Exploring a dynamic relationship between transportation strategies and community livability: a case of Kolkata Urban Agglomeration (KUA)

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INTRODUCTION

- Cities around the world are re-examining their *urban assets* and remaking themselves to enhance *competitiveness*

- The increasing **population trends** within cities has created various impacts on the **urban environment**

- **Livability research** serves as an **additive step** to raise long-term sustainability for cities.

RESEARCH BACKGROUND

Percentage of urban and global Urban Agglomerations (2018)
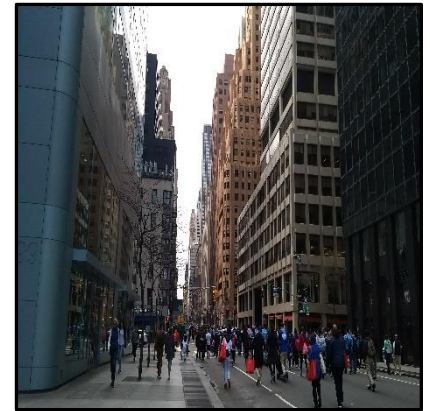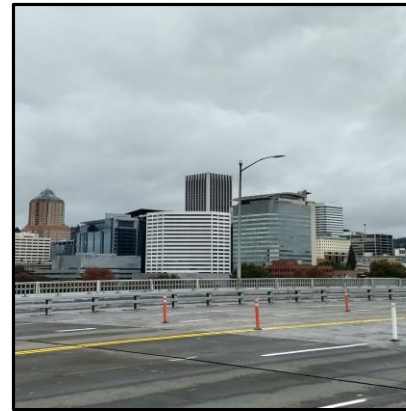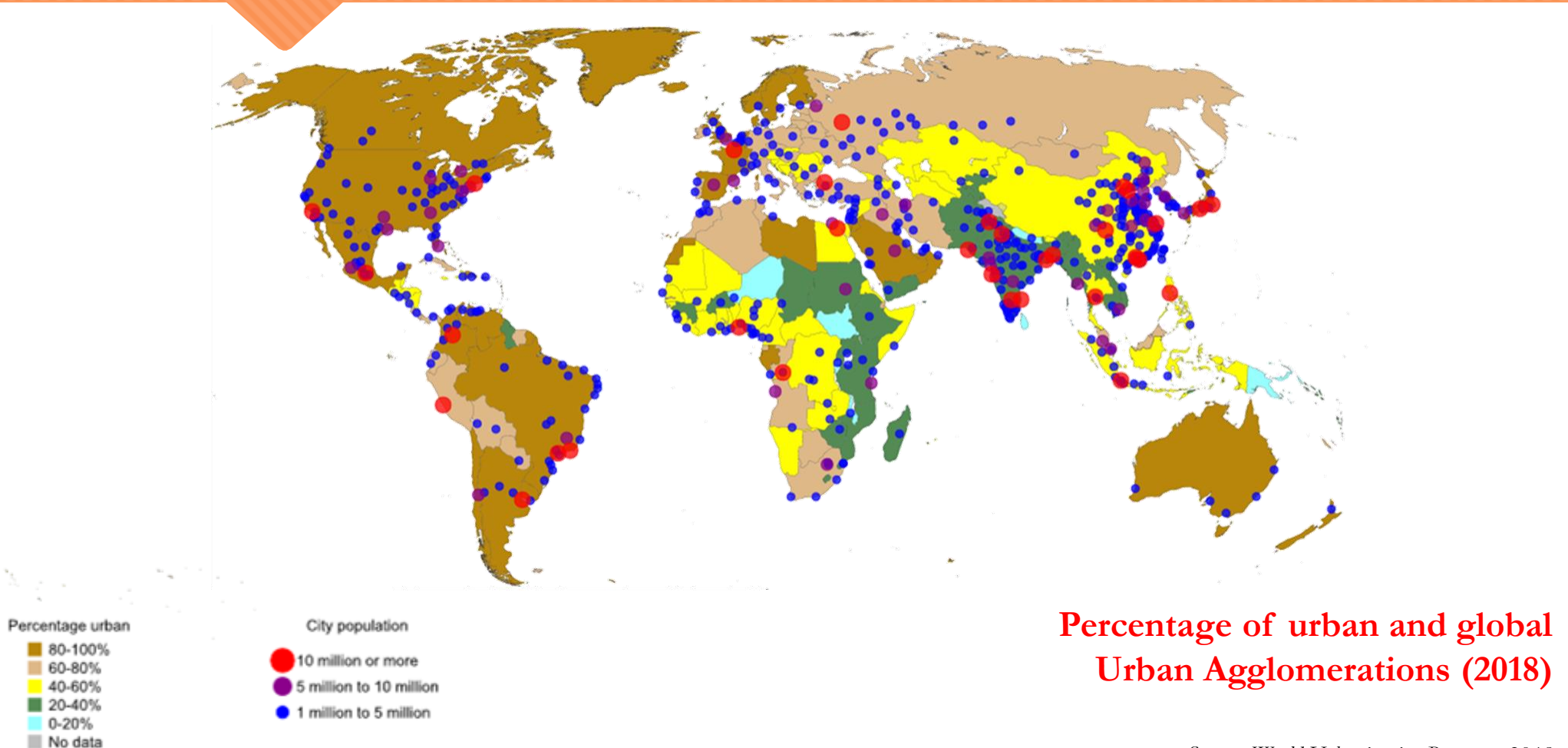
Source: World Urbanization Prospects 2018

Kolkata
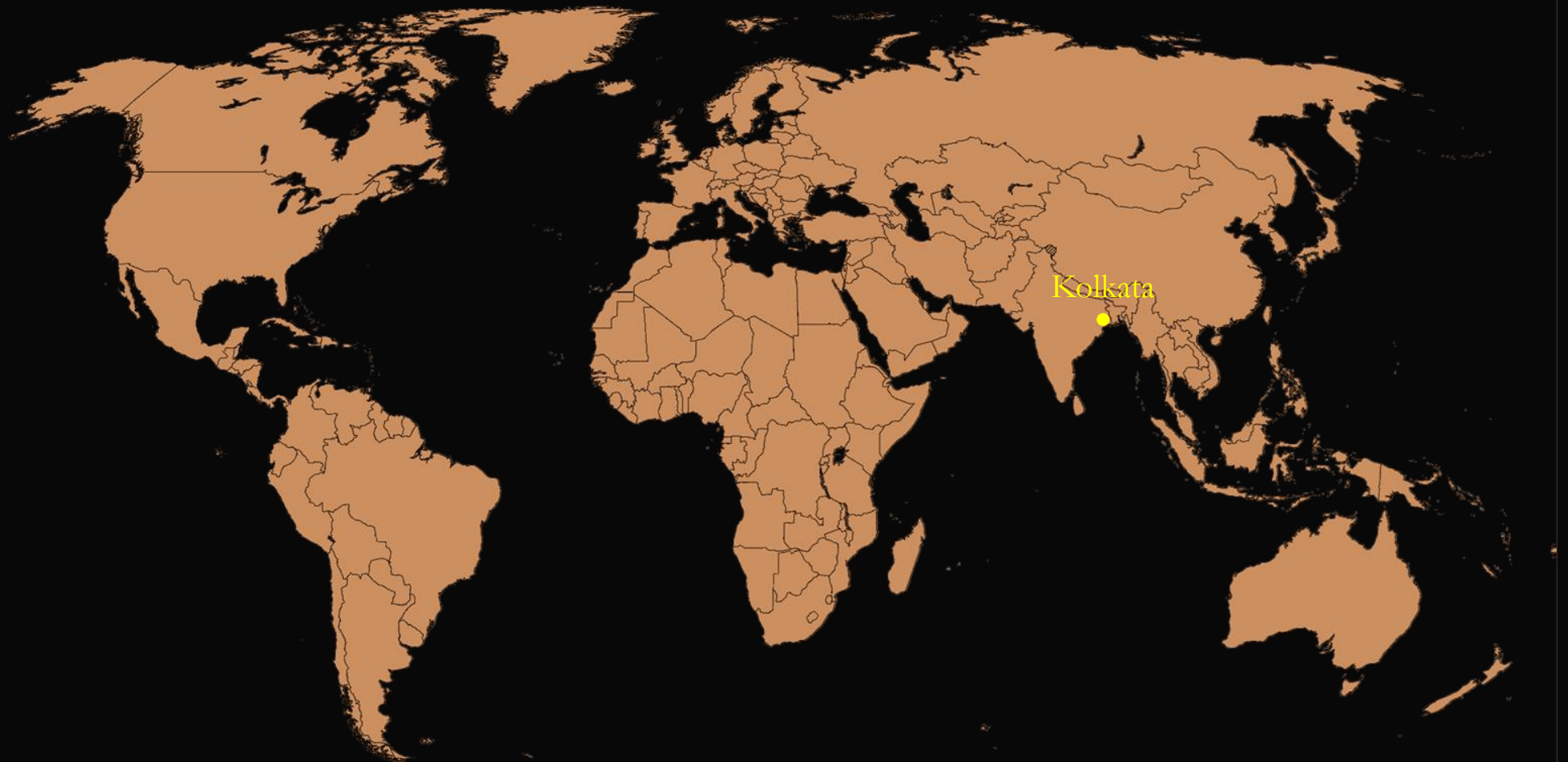
To understand the resident's compatibility with their current socio-economic extents and then provide propositions to measure the quality of urbanism .

CASE STUDY

Location:

- Spread roughly north–south along the east bank of the Hooghly river within the lower Ganges delta of eastern India
- Approximately 75 km (47 mile) west of the international border of Bangladesh

Urban Structure:

- 4 Municipal Corporations
- 36 Municipalities
- 72 towns and 527 villages
- Population: 14,112,536
- Area: 1886.67 Sq.km
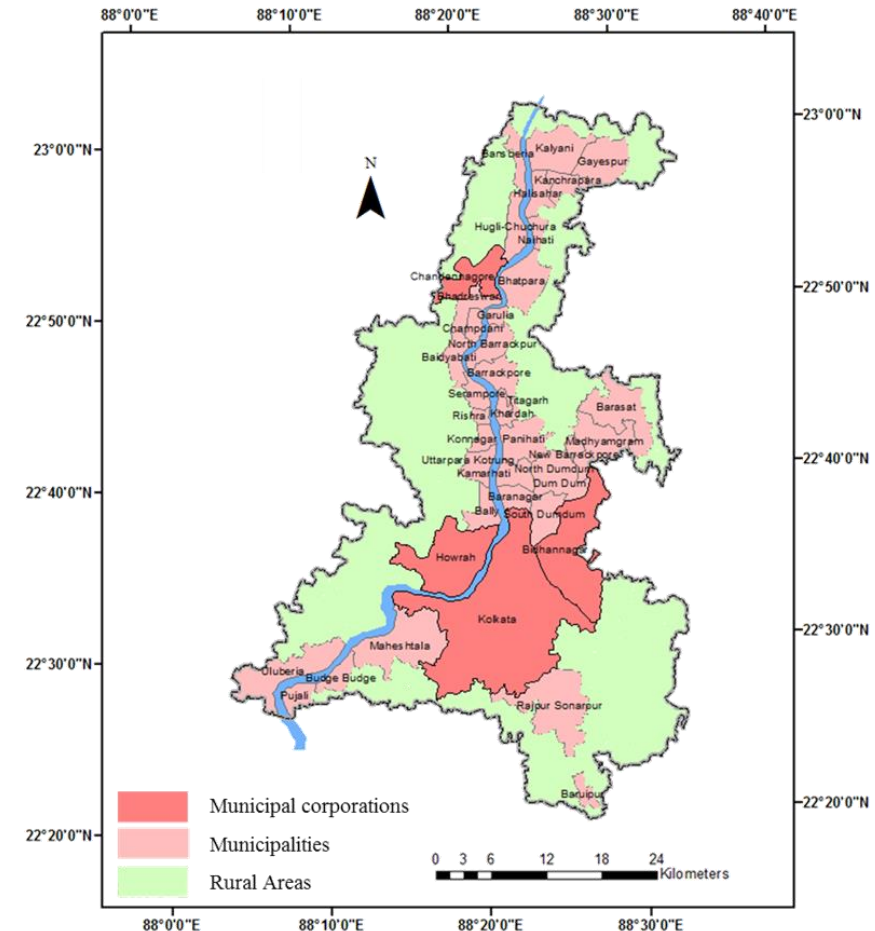
RESEARCH DESIGN

Spots selection for survey	No. of selected respondents
Kolkata	107
Howrah	97
Panihati	89
Hugli-Chuchura	82
Kamarhati	79

- A total of 454 residents had been identified and interviewed from July 2018 to September 2018 on the basis of simple random sampling
- The data was obtained in five-point rank approach (1 to 5, i.e., least to most important)

Source: Authors

INITIATION OF VARIABLES

Factors	Variables	Factor Loadings	Eigenvalue	Variance Explained
Standard of neighbourhood	The extent of a livable locality	.611		
	The extent of housing development	.709		
	Quality of urban services	.789		
	Level of regular maintenances	.776		
			10.269	32.089
The extent of transportation options	Degree of affordable public transportation options	.812		
	Degree of safe public transits	.792		
	The extent of accessible public transportation options	.700		
	The extent of availability of public transportation options	.553		
	The extent of availability of shared transportation options	.652		
	The extent of problems with transportation options	.682		
	Extents of well-maintained streets	.651		
	Standards of public parking spaces	.671		
			2.272	7.099

Source: Authors

INITIATION OF VARIABLES

Factors	Variables	Factor Loadings	Eigenvalue	Variance Explained
Degree of accessibility				
	Access to rail transportation	.737		
	Access to taxis and other similar services	.681		
	Degree of accessibility educational facilities for disabled people	.640		
	Degree of accessibility to colleges	.595		
	Degree of accessibility to educational facilities for backward facilities	.756		
	Degree of accessibility to schools	.609		
	Degree of maintained accessible open spaces	.720		
	Degree of maintained accessible public restrooms	.778		
	Extent of sidewalks	.828		
	Level of well-maintained parks and green spaces	.668		
	Traffic information	.490		
			1.638	5.118
Degree of safety	Degree of road safety	.548		
	The extent of safety for bicyclists	.593		
	The extent of safety for railroad crossings	.724		
	Levels of feeling safe to roam around the vicinities	.761		
	Degree of safety of children	.789		
	The extent of police services	.521		
	The extent of violent and petty crimes	.765		
	The extent of alcohol-related disorder	.729		
			1.153	3.603

DEGREE OF IMPACTS OF THE INITIATED FACTORS ON COMMUNITY LIVABILITY

		B	Wald	p
Perception with scale 1-5	Standard of neighborhood	0.418	31.73	0.000
	Extent of transportation options	0.867	14.873	0.000
	Degree of accessibility	0.272	10.46	0.001
	Degree of safety	0.247	16.808	0.000

Model Fitting norms: Log-Likelihood (707.289), df (14)

Goodness-of-Fit: Pearson's chi-squared test ($\chi2$)= 1356.039

Pseudo R^2: Nagelkerke R^2 (0.539)

SUMMARY

- The paper has identified two findings to perceive the effective way to assess the impacts of transportation strategies on community livability within KUA. The first finding has identified the prime factors through which the impacts can be evaluated by the succeeding steps;
    1. A gamut of variables related to transportation strategies has been identified from the review of the literature.
    2. Four factors have been initiated through which the assessment of community livability in KUA can be done correctly. For this step, CFA has been used.
- As the Second and conclusive finding, the article has forwarded the utility of OLR model to best understand the significance and the degree of impacts of initiated factors of community livability in KUA. The resident's desire for positive and favorable factors related to transportation options and behaviour have over-represented to define KUA more livable and habitable. The Standard of the neighbourhood is playing the utmost importance and dominant roles to assess community livability.
- Accordingly, the paper recommends further investigation of the good livability potentials within KUA. The aim is to advance the overall livability to improve the associated living standards for enhancing QoU.