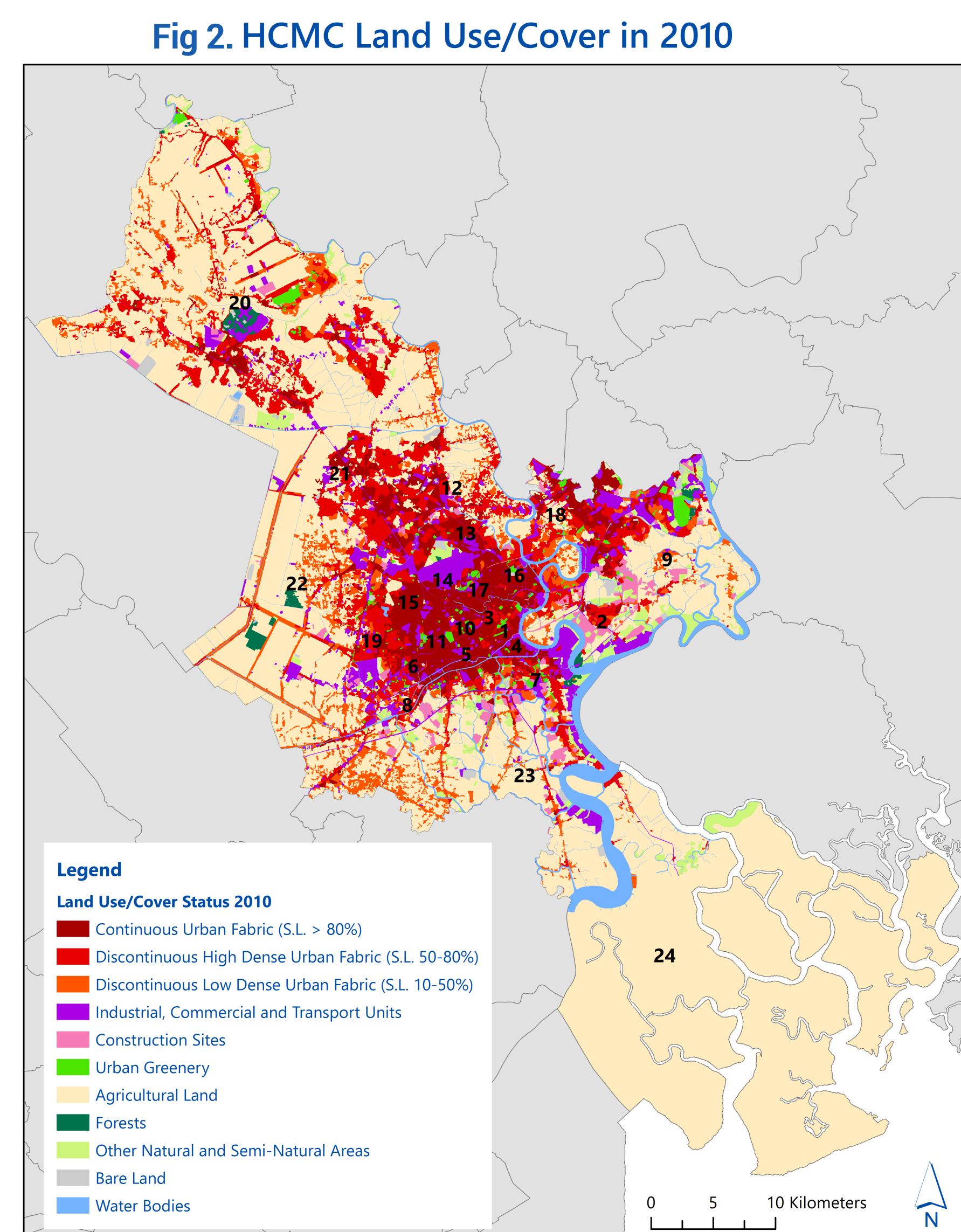
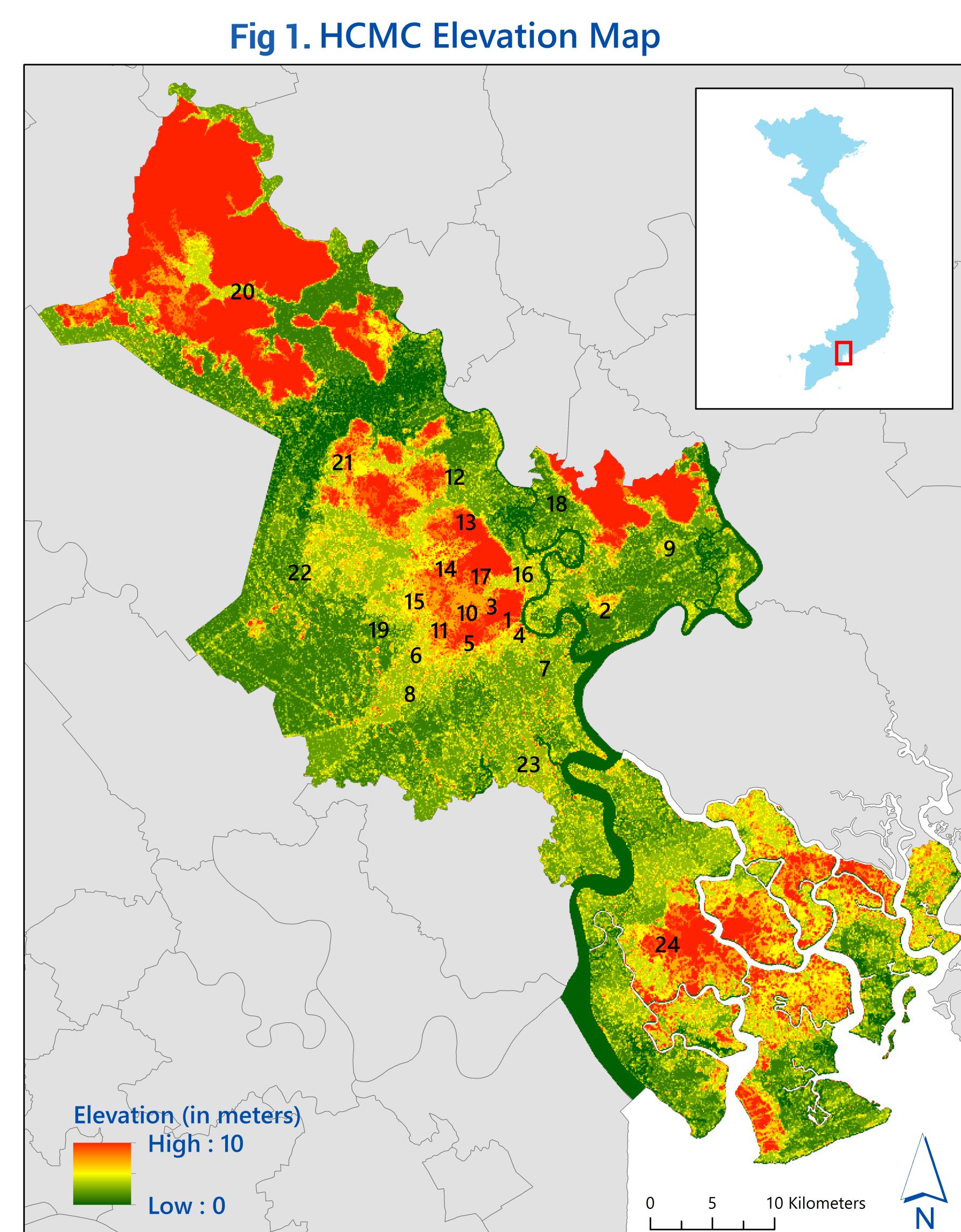
# Urbanization-Induced Flood Risk: Spatial Inequalities and Vulnerabilities in Ho Chi Minh City, Vietnam

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## INTRODUCTION

- Ho Chi Minh City (pop. 8.2 million) faces increasing flood risk from **climatic variations** (coastal sea level rise) and **urbanization** (increase in impervious surfaces).<sup>1</sup>
- Exposed area to regular flooding is projected to increase from 54% in 2009 to 61% by 2050, mostly due to impervious surfaces.<sup>2</sup>
- This study explores the relationship between the **spatial distribution of flood risk (based on elevation and land cover)** and the **inequalities in resource distribution (healthcare and education)** at the city level.
- Findings suggest a need to further augment investments in socioeconomic resources beyond the dense urban core to boost **resilience** to flooding.

## RESULTS



## DISCUSSION & CONCLUSIONS

- Areas with the highest flood risks (combination of highly dense and continuous urban fabric and low elevation) are found in **peri-urban districts** beyond the main city center (districts 6-8, 15, 16, 18, 19). Most land sits below 5 m elevation. Rural districts (20-23) were generally of lower flood risk as compared to the urban core.
- Yet educational and healthcare resources are unequally distributed across the city: peri-urban districts beyond the city center have significantly **lower concentrations of teachers** (3.4-4.2 teachers/100 students; 30% fewer) and **healthcare facilities** (0.23-0.56 healthcare facilities/10000 people; 77% fewer) as compared to the highest concentrations in the urban core.
- As both educational and healthcare resources are crucial in disaster management education and response, the concentration of education and healthcare facilities should be **augmented in peri-urban districts** in urban planning, in order to enhance city-wide resilience to extreme weather events.

## REFERENCES

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