

## Spatio-temporal analysis of disaster risk in Sumida ward, Tokyo

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The understanding of disaster risk in a spatiotemporal perspective helps to mitigate the potential damages of disasters effectively. In this study, the Data Envelopment Analysis (DEA) technique and people flow data are integrated to develop a disaster risk assessment to understand the disaster risks in both spatial and temporal manner. In doing so, Sumida ward, located in the northern part of Tokyo bay is selected as the case study. Geographically, Sumida ward is situated in an alluvial lowland area and there are many places below the mean sea level with high population density and several urban features. Most of the man-made features of this area are made out of wood faces and having a higher potential for extreme damages. Generally, the damage by disaster is strongly related to the population density of the area. But the population density of the area is varying with the people movement within a day. Thus, the present study assesses the disaster risk levels with the different time periods of the day based on people flow and its spatial pattern through the developed assessment.

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