KARACHI, PAKISTAN

URBAN TRANSPORT PROFILE

December 2024

Asian Transport Observatory

Summary

Karachi, a sprawling metropolis of 18.7 million people, faces significant urban transport challenges. Its rapid population growth and inadequate infrastructure development have led to a heavy reliance on private vehicles. This has resulted in severe traffic congestion, poor air quality, and a high rate of road accidents. Despite efforts to improve public transport, with the introduction of BRT lines like the Green Line and Orange Line, a large proportion of the population still lacks convenient access to these services. This disparity is particularly acute in informal settlements, where over half of Karachi's population resides and faces inadequate access to basic amenities.

The lack of a comprehensive and efficient public transport system has contributed to a surge in private vehicle ownership, with 195 vehicles per 1,000 residents. This over-reliance on private transport has exacerbated air pollution, with Karachi ranking second in Pakistan for CO2, CH4, and N2O emissions. The city's struggle to balance urban expansion with sustainable transport solutions is evident in its low ranking on the Cities in Motion Index. Furthermore, the limited availability of public transport options has led to overcrowding and safety concerns, with buses operating at a seat-to-passenger ratio of 1:34.

However, Karachi is taking steps to address these challenges. The planned introduction of electric buses and the expansion of BRT lines aim to improve public transport accessibility and reduce reliance on private vehicles. The success of the Yellow Line BRT, providing safe and reliable transport for 300,000 people daily, demonstrates the potential of these initiatives. Nevertheless, Karachi intends to continue investing in sustainable transport infrastructure and prioritize equitable access to public transport across all socioeconomic groups to achieve a truly integrated and efficient urban transport system.

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

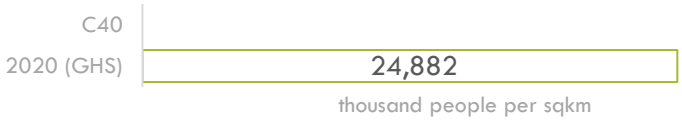
Population 18.7 million
(2020) (GHS)

Land area 945 sqkm
(2016) (Oke et.al. (2019) (Demographia))

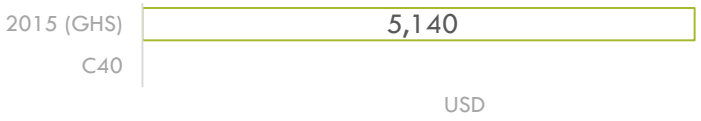
Population density 25 thousand per sqkm
(2020) (GHS)

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

Population density

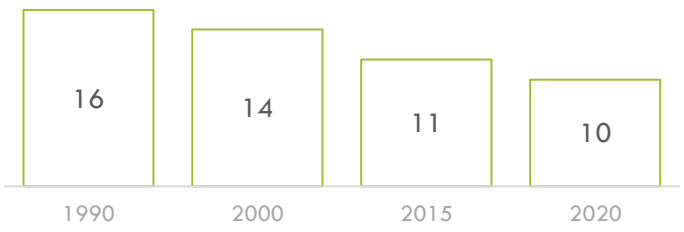


GDP per capita

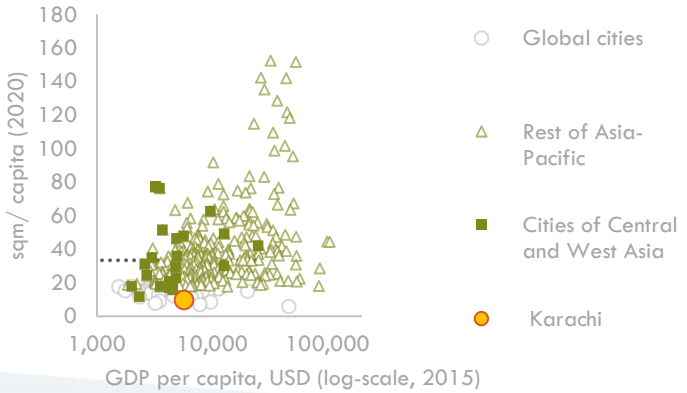


Urban Form and Structure

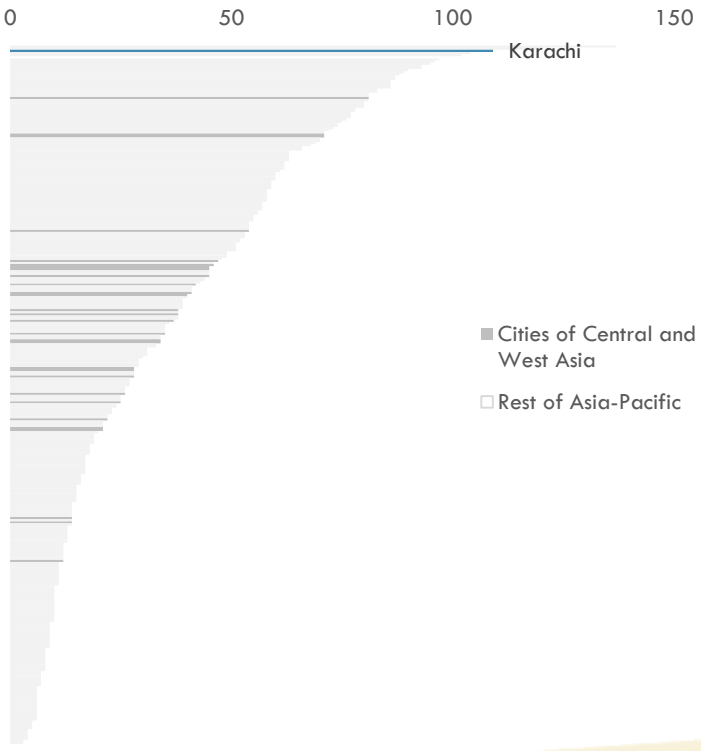
Builtup area per capita
sqm per capita (GHS)



Builtup area per capita
(GHS)

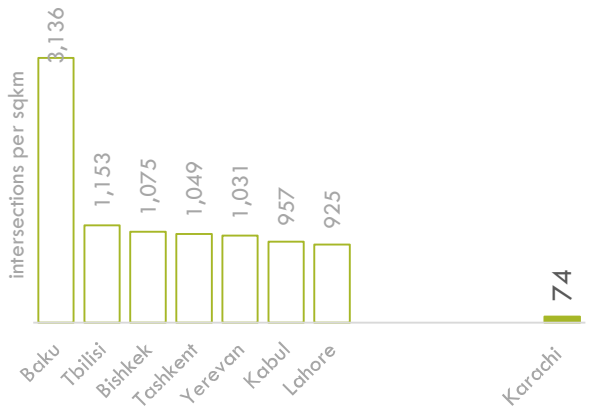


Mean block density
blocks per sqkm (2020) (ITDP)



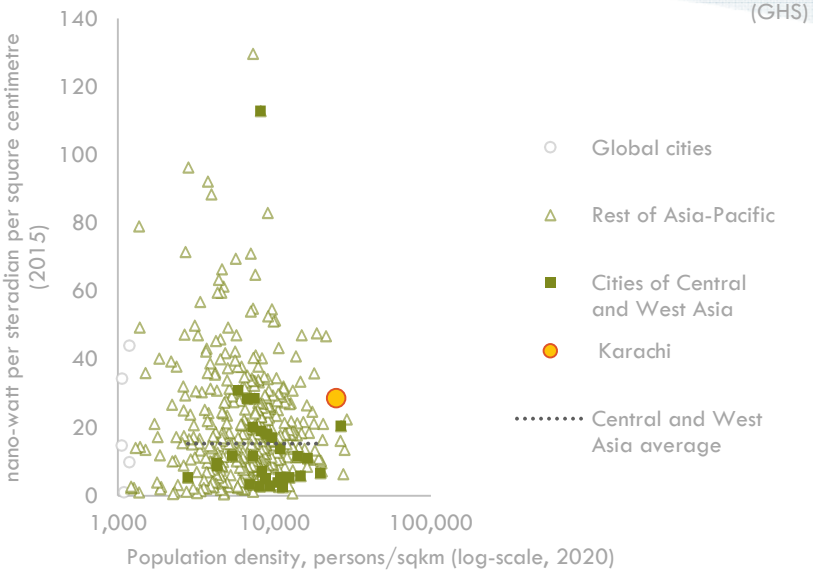
Intersection density

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



Night time light intensity (a)

(GHS)



(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

Urban Transport Infrastructure

Road availability

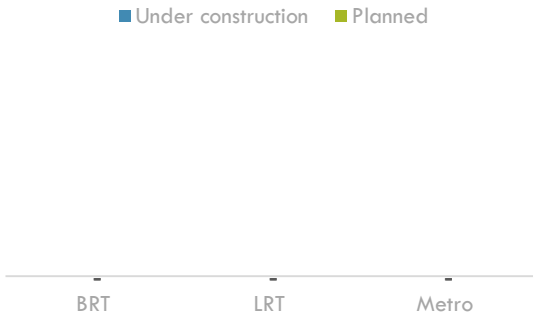
kilometers per thousand population (2019) (Oke et.al. (OSM) and GHS)

Road kilometers 10,000 kilometers

(2019) (Primary data)

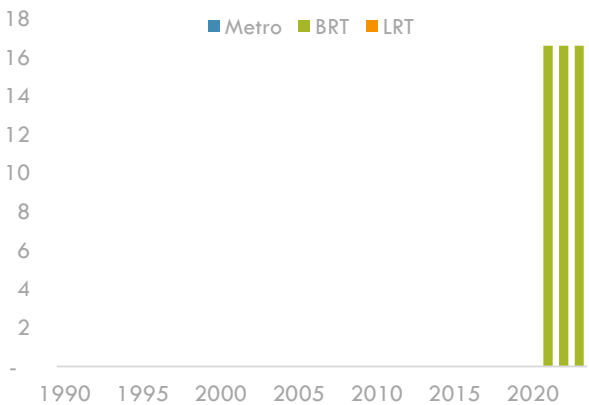
Rapid transit infrastructure

(2024) (TE)



Rapid transit infrastructure

kilometers (ITDP, Primary data)



BRT 17 kilometers

LRT none

Metro none

Total 17 kilometers

(2023) (ITDP)

Rapid transit availability

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

Approximate transit coverage n.d.

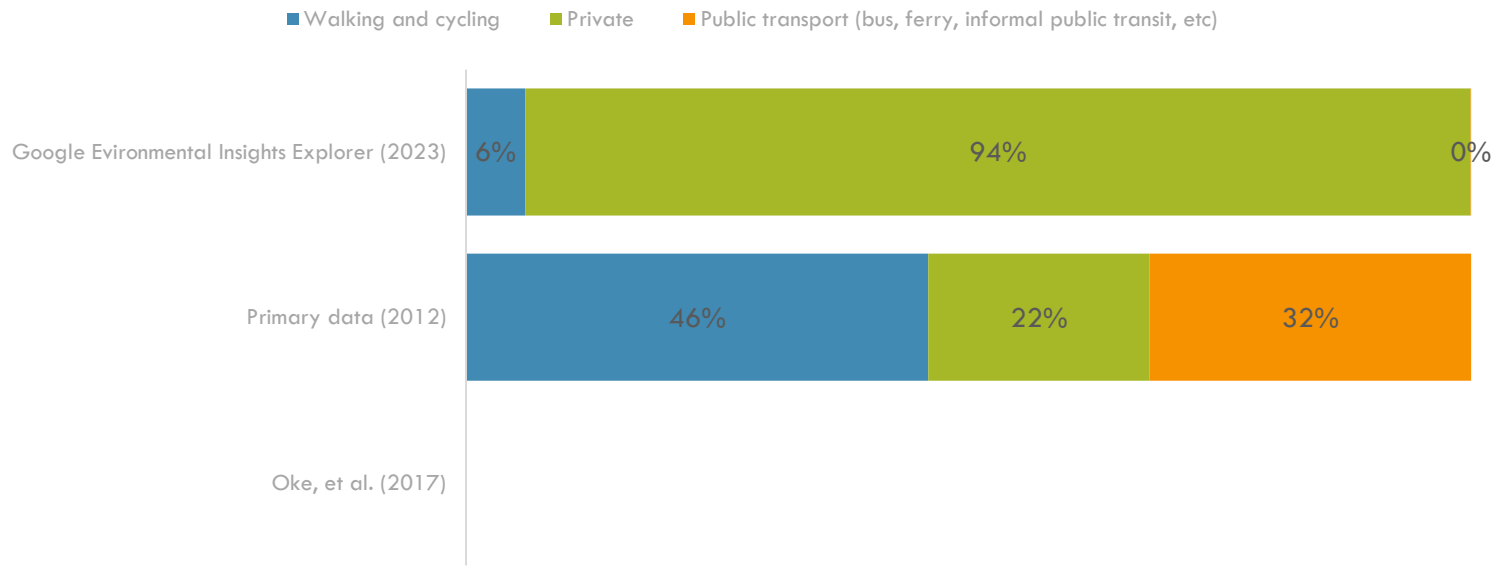
Transport Activity and Services

VKT per capita

Vehicle-kilometer per capita (2022) (ClimateTrace)

Trips Mode share (b)

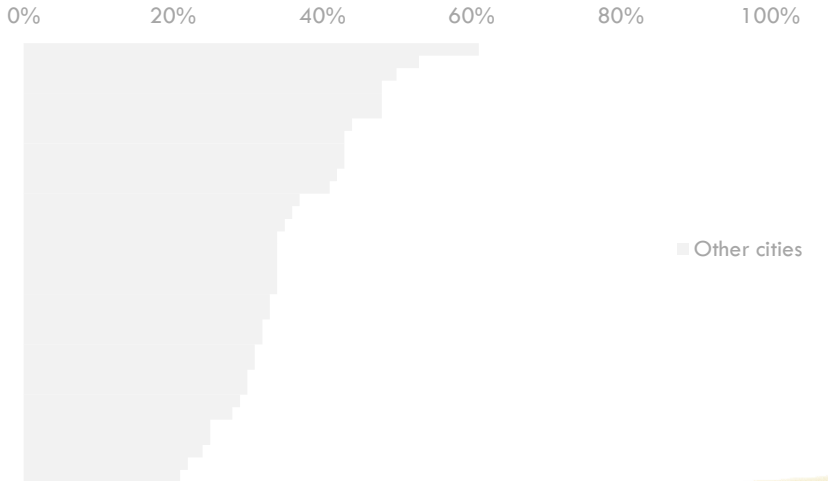
Share, %



(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)

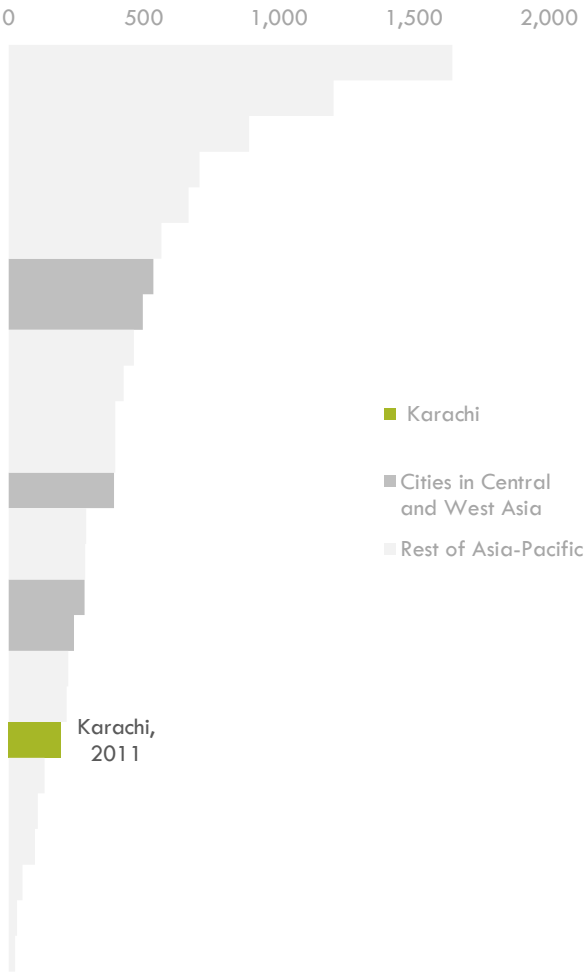


Metro ridership n.d.

Congestion ranking n.d.

Vehicle motorization

Vehicles per thousand population (Primary data)



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

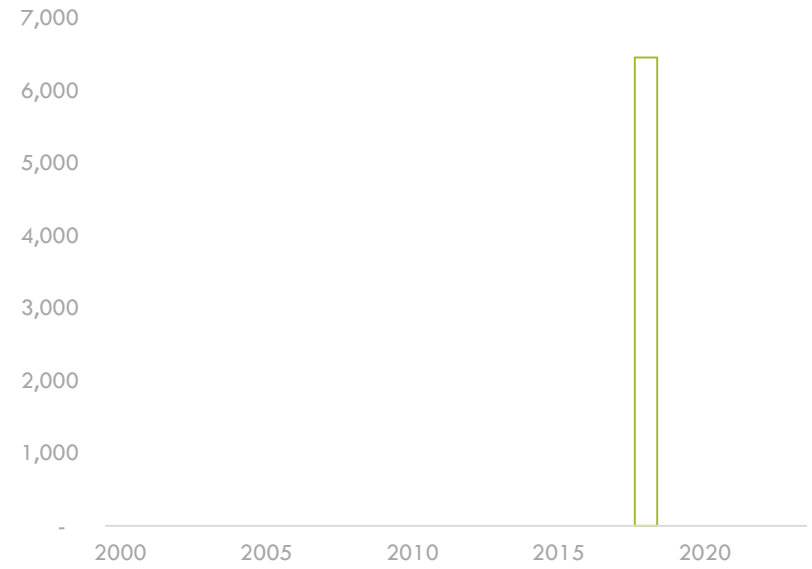
Vehicles registered (c)

Thousand vehicles (Primary data)

Vehicles considered: Car, Taxi, 2W, 3W, Bus, Others

Bus fleet (operational)

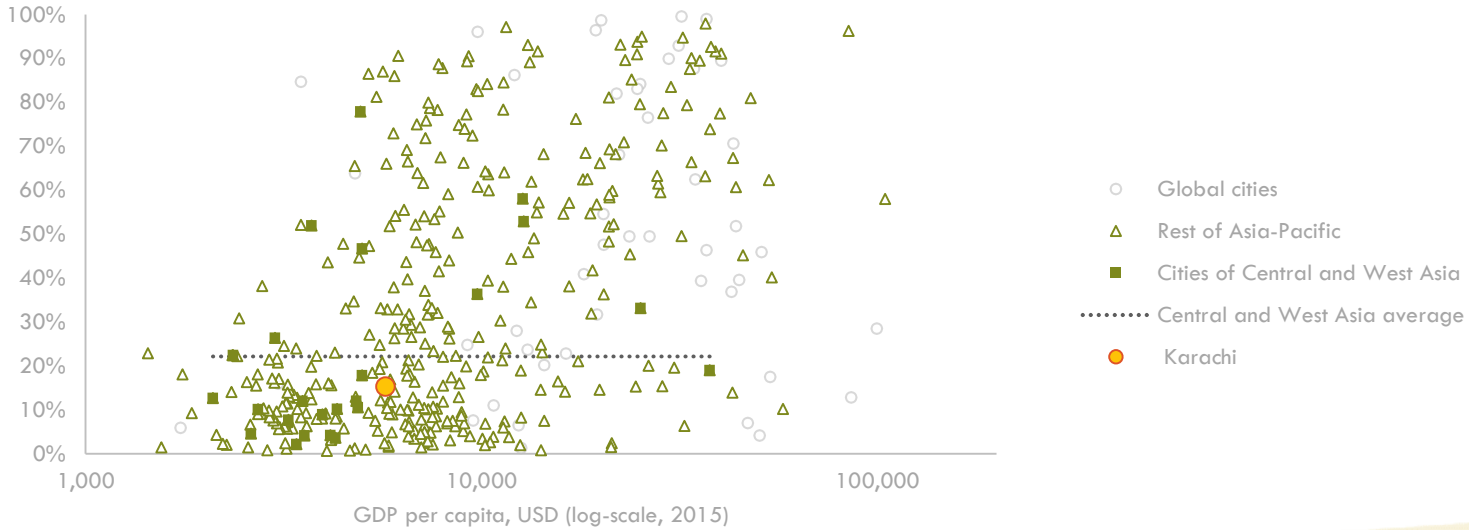
Bus (and other public transport) fleet (Primary data)



Urban Access

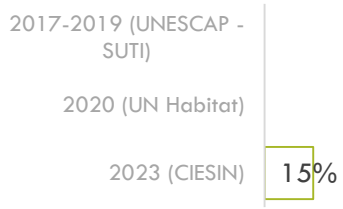
Access to urban public transport

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



Access to urban public transport (d) - by source

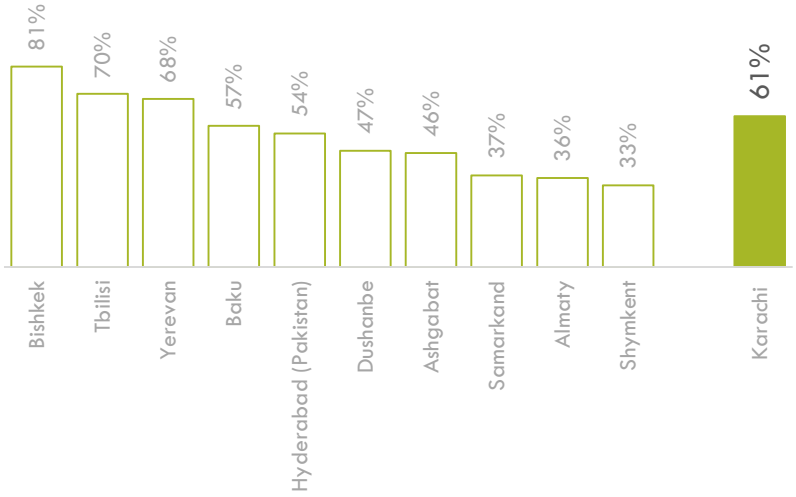
Share of population with convenient access to public transport



(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.

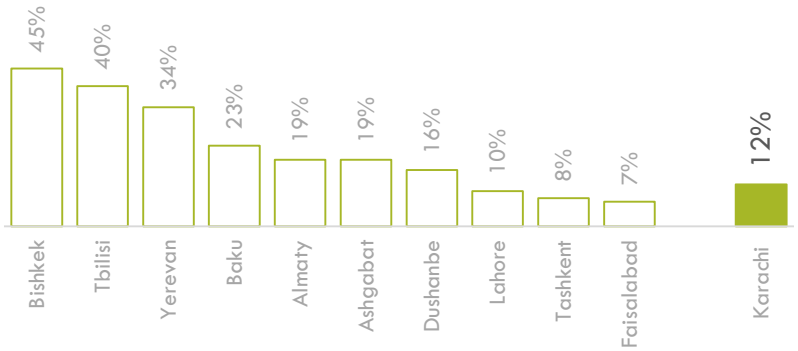
People near services (both healthcare and schools) (e)

(Share of population) vs. highest 10 cities in Central and West Asia (2020) (ITDP)



People near car-free places (f)

(Share of population) vs. highest 10 cities in Central and West Asia (2020) (ITDP)

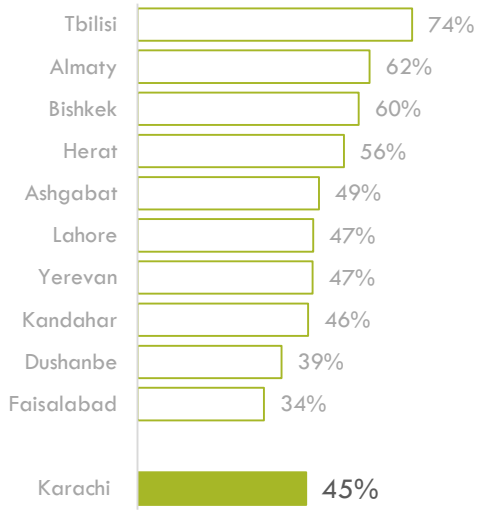


(e) People Near Services measures the percentage of the city's population living within a 1km walk of both healthcare and education. These services are especially vital for babies, toddlers, and their caregivers, who should be able to reach them on foot.

(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).

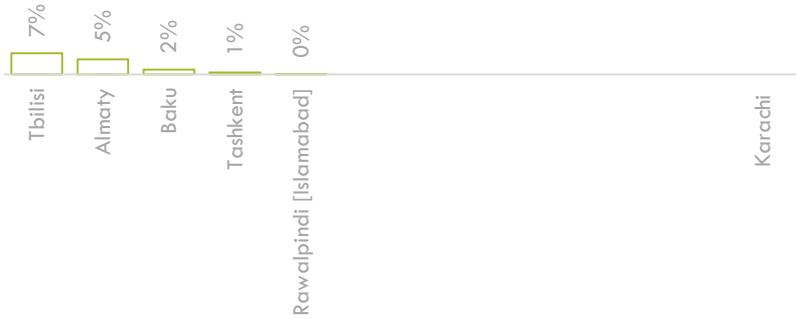
People near open public space

(Share of population) vs. highest 10 cities in Central and West Asia (2020) (UN Habitat)



People near protected bikelanes

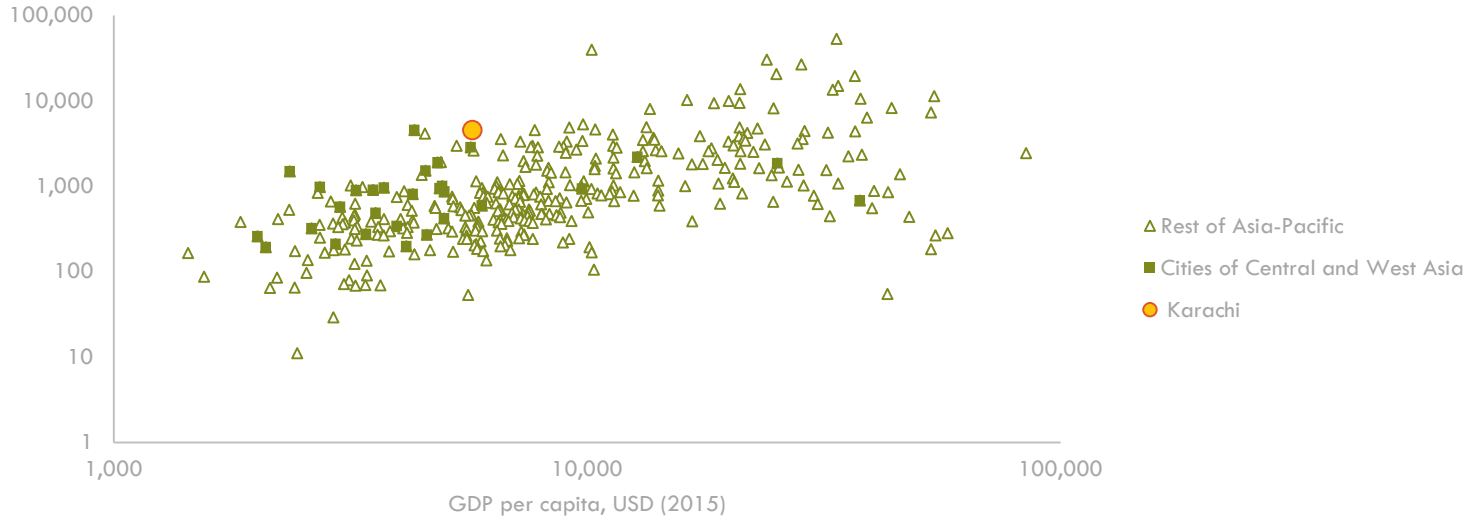
(Share of population) vs. highest 10 cities in Central and West Asia (2020) (ITDP)



Transport externalities

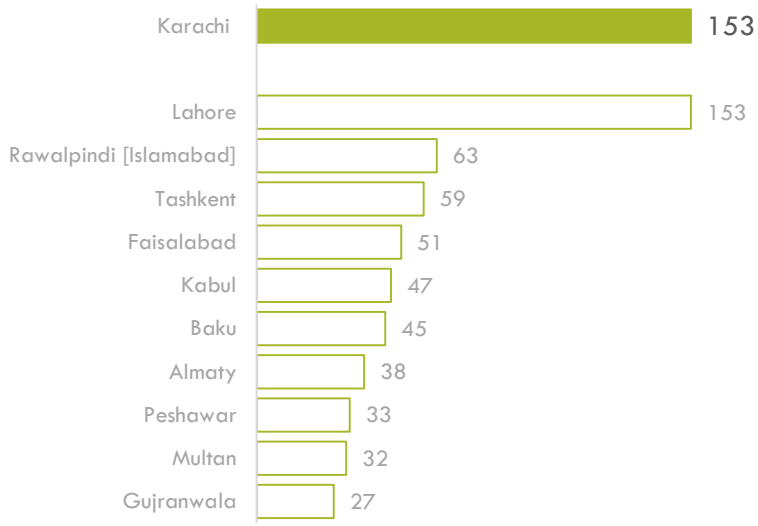
Road transport - CO2 emissions

Thousand tonnes (2022) (ClimateTrace)



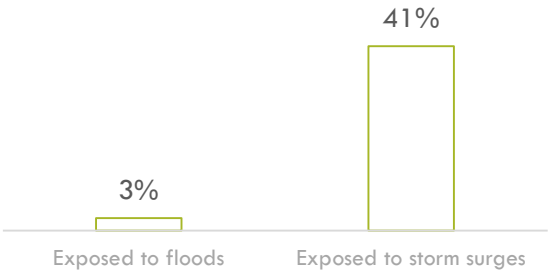
Road transport - N2O emissions

Tonnes (2022) vs. highest 10 cities in Central and West Asia (ClimateTrace)



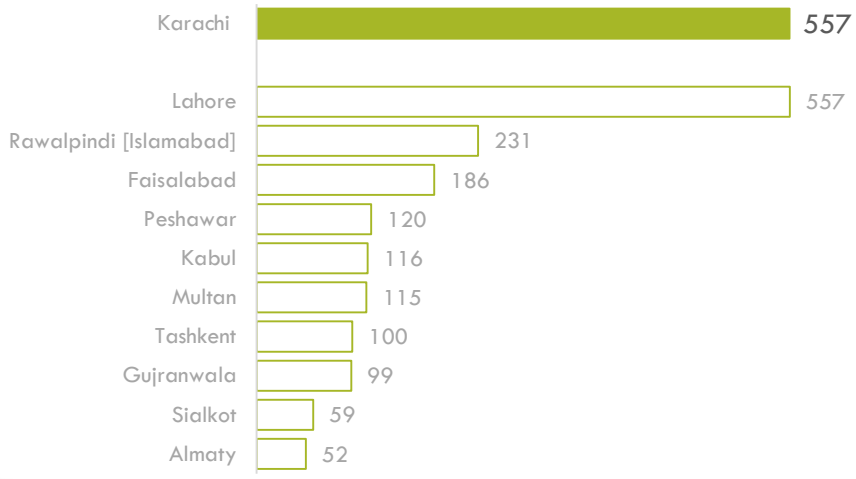
Population exposure to disasters

Share of population (2015) (GHS)



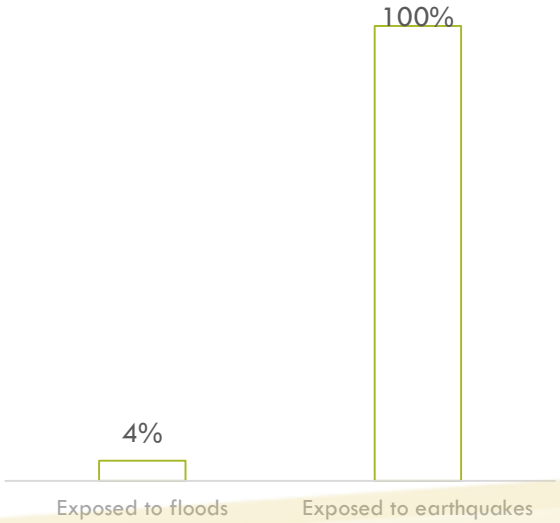
Road transport - CH4 emissions

Tonnes (2022) vs. highest 10 cities in Central and West Asia (ClimateTrace)



Urban built-up area exposure to disasters

Share of urban area (2020) (GHS)

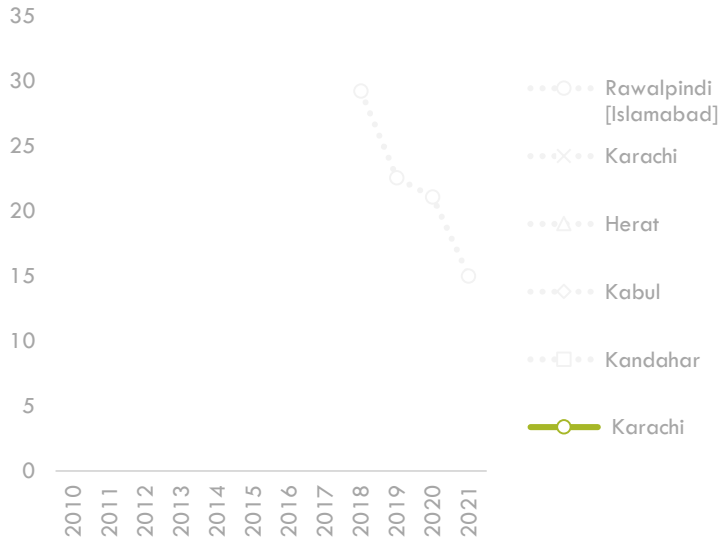


Transport PM 2.5 emissions

(GHS)

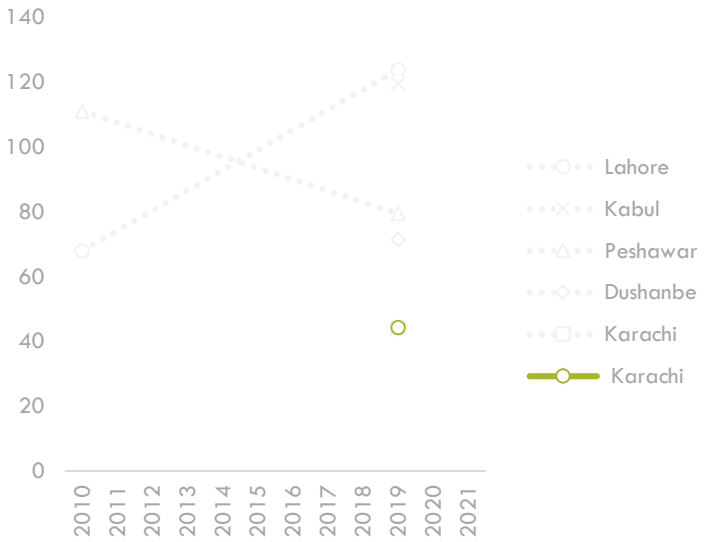
NO2 concentration

ug/m3 (vs. highest 5 cities in Central and West Asia) (WHO)



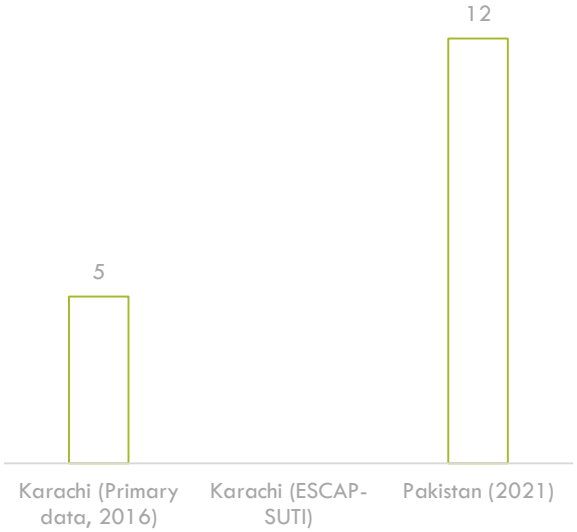
PM 2.5 concentration

ug/m3 (vs. highest 5 cities in Central and West 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)

Karachi 64th 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

Karachi 182nd out of 183 cities
(2024) (IESE)

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

Karachi 0.04/1.00
(2020) (GHS)

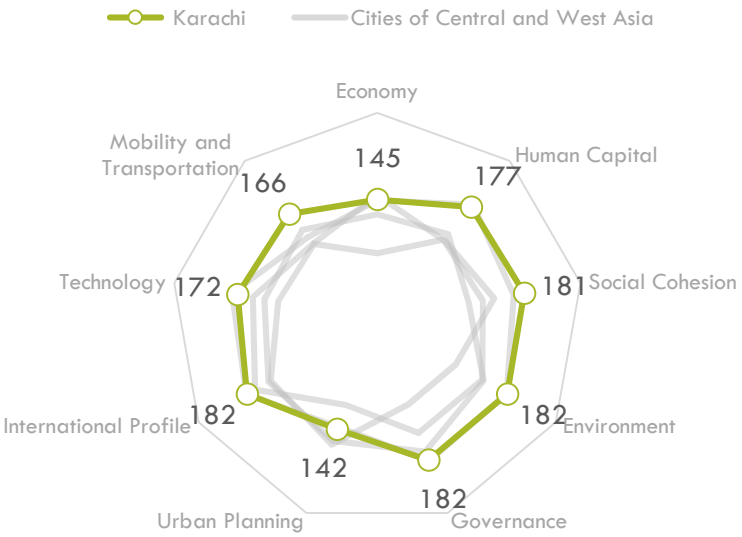
SUTI Geometric Mean

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

Karachi n.d.

Cities in Motion index ranking by subcomponent

Ranking (vs. other Cities of Central and West Asia) (2024) (IESE)



Transport relevant policy documents

Year published	Document name
2002	Karachi Building &Town Planning Regulations-2002
2007	Karachi Strategic Development Plan – 2020
2012	Karachi Transportation Improvement Project
2012	Karachi city climate change adaptation strategy - a road map
2012	Karachi Transportation Improvement Project - Business Plan
2019	Karachi Mobility Project
2019	Sindh Motor Vechicles (Amendment) Act 2019
2021	Provincial Motor Vehicles (Amendment) Act 2021
2023	Annual Development Programme 2023-2024 - Karachi District
2023	KMC Development Budget 2023-2024
n.d.	Karachi Master Plan 2047

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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

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