CHATTOGRAM, BANGLADESH

URBAN TRANSPORT PROFILE

December 2024

Asian Transport Observatory

Summary

Chattogram, the second-largest city in Bangladesh, faces growing urban transport challenges due to its rapidly increasing population and constrained geographical landscape. With a population density of 6,000 persons per sqkm in 2020, up from 5,000 persons per sqkm in 2000, the city's transport infrastructure is under significant pressure. Despite a relatively low motorization rate of 25 vehicles per thousand residents, the city's limited road infrastructure contributes to congestion and inefficient traffic flow.

While Chattogram has a relatively high rate of public transport access, with 35% of the population having convenient access compared to the South Asia average of 19%, the actual usage of public transport remains low. Data from 2023 indicates that only 3% of trips are made using public transport, while private modes account for 56%. While data on modal split varies, it is evident that walking and cycling play a significant role in Chattogram's transport mix, with estimates ranging from 25% to 42%.

The mode share disparity highlights a potential disconnect between the availability and attractiveness of public transport and active mobility options. Despite carrying a majority of passengers, buses utilize only 17% of road space, while private cars and motorcycles, carrying only 13% of passengers, consume 29% of road space. The dominance of walking and cycling for 42% of trips underscores the need for improved pedestrian and cycling infrastructure to ensure safety and efficiency for these modes of transport. The city lacks dedicated infrastructure for these modes, with 0% of the population having access to protected bike lanes.

The reliance on private modes of transport contributes to Chattogram's environmental challenges. The city emits 587 thousand tonnes of CO2 annually, ranking second in Bangladesh and 39th among South Asian cities. Furthermore, the transport sector's PM 2.5 emissions have increased from 174 tonnes in 2000 to 486 tonnes in 2020, impacting air quality. With a high percentage of the population exposed to the risks of flooding and storm surges (6% and 96% respectively), Chattogram's urban transport system needs to consider climate resilience and disaster preparedness in its planning and development. Furthermore, Chattogram's geographical constraints, with the Bay of Bengal, the Karnaphuli River, and hilly terrain limiting its expansion, contribute to its increasing density. This makes efficient urban transport planning even more crucial. The city's vehicle ownership rate, currently at 25 vehicles per thousand residents, is expected to rise with increasing incomes. This projected growth in vehicle numbers underscores the urgency of implementing sustainable transport solutions to mitigate the negative impacts of traffic congestion and air pollution.

About the Urban Transport Profiles

The Asian Transport Observatory (ATO) Urban Transport Profiles provide a comprehensive snapshot of urban transport dynamics for 40 cities in the Asia-Pacific region. These profiles compile data from official city reports, relevant sources from reputable research organizations, multilateral development institutions, international experts' reports, secondary studies, and all other research endorsed or guided by city governments. Featured cities are benchmarked against other cities, where data is available, in the region, subregional averages — and in some cases, global cities — offering valuable comparative insights. In cases where data is not available, placeholders for the graphs are retained. Each profile also includes a curated list of relevant urban transport policies and documents, presenting a concise overview of the city's policy framework. By covering a wide range of transport-related indicators, these profiles serve as a critical resource for understanding and improving urban transport systems.

General

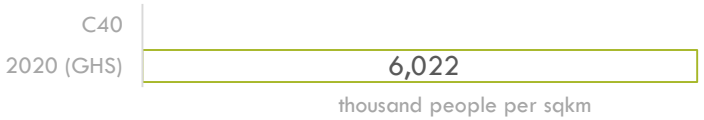
Population 4.8 million
(2020) (GHS)

Land area 799 sqkm
(2015) (GHS)

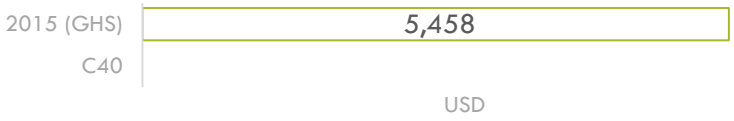
Population density 6 thousand per sqkm
(2020) (GHS)

GDP per capita 5 thousand USD
(2015) (GHS)

Population density

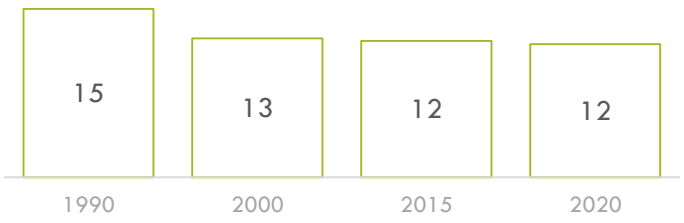


GDP per capita

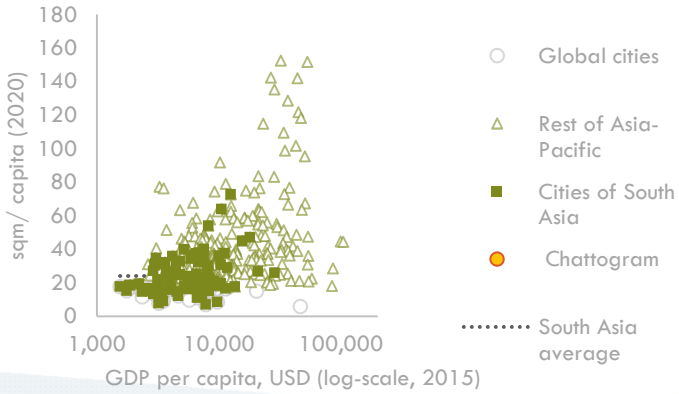


Urban Form and Structure

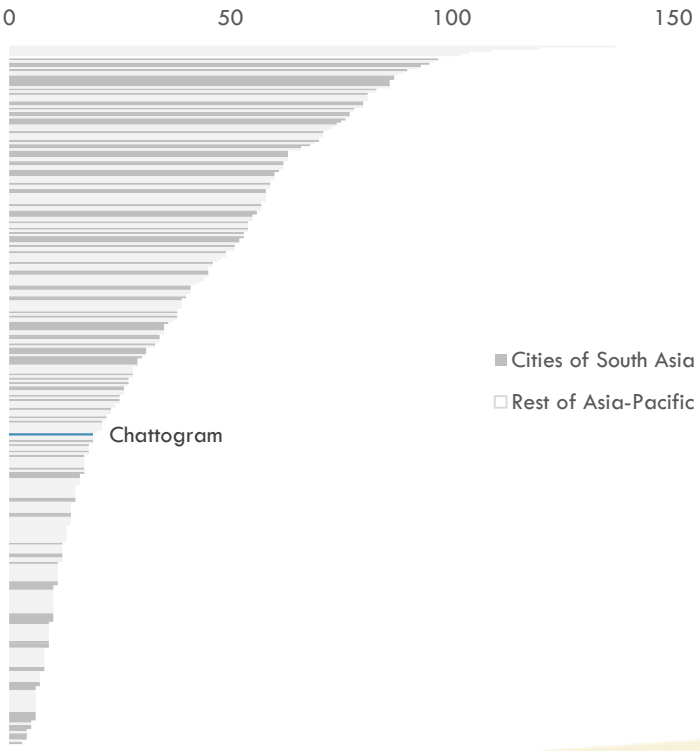
Builtup area per capita
sqm per capita (GHS)



Builtup area per capita
(GHS)

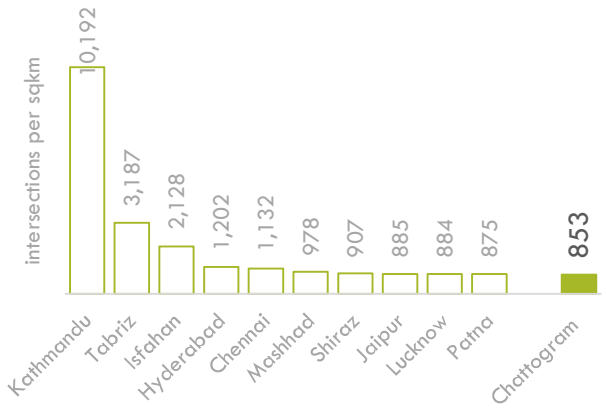


Mean block density
blocks per sqkm (2020) (ITDP)



Intersection density

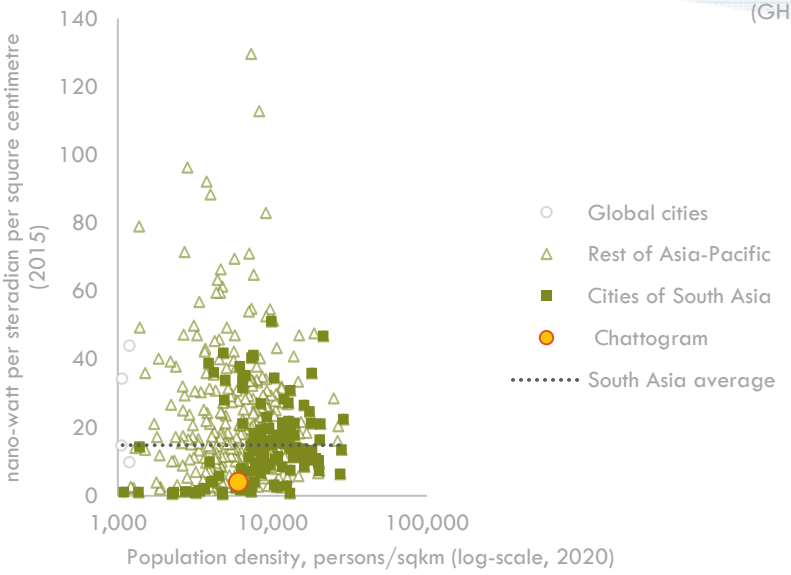
(Oke et.al. (2019) (OSM))



(a) Night time light intensity studies illustrate urban forms and patterns by mapping human activity, infrastructure, and connectivity, offering insights into urban sprawl, density variations, and transport network

Night time light intensity (a)

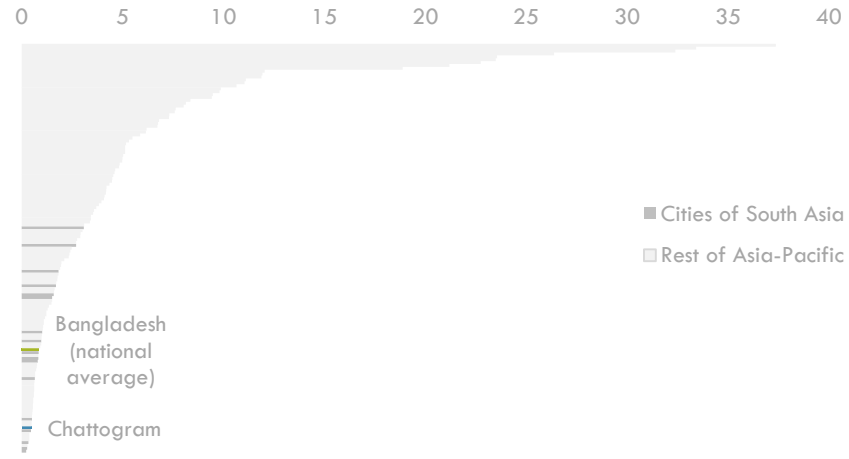
(GHS)



Urban Transport Infrastructure

Road availability

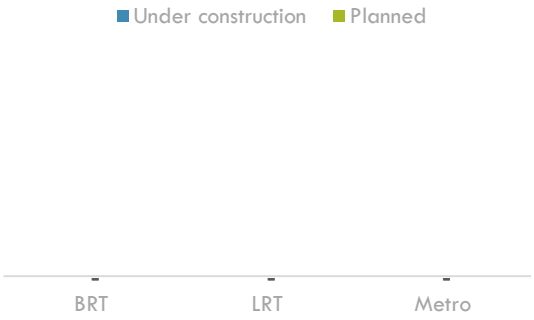
kilometers per thousand population (2019) (Oke et.al. (OSM) and GHS)



Road kilometers n.d.

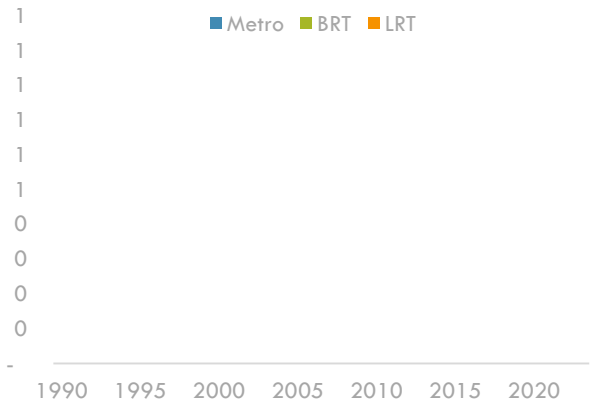
Rapid transit infrastructure

(2024) (TE)



Rapid transit infrastructure

kilometers (ITDP, Primary data)



BRT none

LRT none

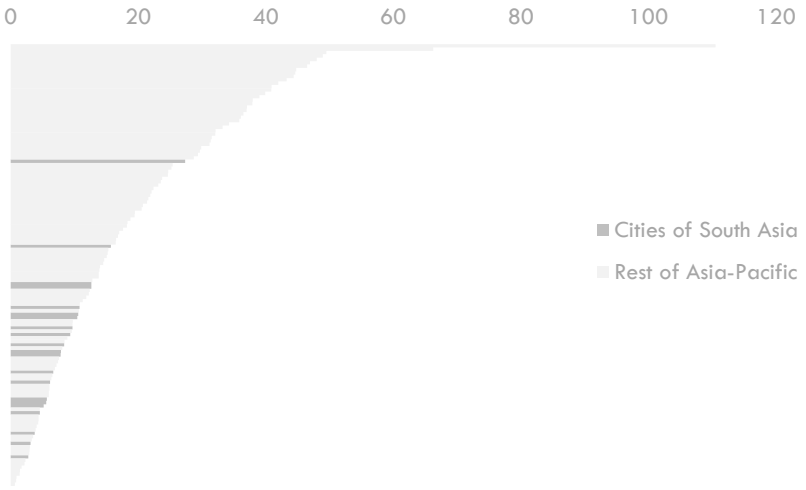
Metro none

Total none

(2023) (ITDP)

Rapid transit availability

kilometers per million urban population (2021) (ITDP, Primary data)

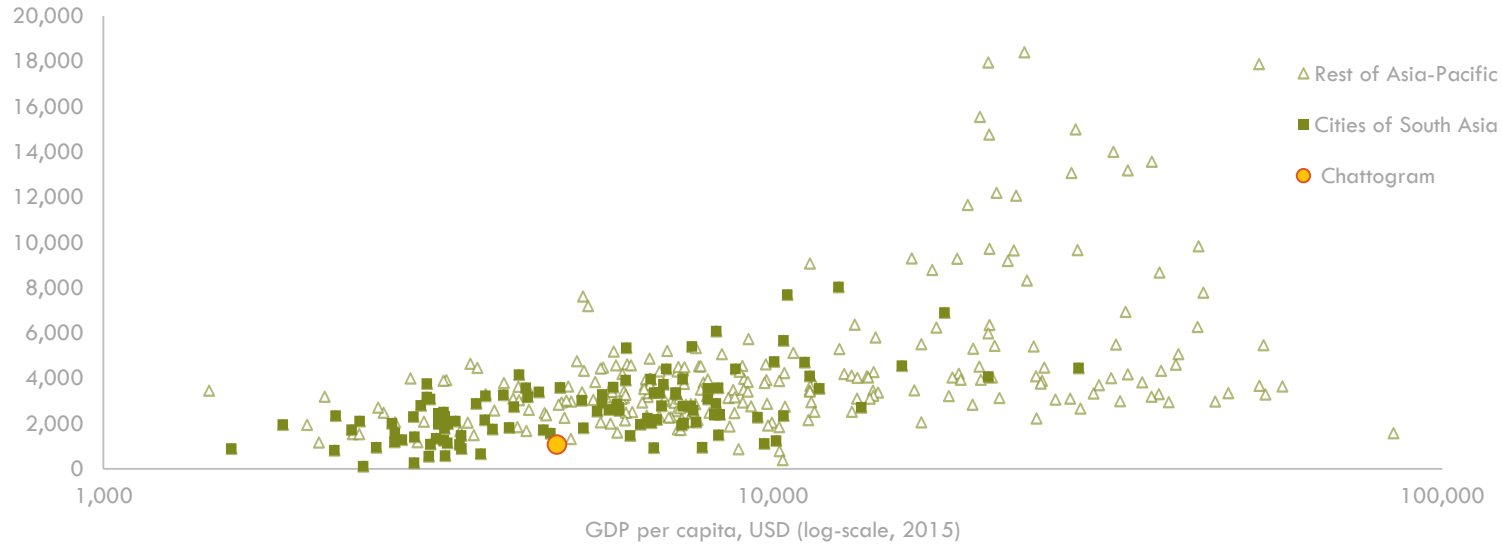


Approximate transit coverage n.d.

Transport Activity and Services

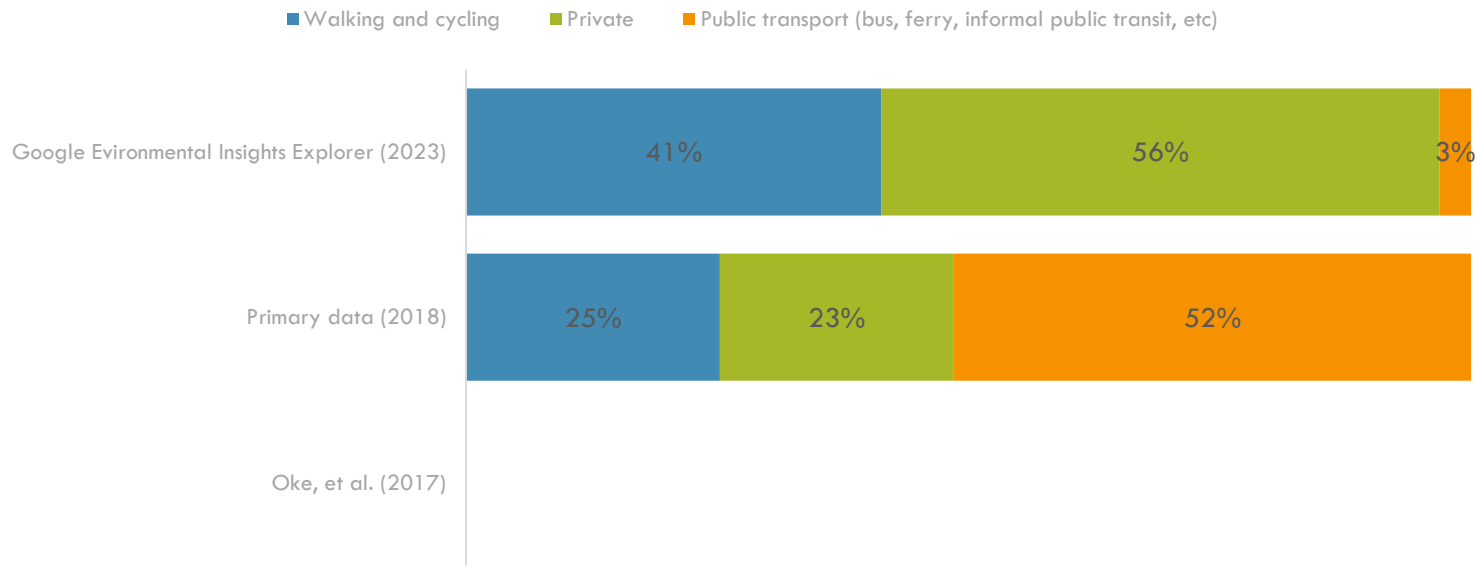
VKT per capita

Vehicle-kilometer per capita (2022) (ClimateTrace)



Trips Mode share (b)

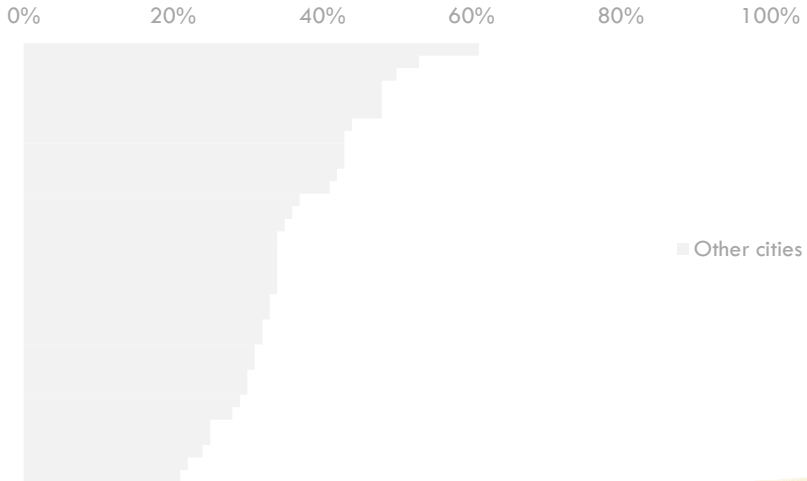
Share, %



(b) The methodologies used for mode share assessments vary across different studies, making direct comparison of results inadvisable. Specifically, the Google Environmental Insights Explorer derives its assessments from mobile data analysis, while primary data studies typically rely on survey-based approaches. In contrast, the study by Oke et al. utilizes a combination of secondary data sources.

Congestion level

Percent increased travel time vs. uncongested conditions (2021) (TomTom)

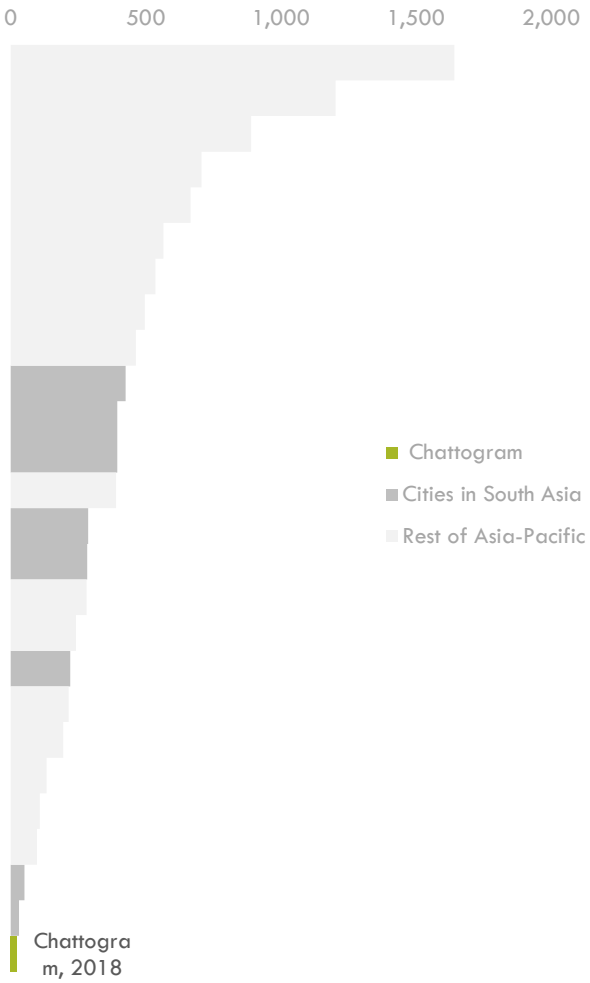


Metro ridership n.d.

Congestion ranking n.d.

Vehicle motorization

Vehicles per thousand population (Primary data)



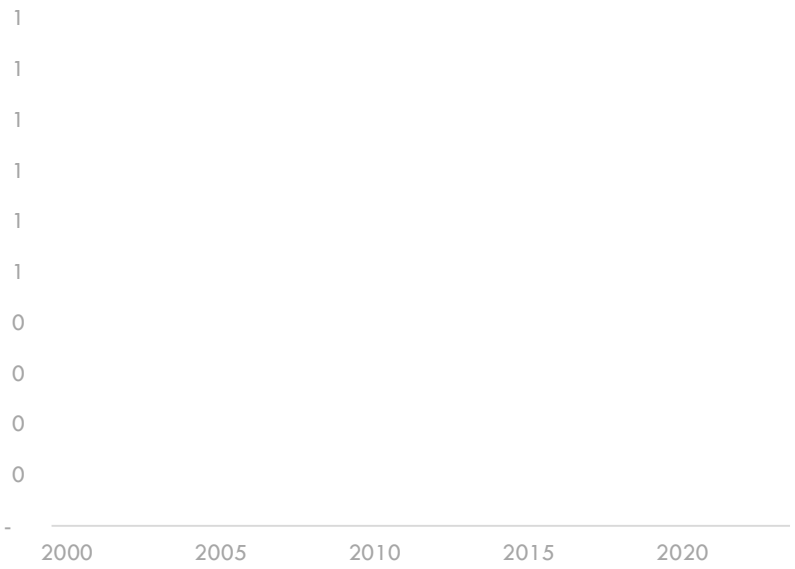
Vehicles registered (c)

Thousand vehicles (Primary data)

Vehicles considered: Car, 2W, Bus, Freight vehicle

Bus fleet (operational)

Bus (and other public transport) fleet (Primary data)

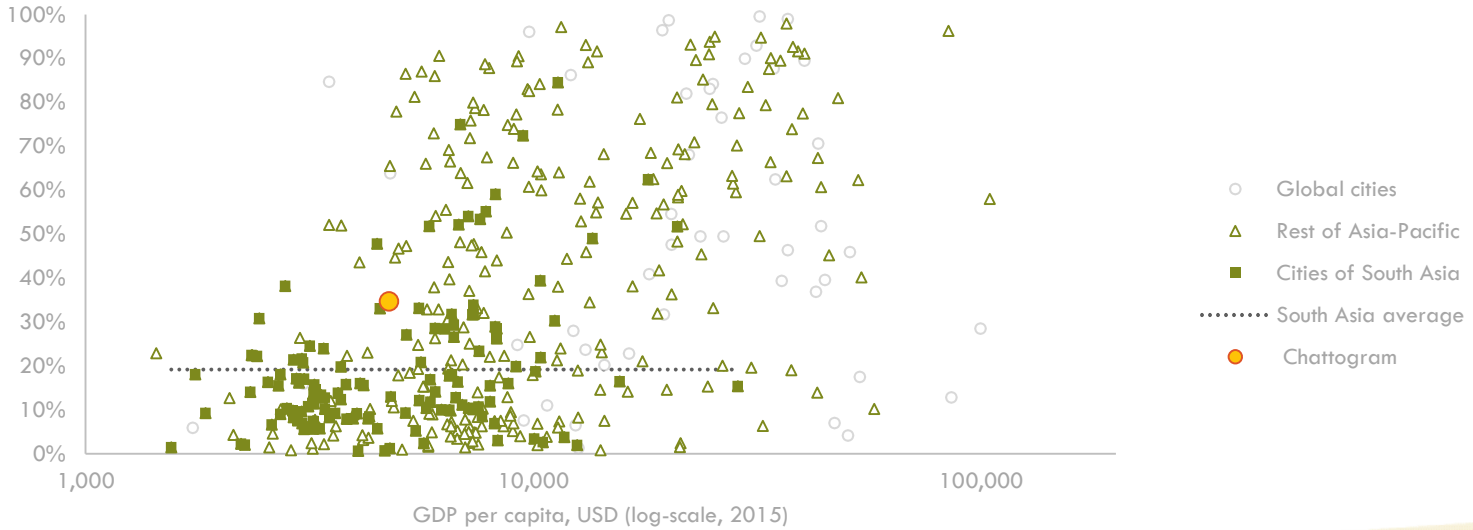


(c) It should be noted that, in most cases, scrapped vehicles are not de-registered, which may result in slightly inflated numbers.

Urban Access

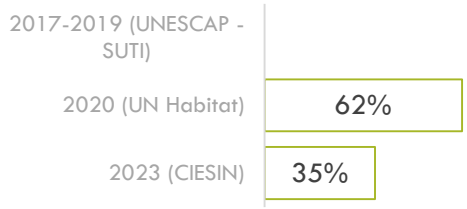
Access to urban public transport

Share of population with convenient access to public transport (2023) (CIESIN)



Access to urban public transport (d) - by source

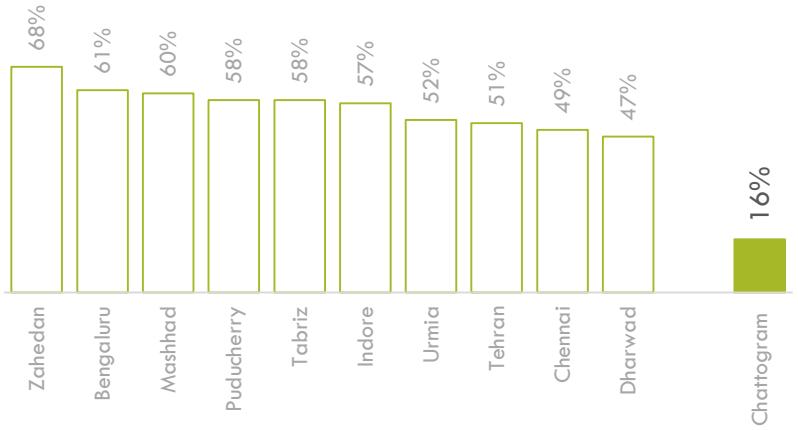
Share of population with convenient access to public transport



(d) "Access to urban public transport" is computed as share of population who live within a walking distance (along a street network) of 500m to a low capacity public transport system (eg bus, tram) and 1000m to a high capacity public transport system (eg trains, ferries, etc). Only public transport stops which are mapped are included in the analysis which may include both formal and informal stops. Many cities (mostly in the developing countries) have informal public transport systems which are not fully mapped - meaning that they may record higher levels of access to public transport than reported in this dataset.

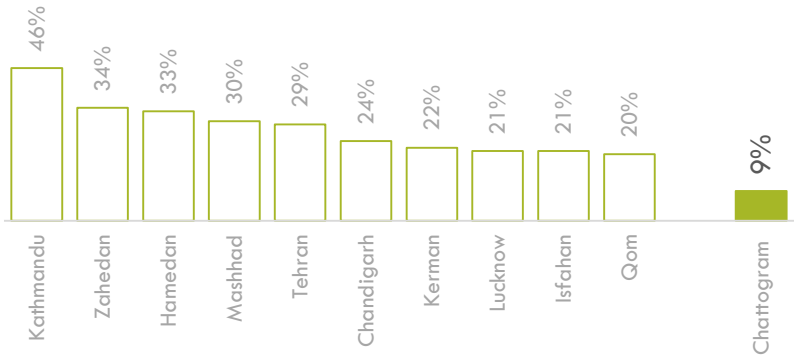
People near services (both healthcare and schools) (e)

(Share of population) vs. highest 10 cities in South Asia (2020) (ITDP)



People near car-free places (f)

(Share of population) vs. highest 10 cities in South Asia (2020) (ITDP)

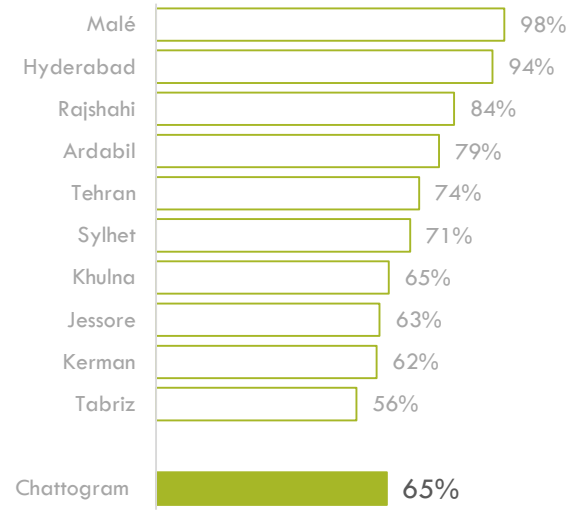


(e) People Near Services measures the percentage of the city's population living within a 1km walk of both healthcare and education. These services are especially vital for babies, toddlers, and their caregivers, who should be able to reach them on foot.

(f) Percentage of the city's population that lives within 100m of a car-free place. These car-free places include pedestrian-only alleyways, nature trails, playgrounds, pedestrianized squares, and anywhere else that is not used by cars and trucks (except, in some cases, emergency vehicles).

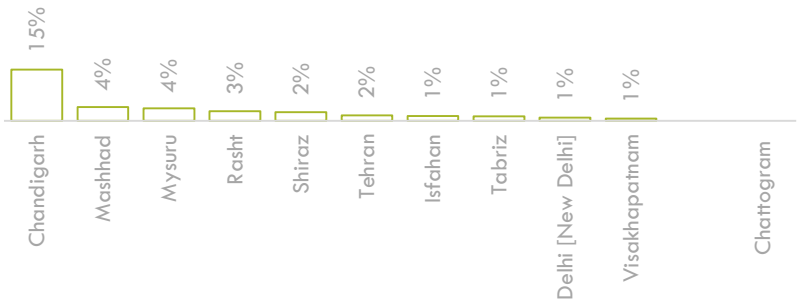
People near open public space

(Share of population) vs. highest 10 cities in South Asia (2020) (UN Habitat)



People near protected bikelanes

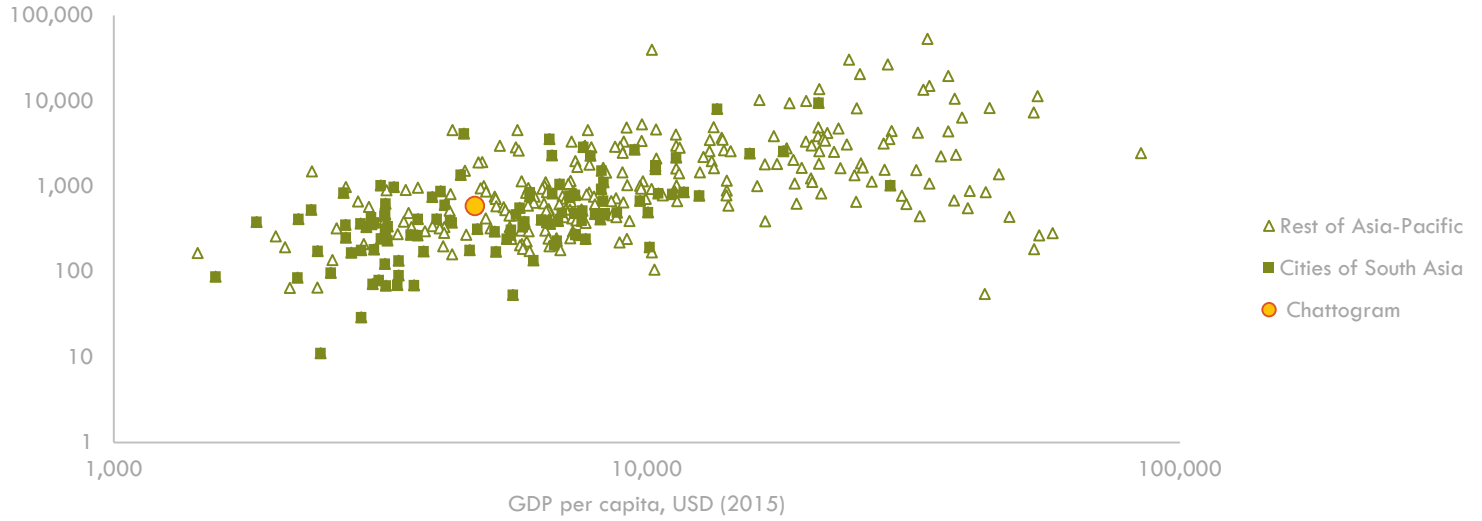
(Share of population) vs. highest 10 cities in South Asia (2020) (ITDP)



Transport externalities

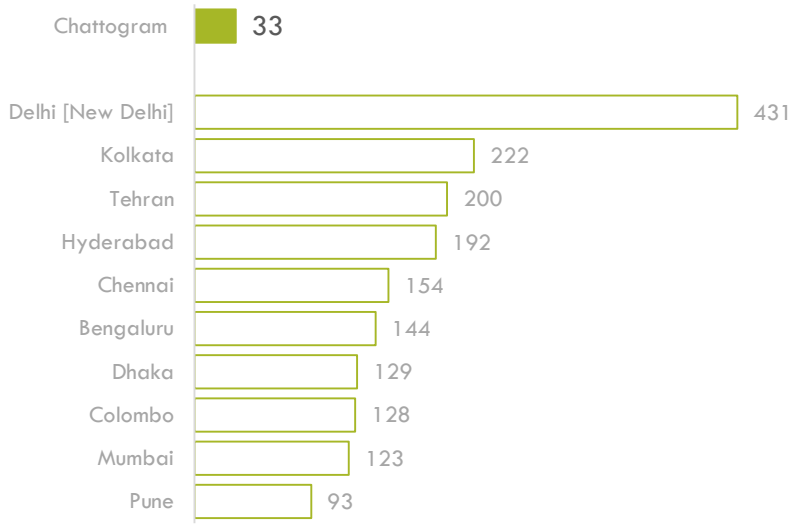
Road transport - CO2 emissions

Thousand tonnes (2022) (ClimateTrace)



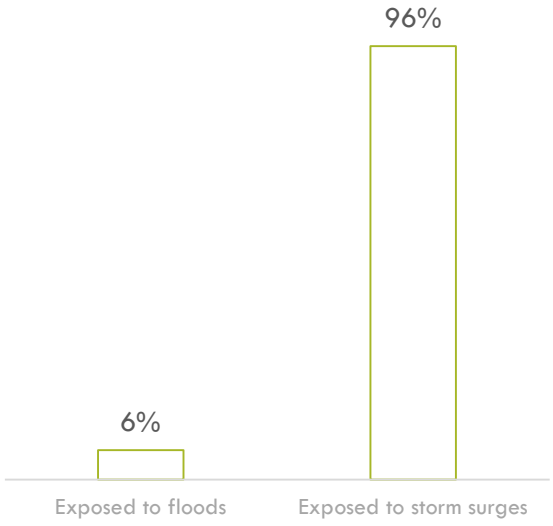
Road transport - N2O emissions

Tonnes (2022) vs. highest 10 cities in South Asia (ClimateTrace)



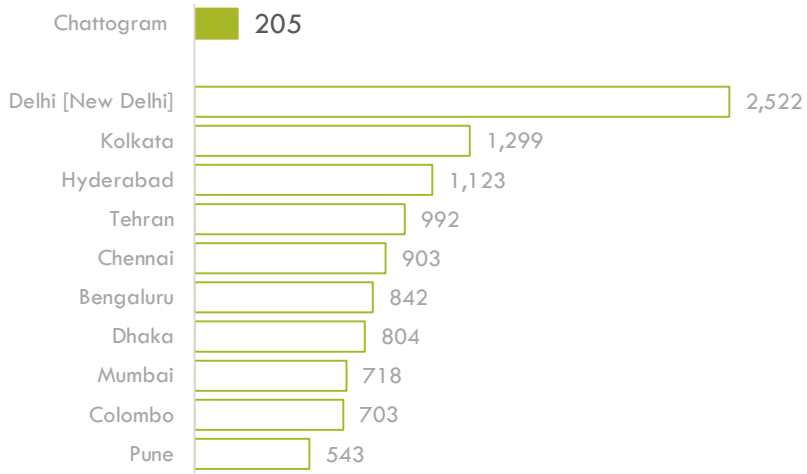
Population exposure to disasters

Share of population (2015) (GHS)



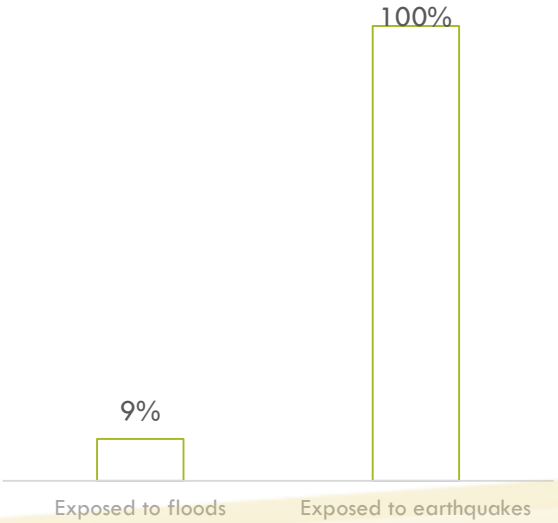
Road transport - CH4 emissions

Tonnes (2022) vs. highest 10 cities in South Asia (ClimateTrace)



Urban built-up area exposure to disasters

Share of urban area (2020) (GHS)

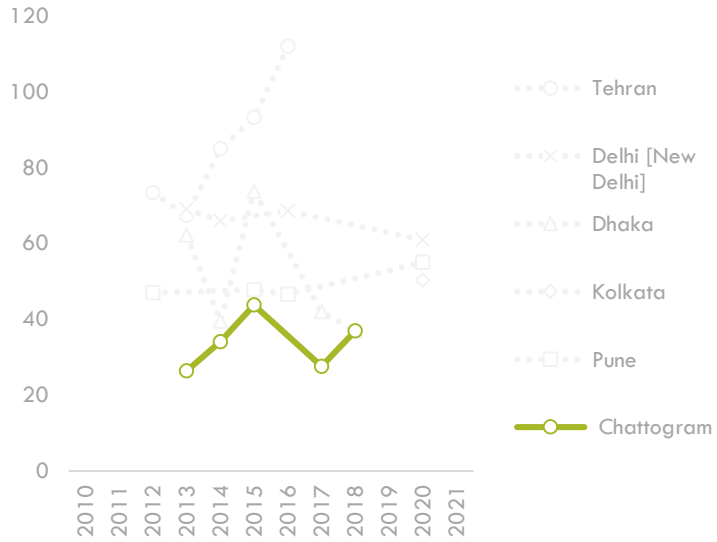


Transport PM 2.5 emissions

(GHS)

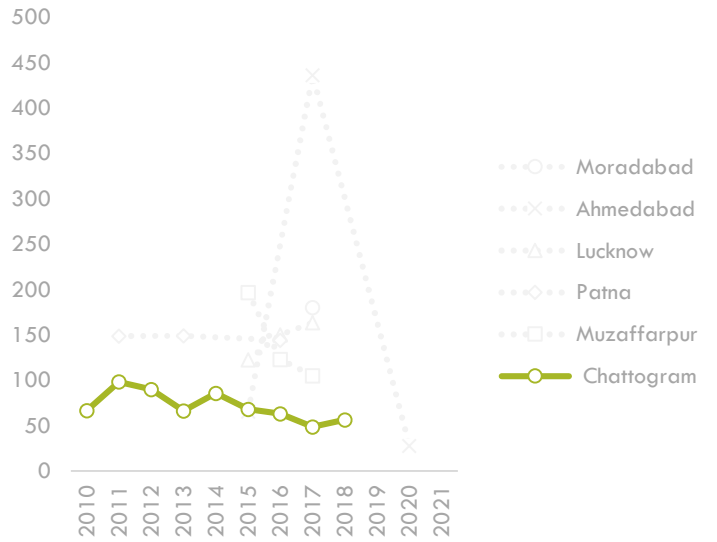
NO2 concentration

ug/m3 (vs. highest 5 cities in South Asia) (WHO)



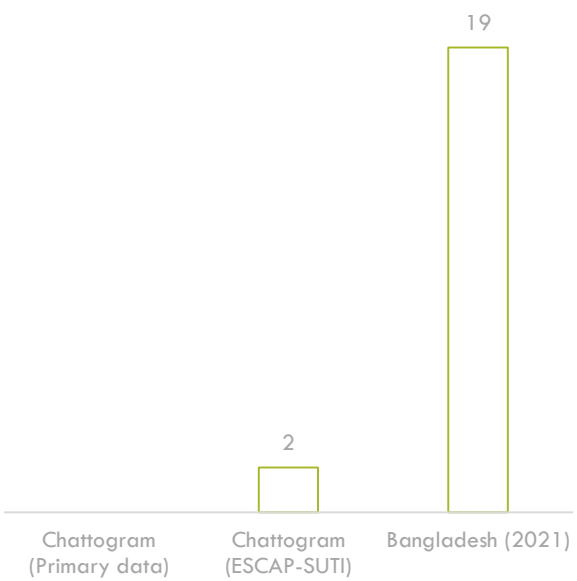
PM 2.5 concentration

ug/m3 (vs. highest 5 cities in South Asia) (WHO)



Road crash fatality rate

Deaths per 100,000 population



Road crash fatality rate

Deaths per 100,000 population (Primary data)

Transport related Indices

Container port performance index

Index is resultant of the sum of a weighted average of indices for each of the five vessel sizes: feeders (<1,500 TEUs), intra-regional (1,500–5,000 TEUs), intermediate (5,000–8,500 TEUs), neo-Panamax (8,500–13,500 TEUs), and ultra-large container carriers (>13,500 TEU)

Chattogram 337th out of 370 cities

(2023) (WB)

Cities in Motion index ranking

The Cities in Motion Index (CIMI) is a composite indicator evaluating cities across nine dimensions—governance, urban planning, technology, environment, international profile, social cohesion, human capital, mobility, and economy—focusing on sustainability and quality of life. It uses a weighted aggregation model to combine sub-indicators for a holistic assessment of urban performance

Chattogram n.d.

Critical Infrastructures Spatial Index for the transportation sector

CISI is an index that spatially explicit indicates the coverage or lack of transport infrastructure. The CISI is expressed in a dimensionless value ranging between 0 (no CI intensity) and 1 (highest CI intensity). The index aggregates high resolution geospatial information on multiple CI assets per CI system

Chattogram 0.02/1.00

(2020) (GHS)

SUTI Geometric Mean

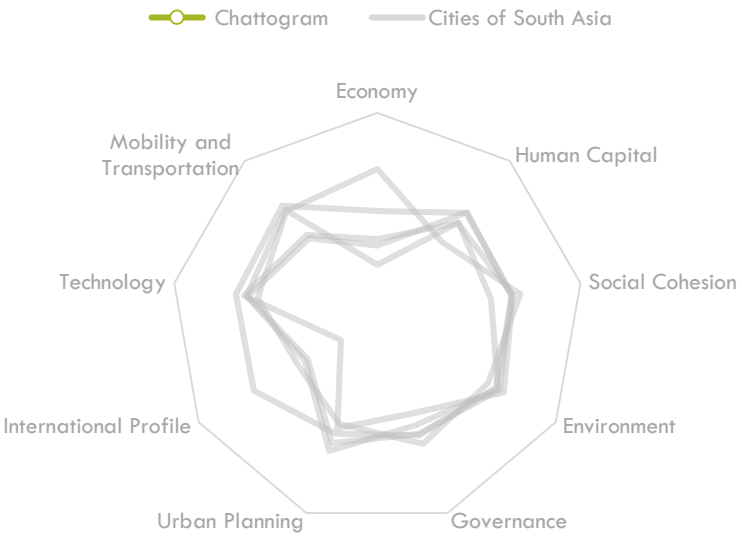
The geometric mean in the Sustainable Urban Transport Index (SUTI) by UNESCAP is a mathematical approach to aggregate scores across its 10 sub-indicators, including public transport ridership, safety, affordability, air quality, and access to transport

Chattogram 32 score out of 100

(2024) (UNESCAP - SUTI)

Cities in Motion index ranking by subcomponent

Ranking (vs. other Cities of South Asia) (2024) (IESE)



Transport relevant policy documents

Year published	Document name
n.d.	Chattogram Metropolitan Master Plan 2041
n.d.	Strategic Master Plan for Chittagong Port

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