



DELHI [NEW DELHI], INDIA

URBAN TRANSPORT PROFILE

December 2024

Summary

New Delhi, the capital city of India and home to 29.4 million people in 2020, faces the complex challenges of managing urban transportation for a rapidly growing population. Between 2000 and 2020, the city's population density increased from 9,000 to 12,000 persons per sq km, with a rise in GDP per capita from \$7,000 to \$14,000. Despite having a lower road infrastructure density compared to the national average, New Delhi boasts an extensive rapid transit system, with 342 kilometers of metro lines in 2023. This network, significantly larger than other Indian cities, facilitates an average of 46 metro trips per capita annually.

While New Delhi's metro system is well-developed, private vehicle usage remains high, accounting for 72% of trips according to the Google Environmental Explorer (2023). This contributes to congestion and air pollution, with PM 2.5 levels significantly exceeding World Health Organization guidelines. However, the city is actively pursuing sustainable transport solutions. With 49% of the population having convenient access to public transport, New Delhi is above the South Asia average. Furthermore, the city is a global leader in electric bus adoption, with 22% of its bus fleet now electric. This commitment to innovation and sustainable practices positions New Delhi as a key player in shaping India's urban transport future.

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.

Disclaimer

The Asian Transport Observatory (ATO) project collects, collates, and organizes data from publicly available official, as well as reputable and peer-reviewed secondary sources, which may contain incomplete or inconsistent data. It is important to note that the ATO does not generate data. Moreover, while the ATO carries out quality control and assurance of whether the data are truthfully reflected in the ATO, the ATO does not make any warranties or representations as to the appropriateness, quality, accuracy, or completeness of the data in the ATO databases, and in the knowledge products that are produced from such. Users are encouraged to scrutinize, verify, interpret, and judge the data before utilizing them.

General

Population 29.4 million
(2020) (GHS)

Population density

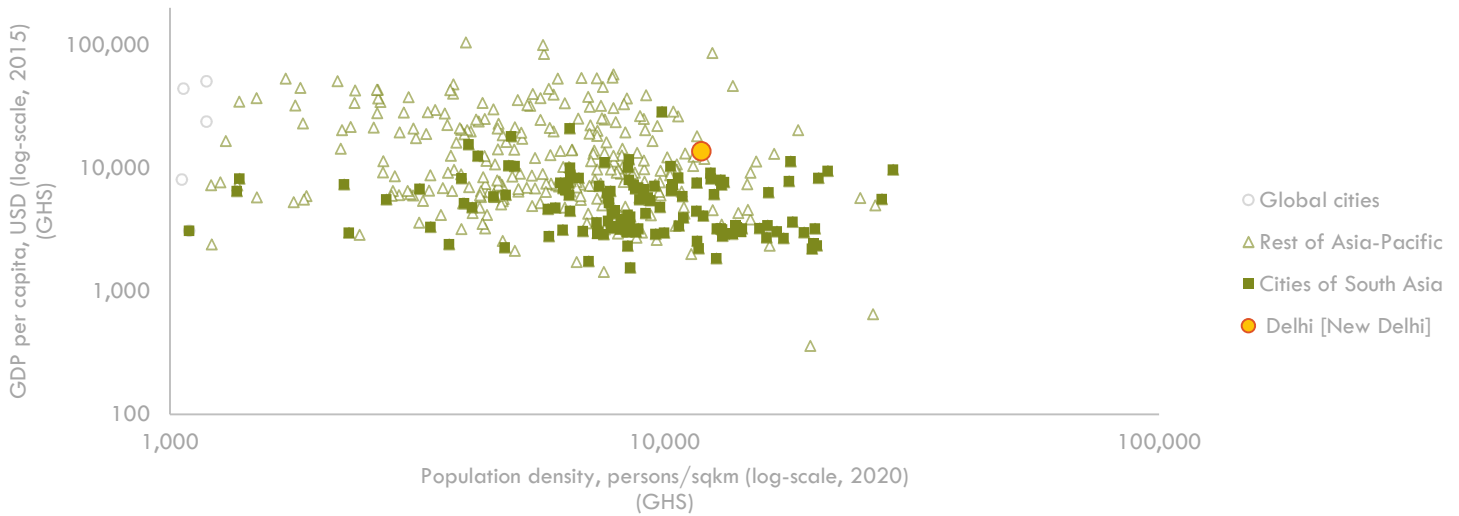
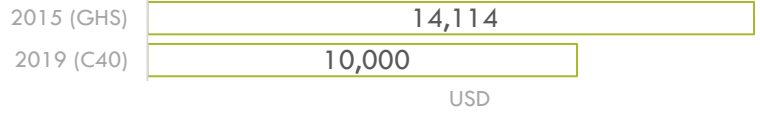
Land area 1,483 sqkm
(2017) (C40)



Population density 12 thousand per sqkm
(2020) (GHS)

GDP per capita

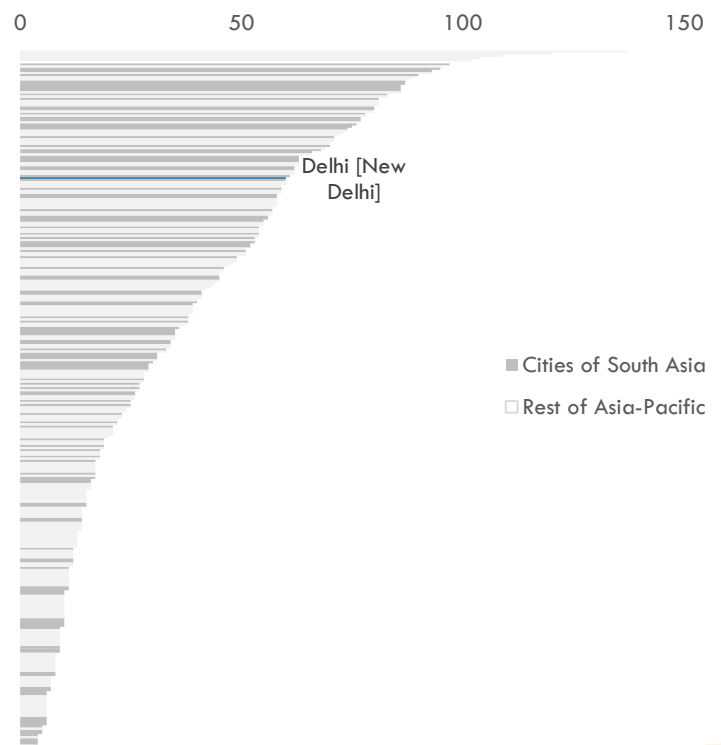
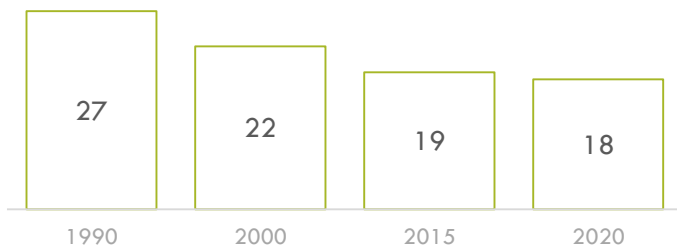
GDP per capita 10 thousand USD
(2019) (C40)



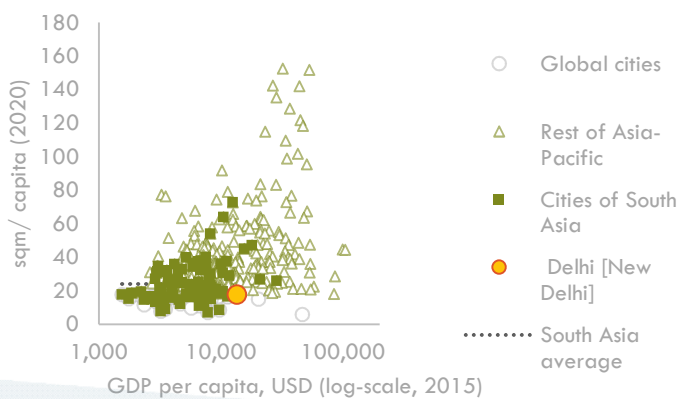
Urban Form and Structure

Builtup area per capita
sqm per capita (GHS)

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

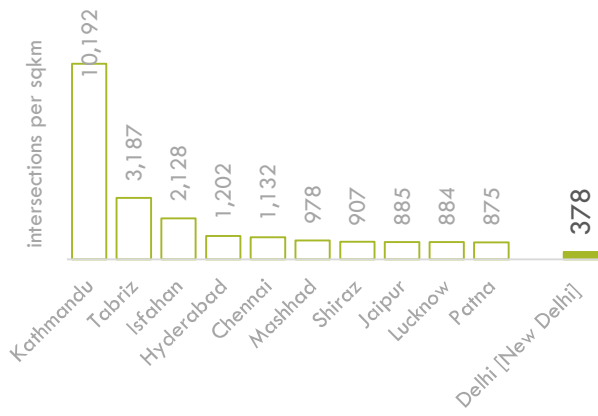


Builtup area per capita
(GHS)



Intersection density

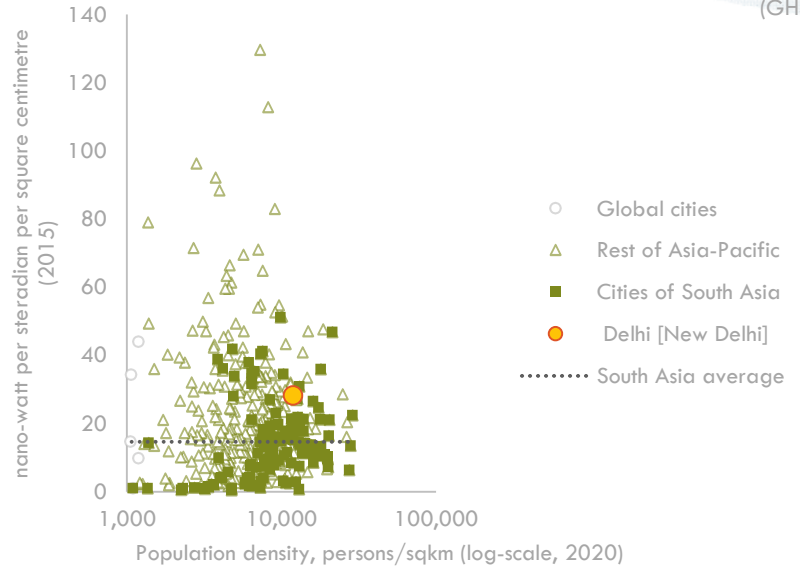
(Oke et.al. (2019) (OSM))



(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)

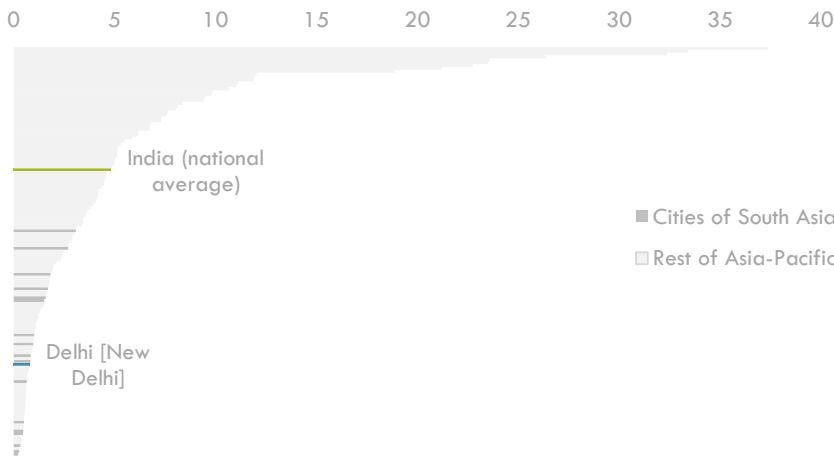
(GHS)



Urban Transport Infrastructure

Road availability

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



Road kilometers 32,663 kilometers

(2010) (Primary data)

Rapid transit infrastructure

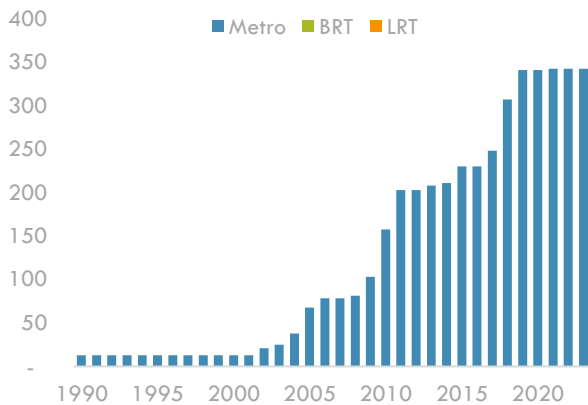
(2024) (TE)

■ Under construction ■ Planned



Rapid transit infrastructure

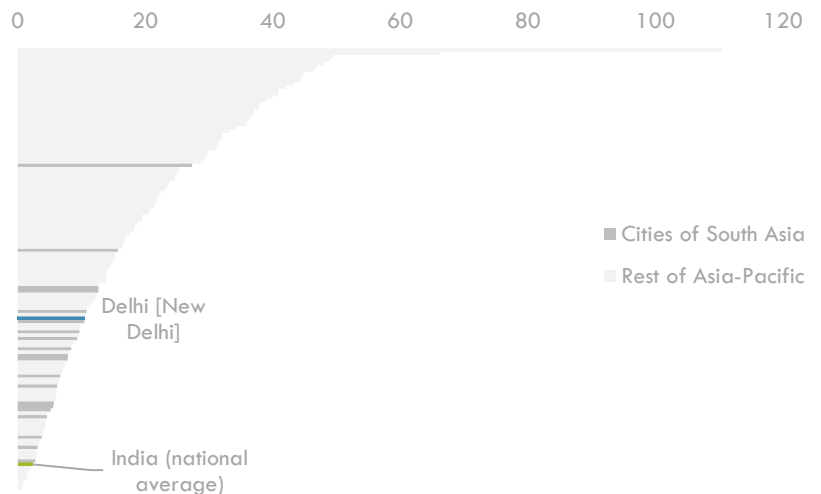
kilometers (ITDP, Primary data)



BRT none
LRT none
Metro 342 kilometers
Total 342 kilometers
 (2023) (ITDP)

Rapid transit availability

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



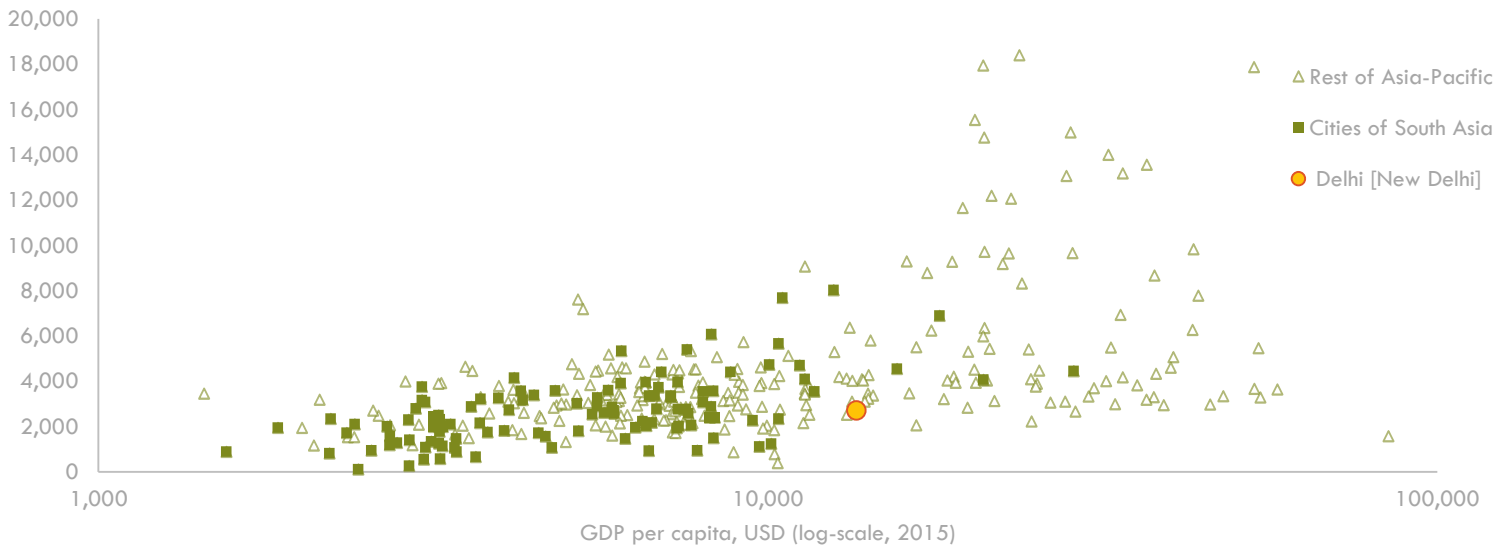
Approximate transit coverage 19% of land area

(2015) (ITDP and GHS)

Transport Activity and Services

VKT per capita

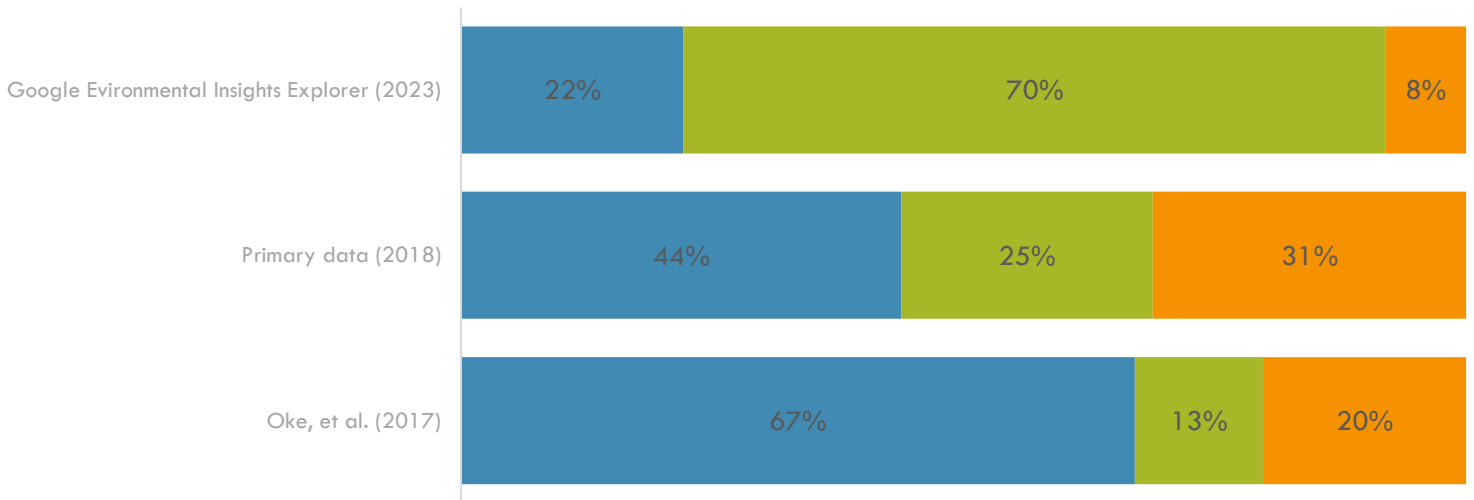
Vehicle-kilometer per capita (2022) (ClimateTrace)



Trips Mode share (b)

Share, %

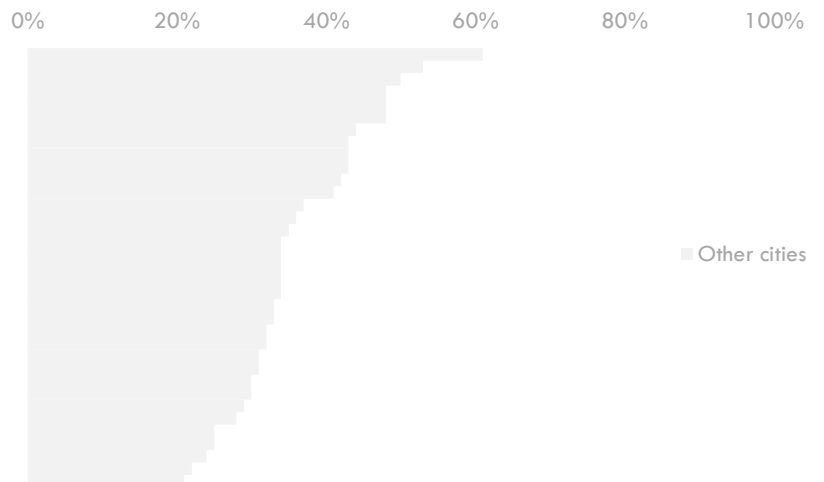
■ Walking and cycling ■ Private ■ Public transport (bus, ferry, informal public transit, etc)



(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)

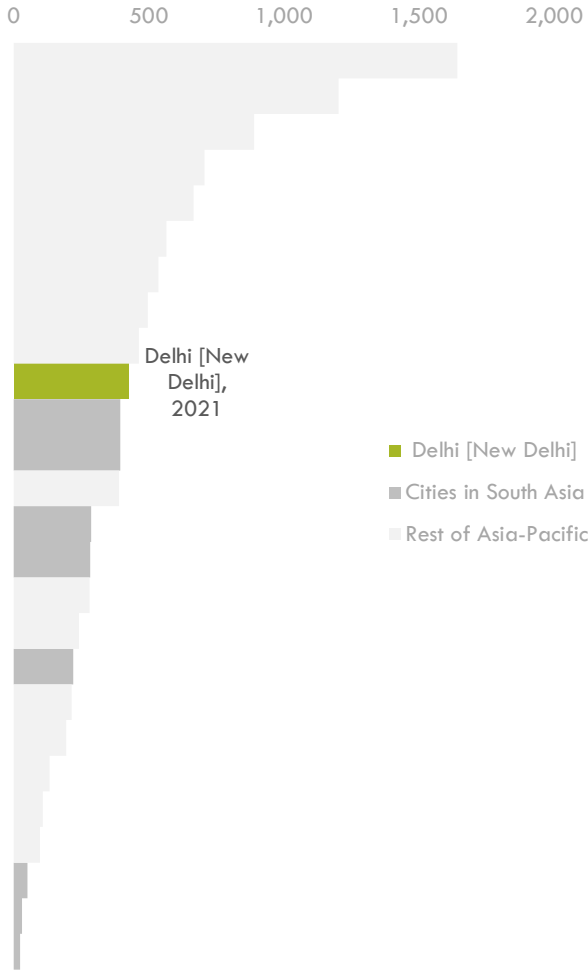


Metro ridership 46.0 annual trips per capita
(2022) UITP-GUMI

Congestion ranking 20th out of 387 cities

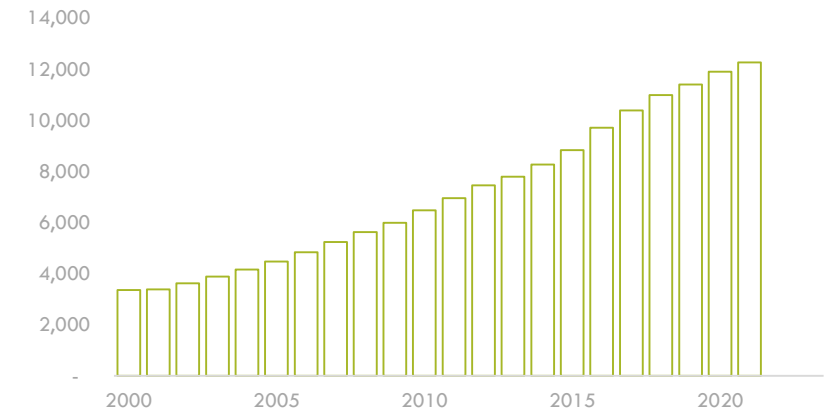
Vehicle motorization

Vehicles per thousand population (Primary data)



Vehicles registered (c)

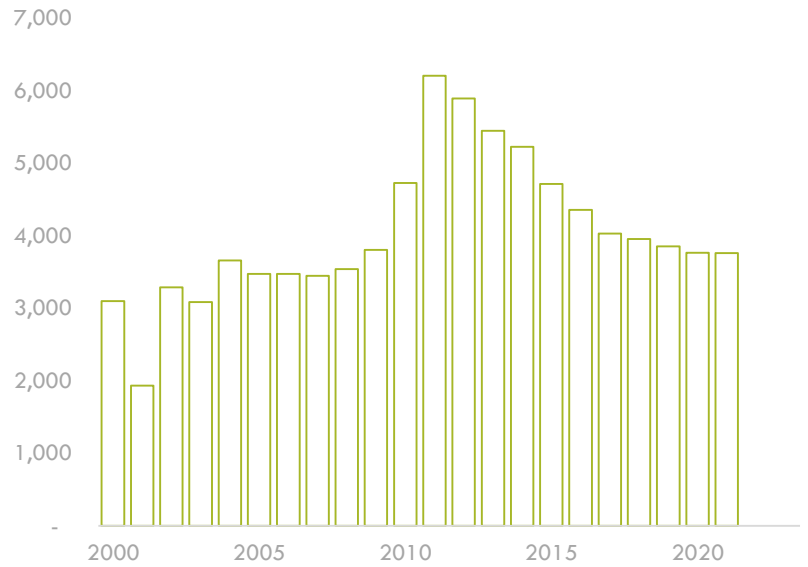
Thousand vehicles (Primary data)



Vehicles considered: Car, Taxi, 2W, Auto rickshaws, Bus, Others

Bus fleet (operational)

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

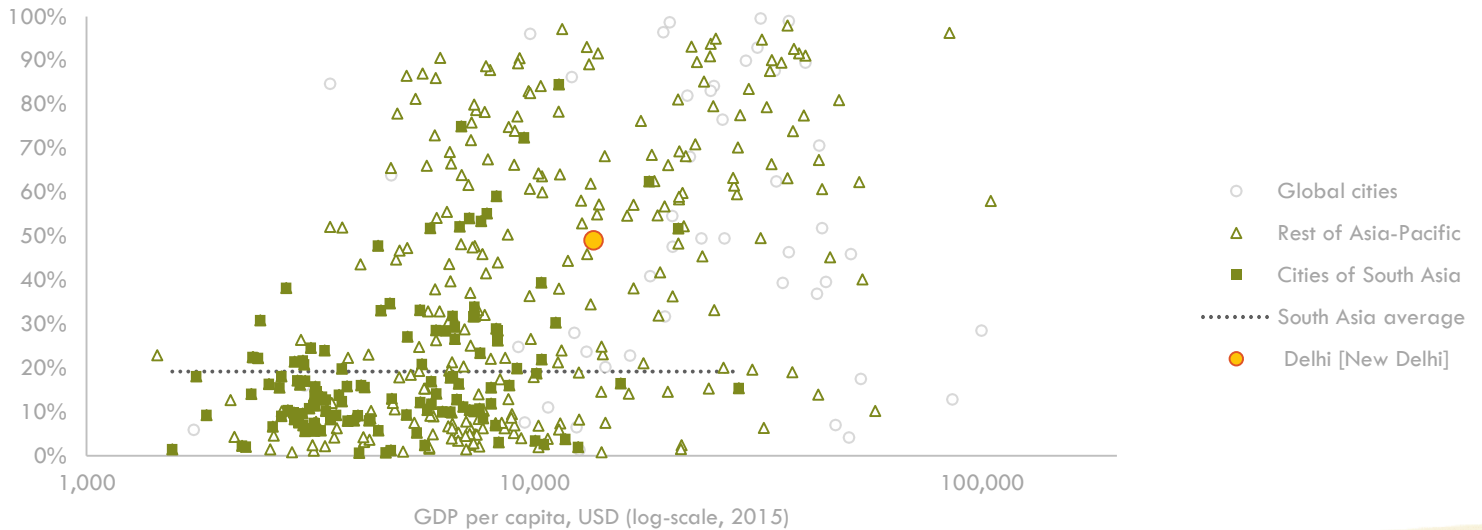


(c) It should be noted that, in most cases, scrapped vehicles are not de-registered, which may result in slightly inflated numbers.

Urban Access

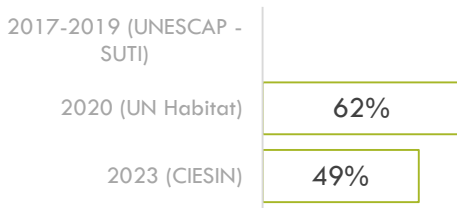
Access to urban public transport

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



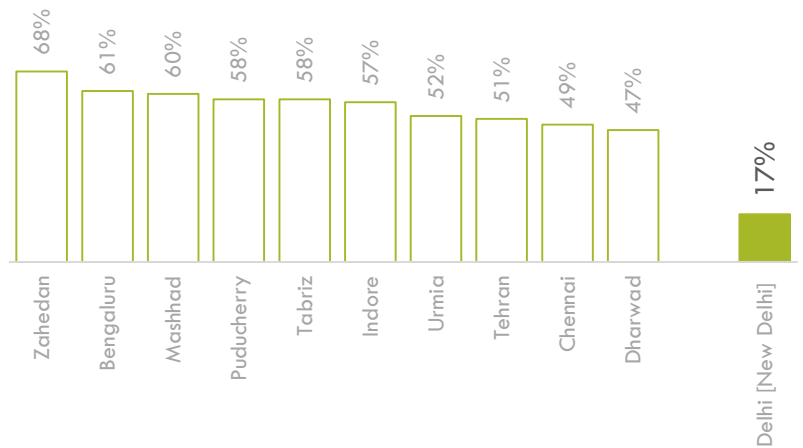
(d) "Access to urban public transport" is computed as share of population who live within a walking distance (along a street network) of 500m to a low capacity public transport system (eg bus, tram) and 1000m to a high capacity public transport system (eg trains, ferries, etc). Only public transport 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.

(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).

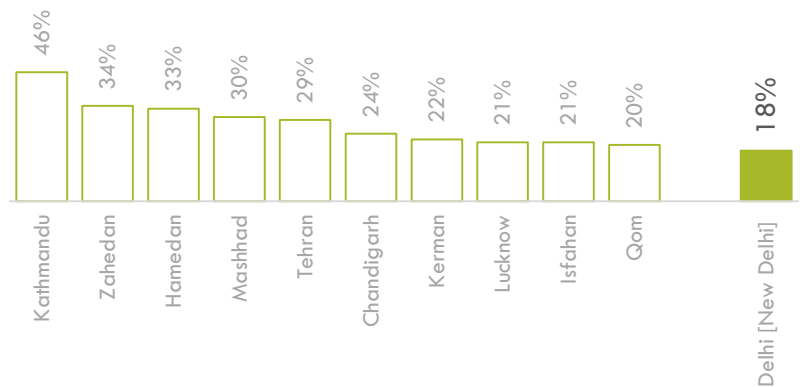
People near services (both healthcare and schools) (e)

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



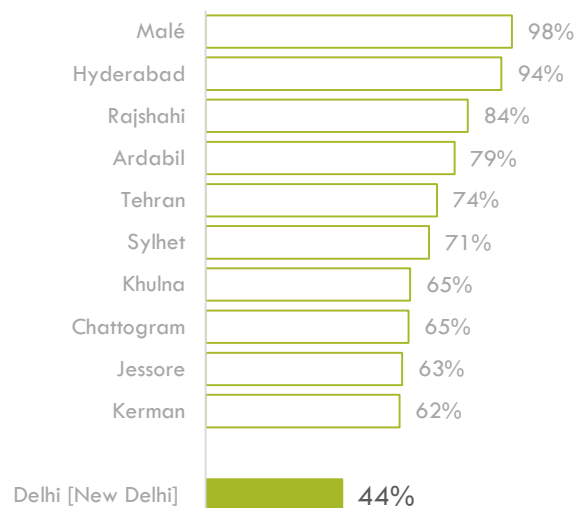
People near car-free places (f)

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



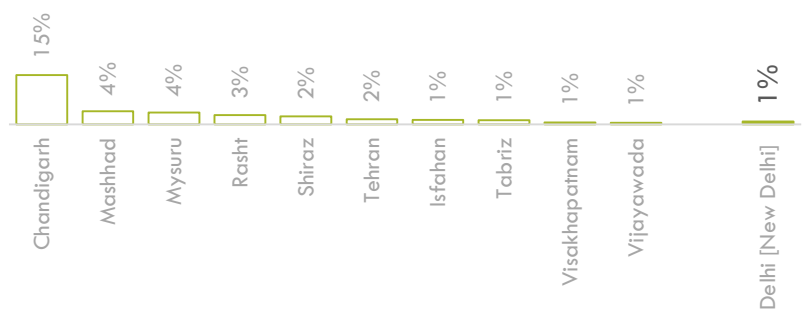
People near open public space

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



People near protected bikelanes

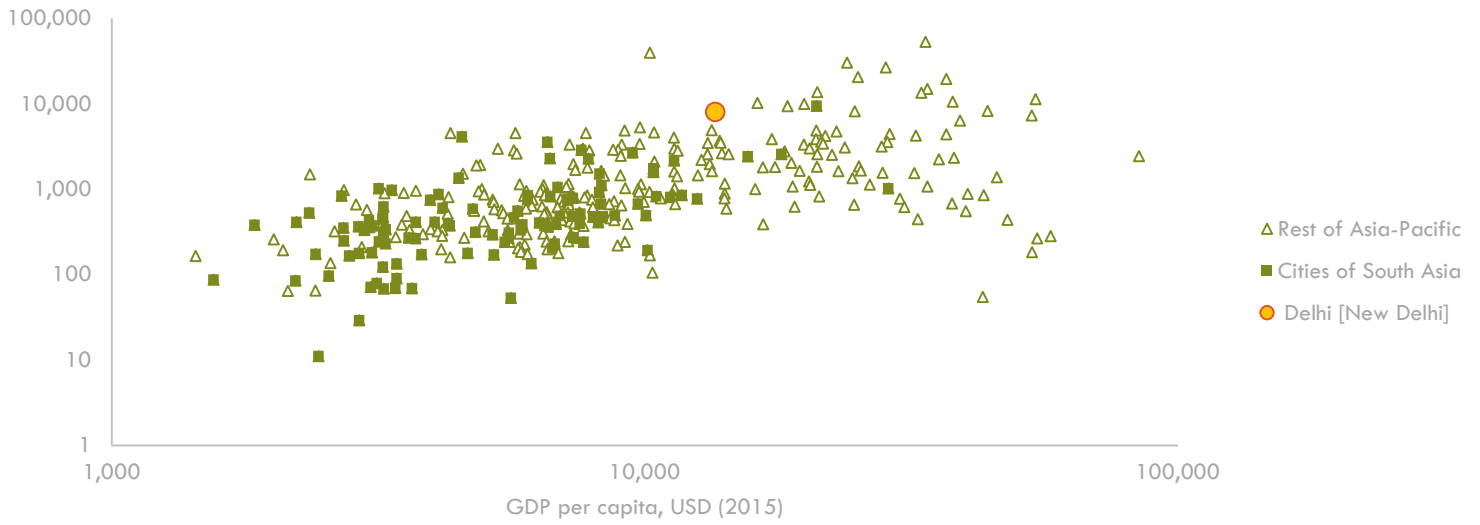
(Share of population) vs. highest 10 cities in South Asia (2020) (ITDP)



Transport externalities

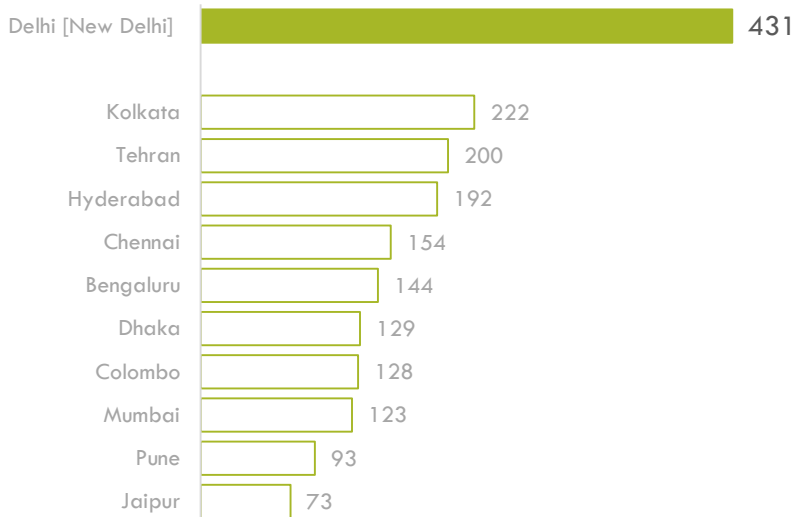
Road transport - CO2 emissions

Thousand tonnes (2022) (ClimateTrace)



Road transport - N2O emissions

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



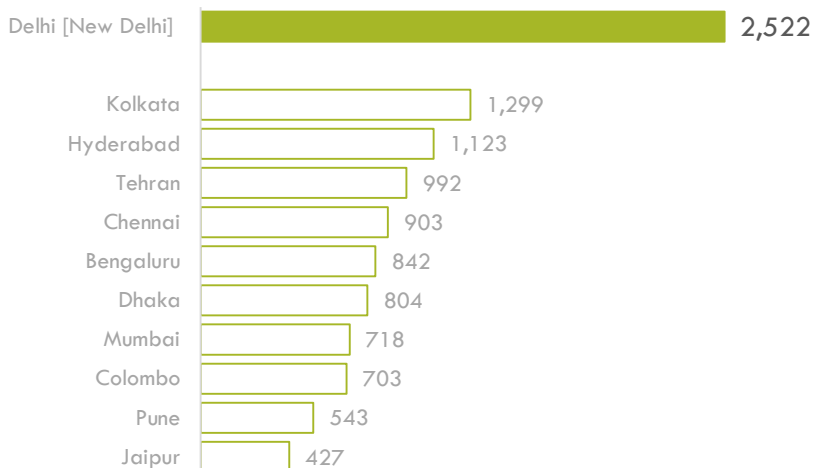
Population exposure to disasters

Share of population (2015) (GHS)



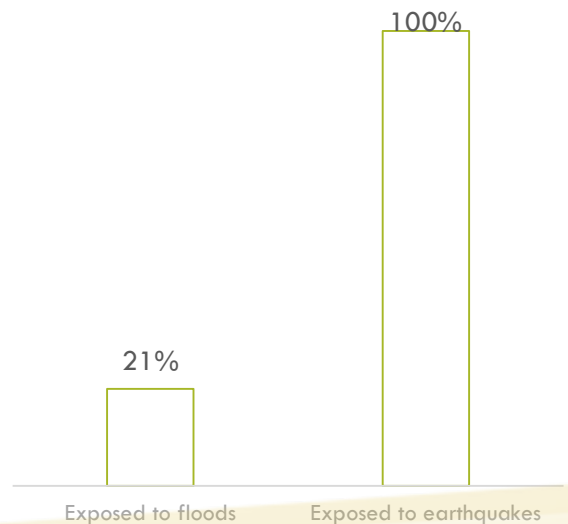
Road transport - CH4 emissions

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



Urban built-up area exposure to disasters

Share of urban area (2020) (GHS)



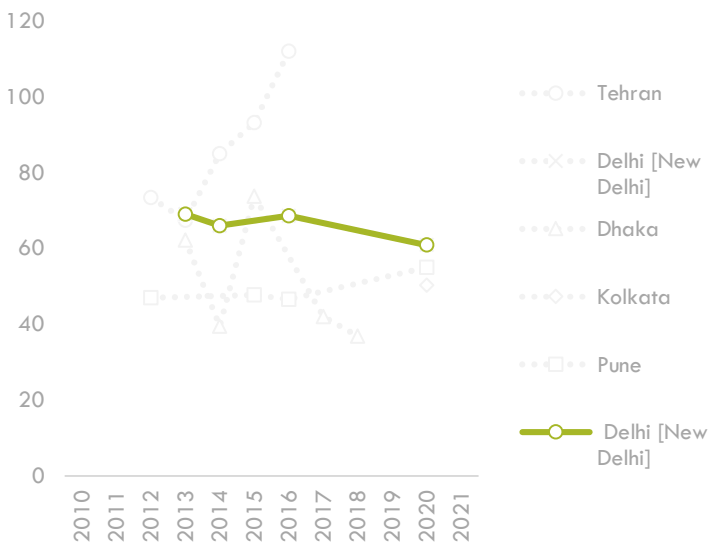
Transport PM 2.5 emissions

(GHS)



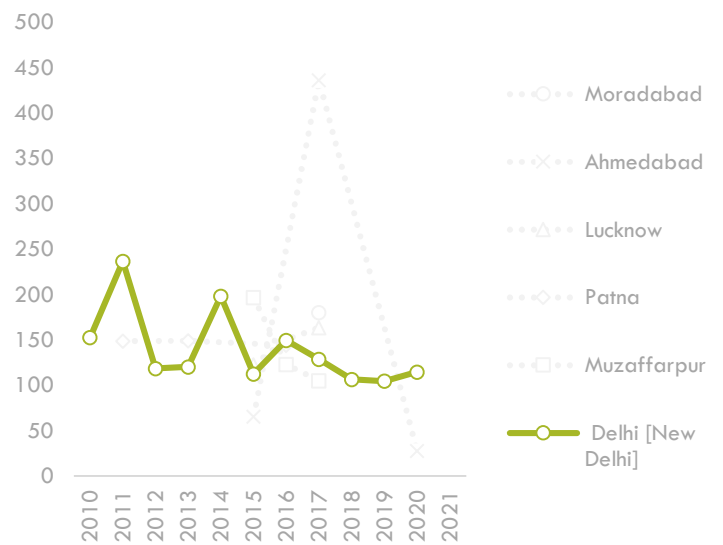
NO2 concentration

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



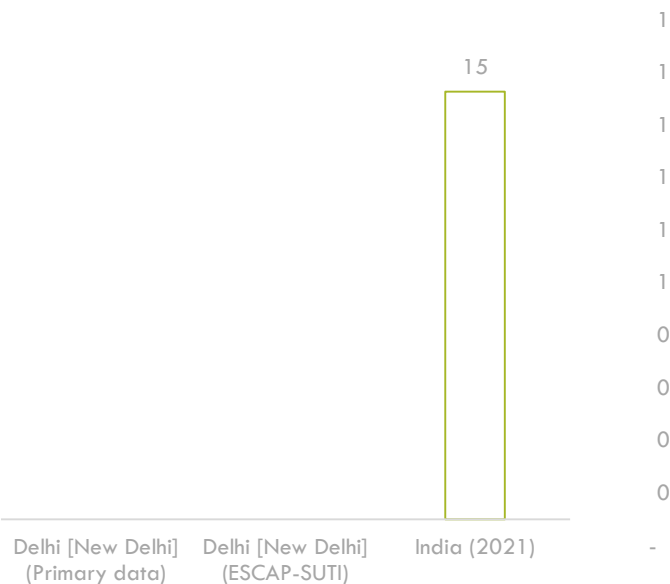
PM 2.5 concentration

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



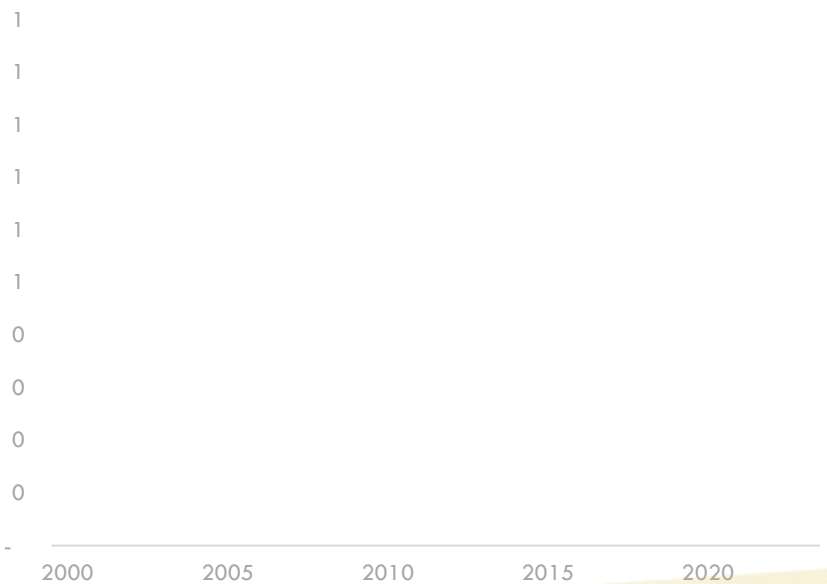
Road crash fatality rate

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)

Delhi [New Delhi] 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

Delhi [New Delhi] 0.07/1.00
(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

Delhi [New Delhi] n.d.

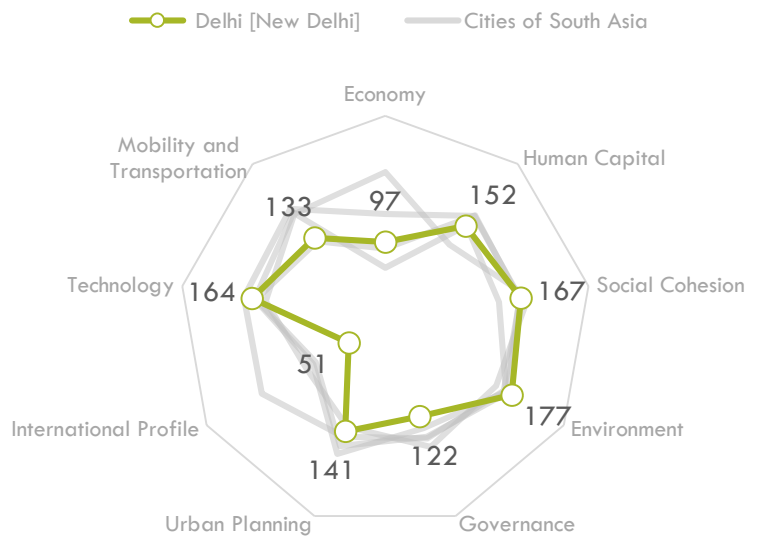
Cities in Motion index ranking

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

Delhi [New Delhi] 122nd out of 183 cities
(2024) (IESE)

Cities in Motion index ranking by subcomponent

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



Transport relevant policy documents

Year published	Document name
2010	Transport Demand Forecast Study And
2016	Report Of The
2018	GNCTD - Delhi Draft EV Policy (2018)
2018	Draft Delhi road safety policy
2019	Delhi State Action Plan On Climate Change
2019	Delhi Maintenance and Management of Parking Places Rules 2019
2021	Draft Master Plan for Delhi 2041
2021	Transit Oriented Development (TOD) Policy
2023	Air quality management plan
n.d.	Vision Delhi 2030

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- Oke et al. Oke et al. (2019). A novel global urban typology framework for sustainable mobility futures. <https://iopscience.iop.org/article/10.1088/1748-9326/ab22c7#erlab22c7s3>
- OSM OSM. (n.d.). Open Street Map. <https://www.openstreetmap.org/#map=4/21.84/82.79>
- Primary data This includes city official reports or MDB/ Research organisation/ Third party report endorsed/ accepted/ guided by the city government
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