PHNOM PENH, CAMBODIA

URBAN TRANSPORT PROFILE

December 2024

Asian Transport Observatory

Summary

Phnom Penh, the capital of Cambodia, is a rapidly growing urban center with a population of 2.1 million in 2020. While the population density has remained relatively stable at 8,000 persons per sq km since 2000, the urban center's built-up area has more than doubled, expanding from 34 sq km to 70 sq km. This urban expansion reflects economic growth, with GDP per capita increasing from $2,000 in 2000 to $4,000 in 2015. Despite this growth, Phnom Penh's road infrastructure remains limited, with 2 kilometers of road per thousand capita compared to the national average of 4. Furthermore, the urban center lacks a rapid transit system, presenting a significant challenge for urban mobility.

Transport in Phnom Penh is heavily dominated by private modes of transport, which account for 92% of trips. The number of motorcycles dominates the share of registered vehicles. This reliance on private vehicles and the lack of a rapid transit system contribute to traffic congestion and air pollution. Although 44% of the population has convenient access to public transport services, exceeding the South East Asia average, the city's bus network remains limited, with only a slight increase in operational buses from 155 in 2017 to 181 in 2019. Addressing these challenges will require a comprehensive approach to urban transport planning, including investments in public transportation, road infrastructure, and sustainable transport options like cycling and walking. The Royal Government of Cambodia's vision for Phnom Penh is to make city green, with a clean environment, minimize environmental impact, and enhance the competitive economic, business and cultural center of Cambodia with sustainable and equitable development under the Phnom Penh's Mater Plan on Land Use 2035.

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

General

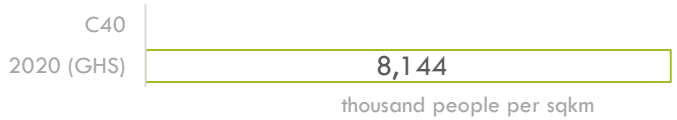
Population 2.1 million
(2020) (GHS)

Land area 263 sqkm
(2015) (GHS)

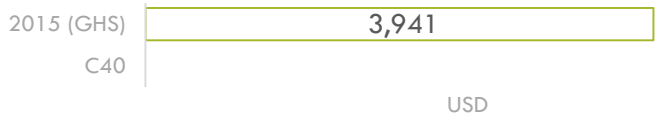
Population density 8 thousand per sqkm
(2020) (GHS)

GDP per capita 4 thousand USD
(2015) (GHS)

Population density

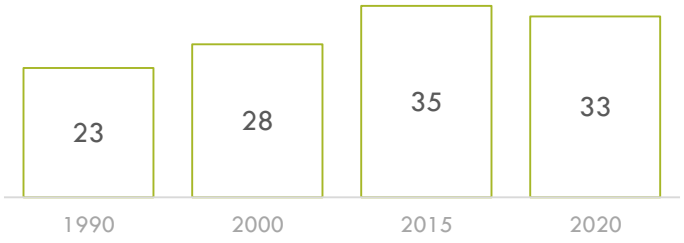


GDP per capita

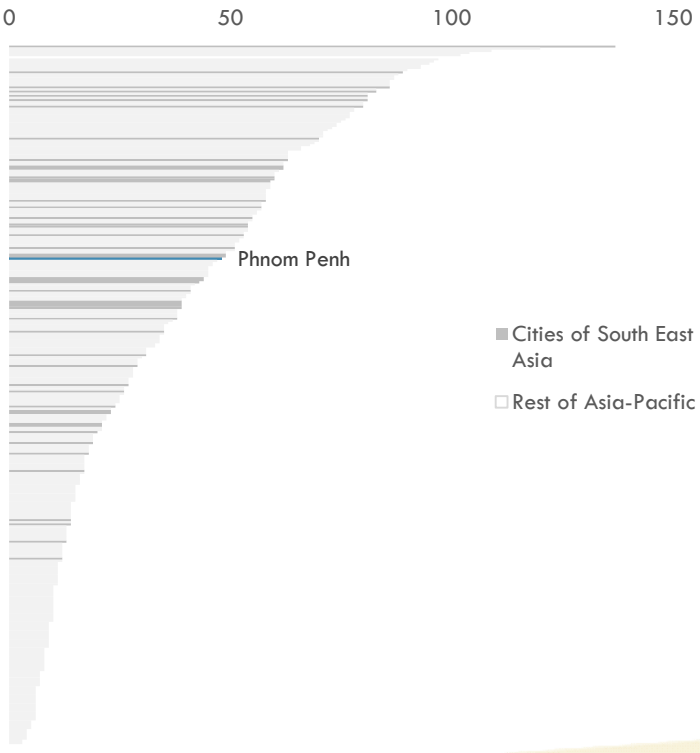


Urban Form and Structure

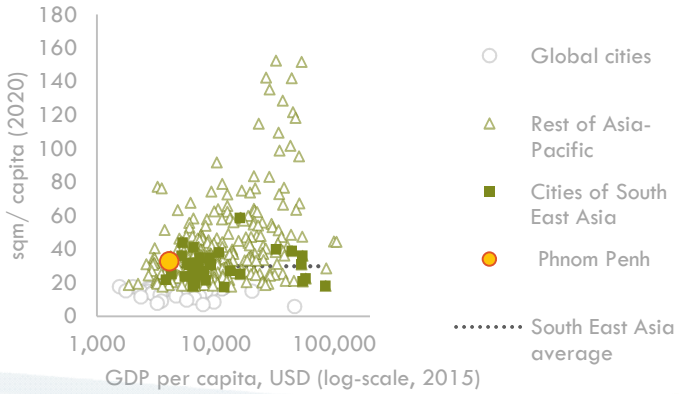
Builtup area per capita
sqm per capita (GHS)



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

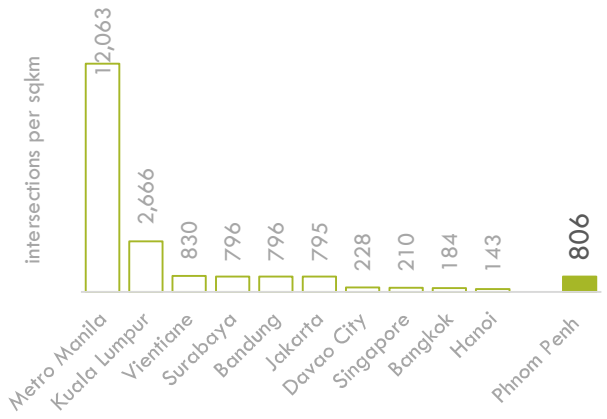


Builtup area per capita
(GHS)



Intersection density

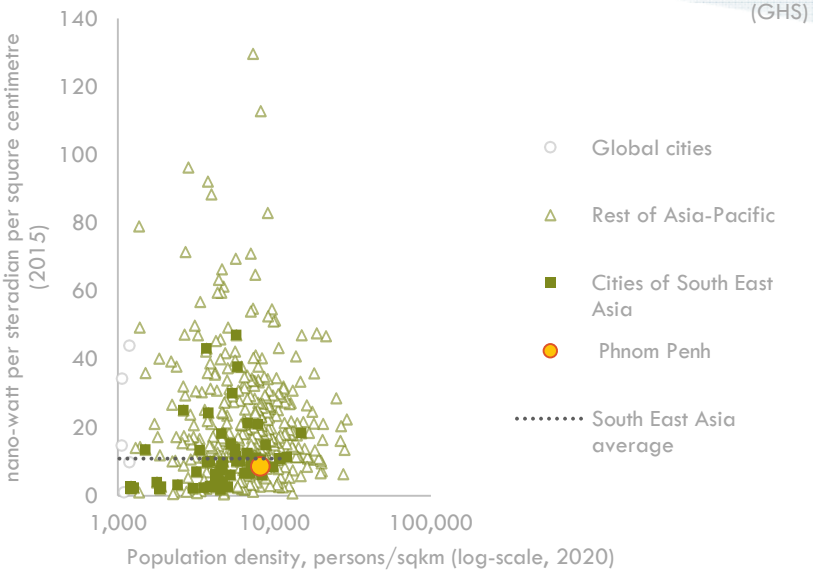
(Oke et.al. (2019) (OSM))



(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)

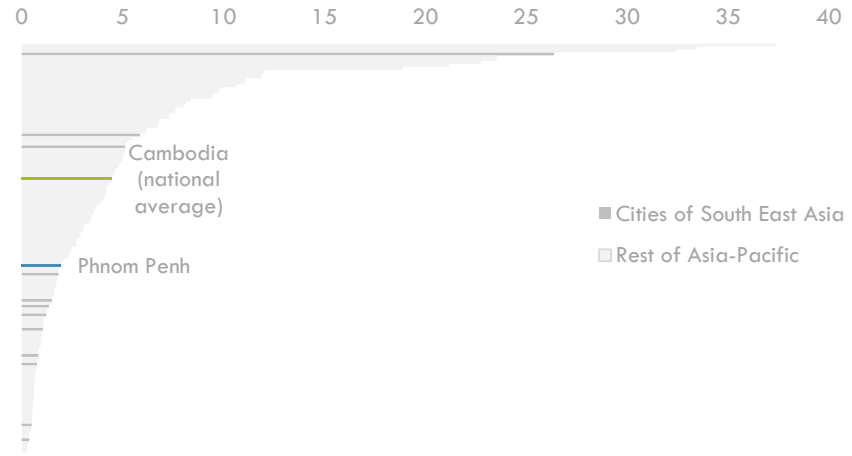
(GHS)



Urban Transport Infrastructure

Road availability

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

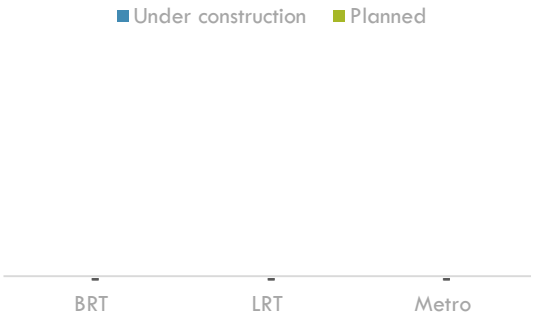


Road kilometers 1,379 kilometers

(2011) (Primary data)

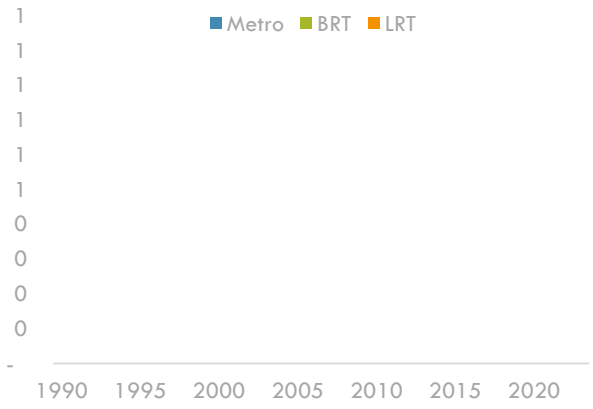
Rapid transit infrastructure

(2024) (TE)



Rapid transit infrastructure

kilometers (ITDP, Primary data)



BRT none

LRT none

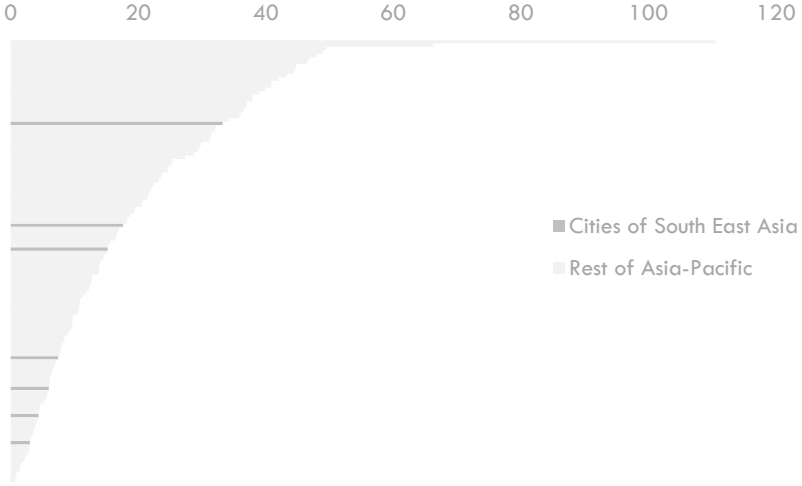
Metro none

Total none

(2023) (ITDP)

Rapid transit availability

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

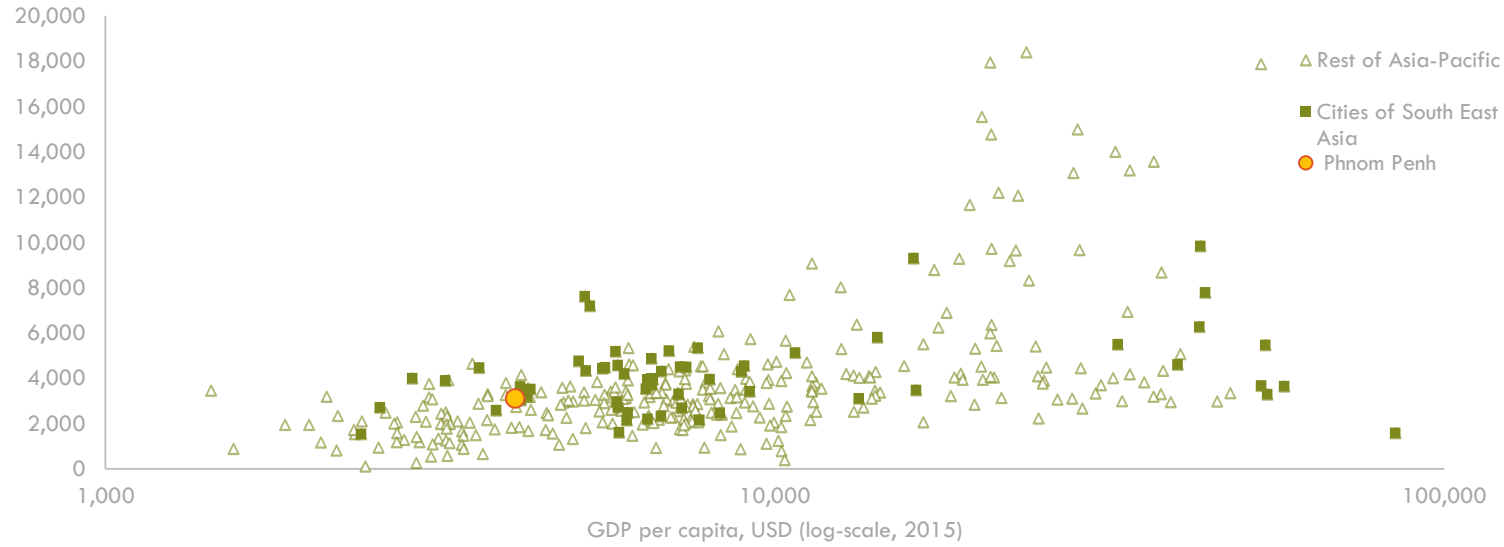


Approximate transit coverage n.d.

Transport Activity and Services

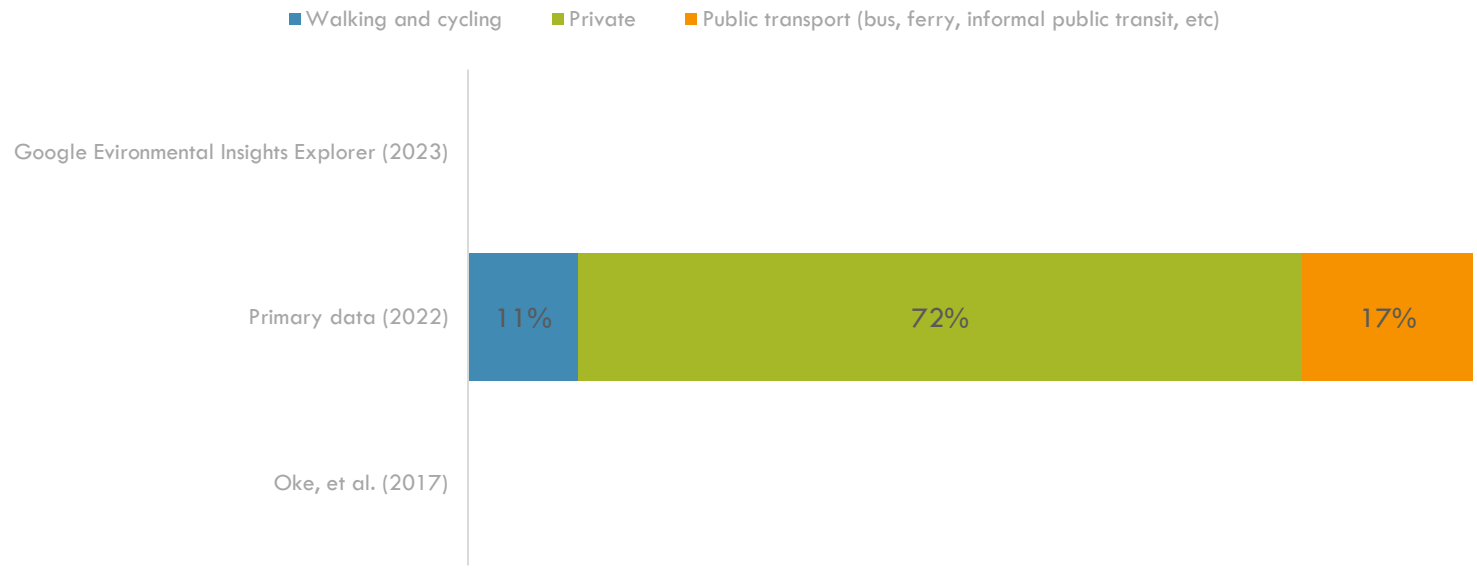
VKT per capita

Vehicle-kilometer per capita (2022) (ClimateTrace)



Trips Mode share (b)

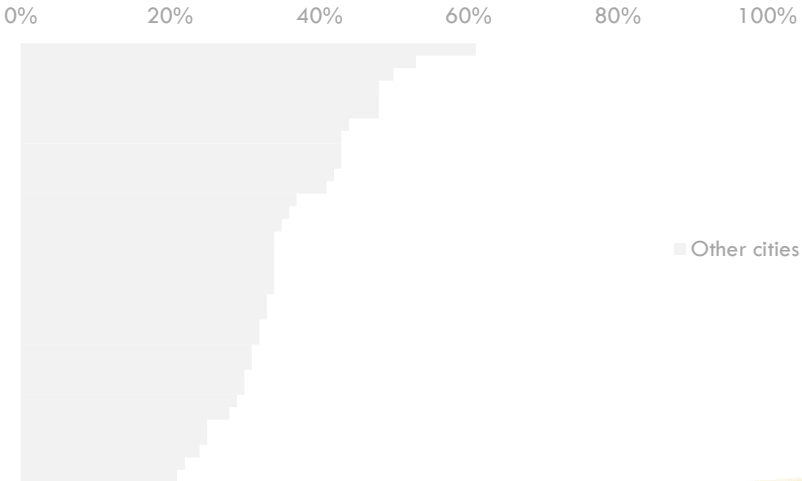
Share, %



(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)

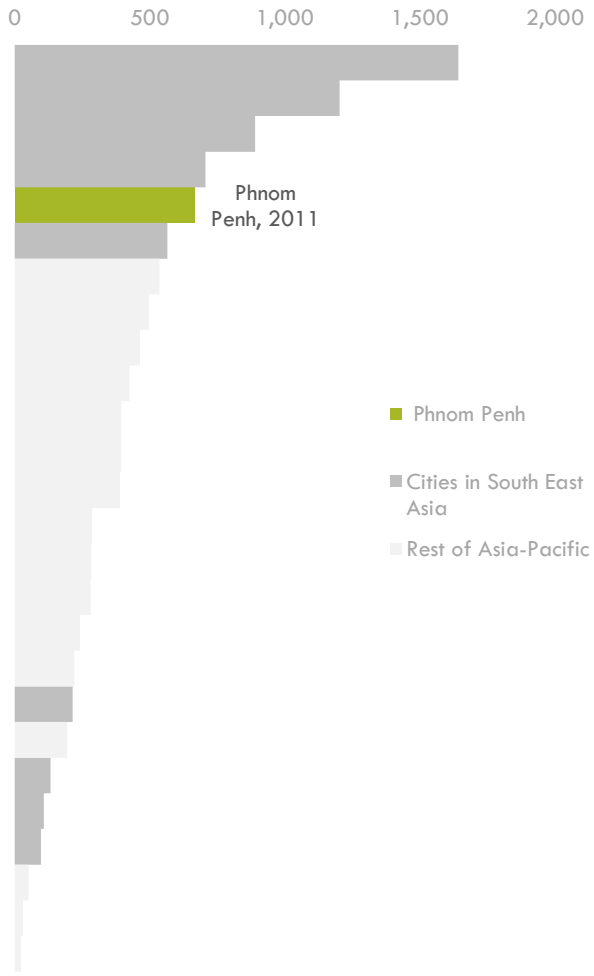


Metro ridership n.d.

Congestion ranking n.d.

Vehicle motorization

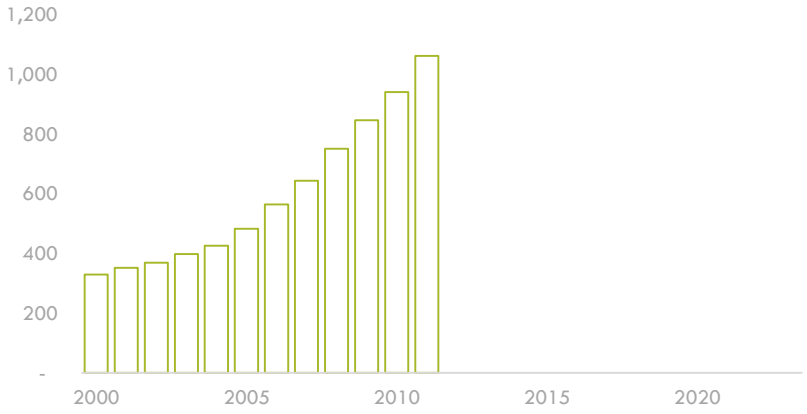
Vehicles per thousand population (Primary data)



(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)

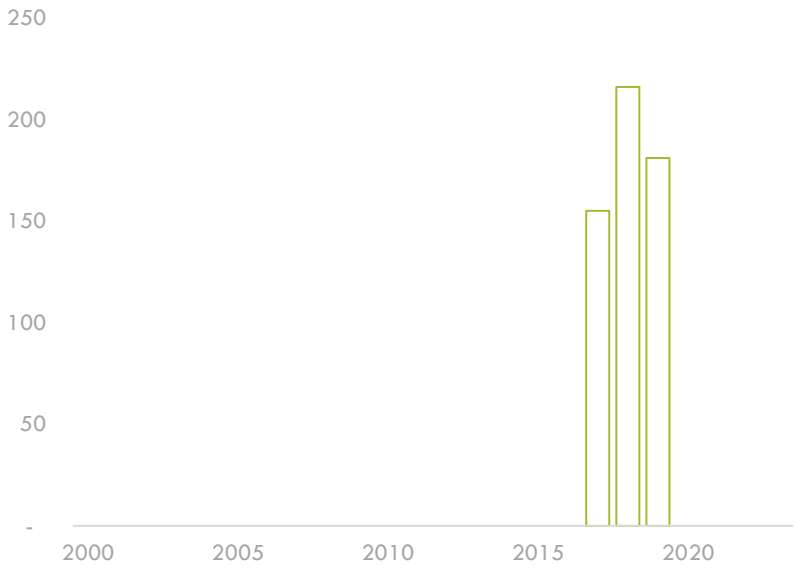
Thousand vehicles (Primary data)



Vehicles considered: Car, 2W, Freight vehicles

Bus fleet (operational)

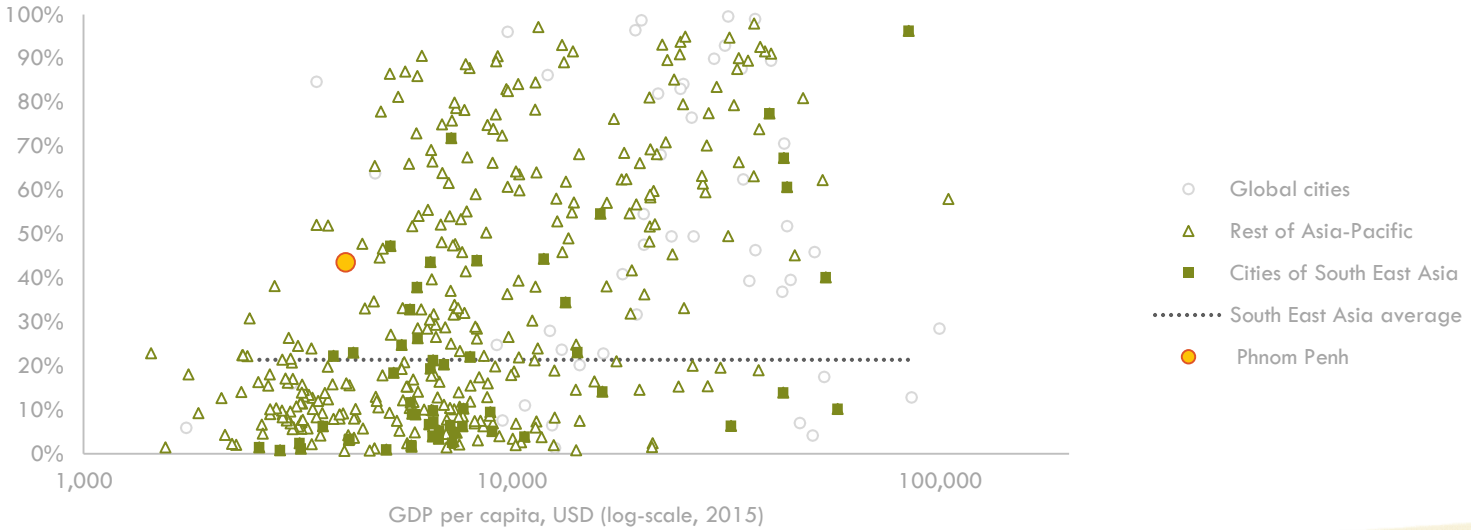
Bus (and other public transport) fleet (Primary data)



Urban Access

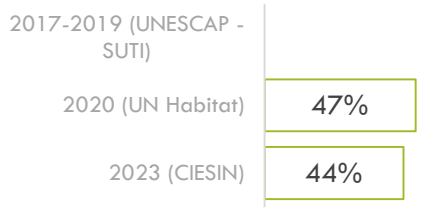
Access to urban public transport

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



Access to urban public transport (d) - by source

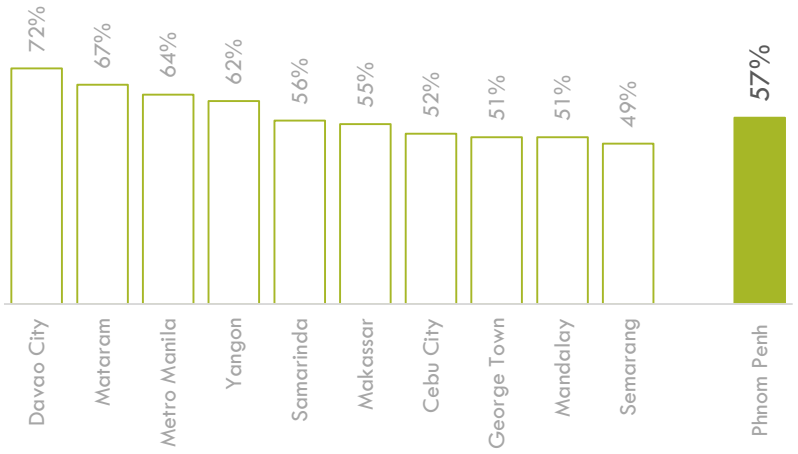
Share of population with convenient access to public transport



(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.

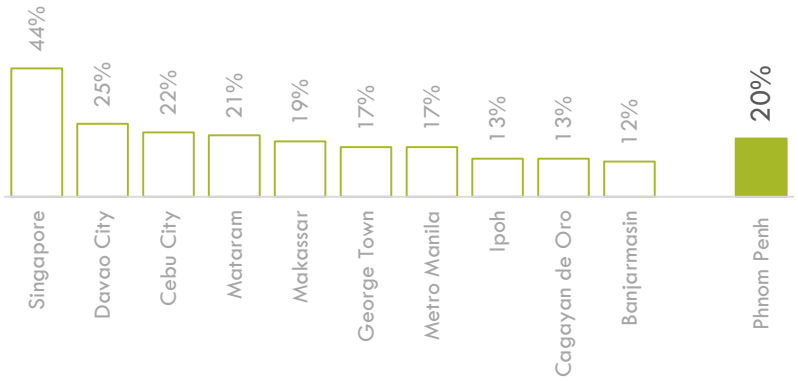
People near services (both healthcare and schools) (e)

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



People near car-free places (f)

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

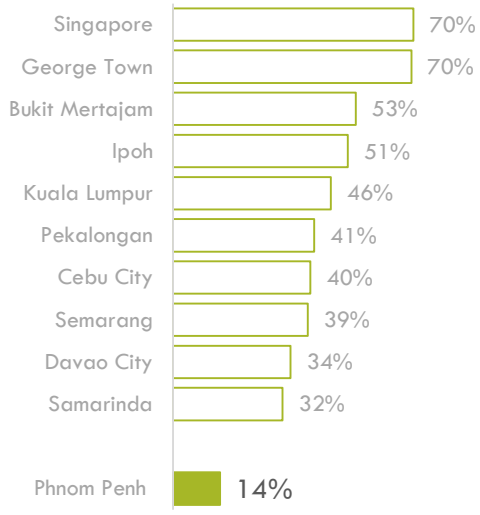


(e) People Near Services measures the percentage of the city's population living within a 1km walk of both healthcare and education. These services are especially vital for babies, toddlers, and their caregivers, who should be able to reach them on foot.

(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).

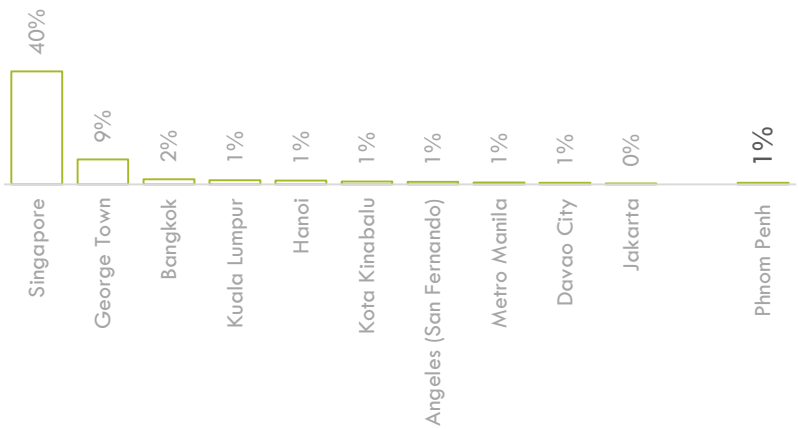
People near open public space

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



People near protected bikelanes

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



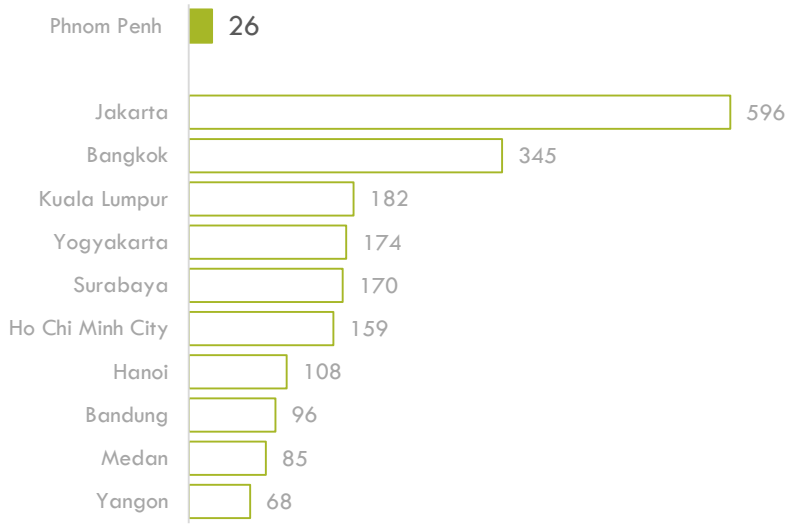
Transport externalities

Road transport - CO2 emissions

Thousand tonnes (2022) (ClimateTrace)

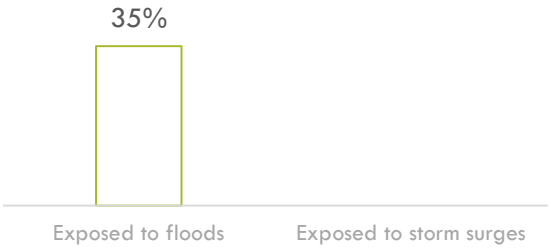
Road transport - N2O emissions

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



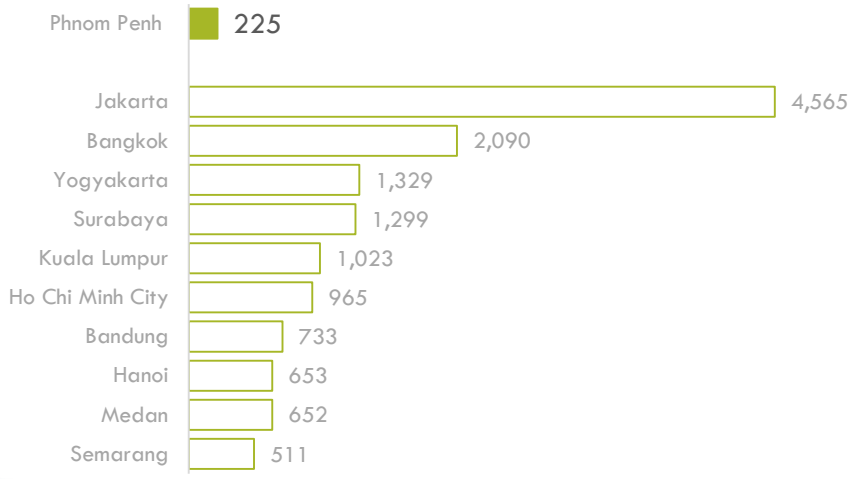
Population exposure to disasters

Share of population (2015) (GHS)



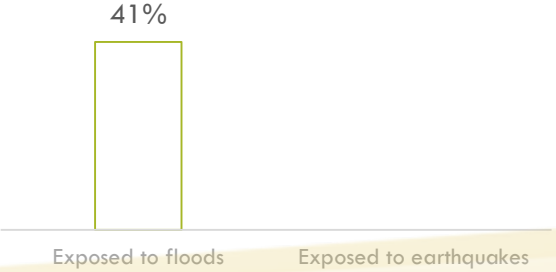
Road transport - CH4 emissions

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



Urban built-up area exposure to disasters

Share of urban area (2020) (GHS)

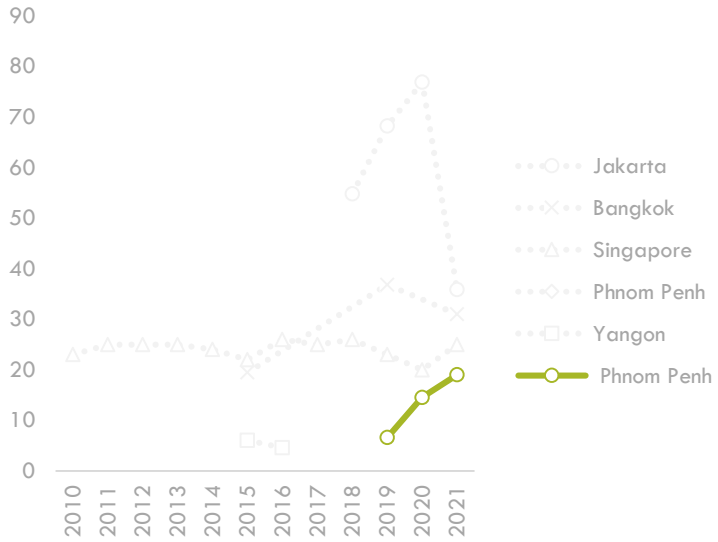


Transport PM 2.5 emissions

(GHS)

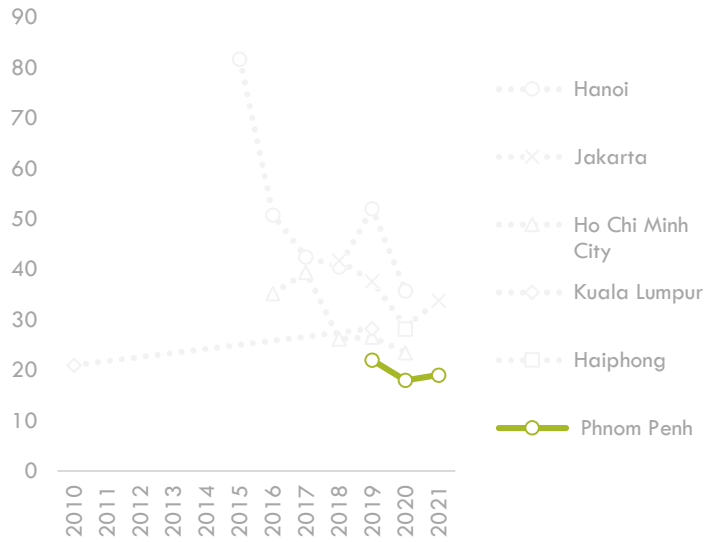
NO2 concentration

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



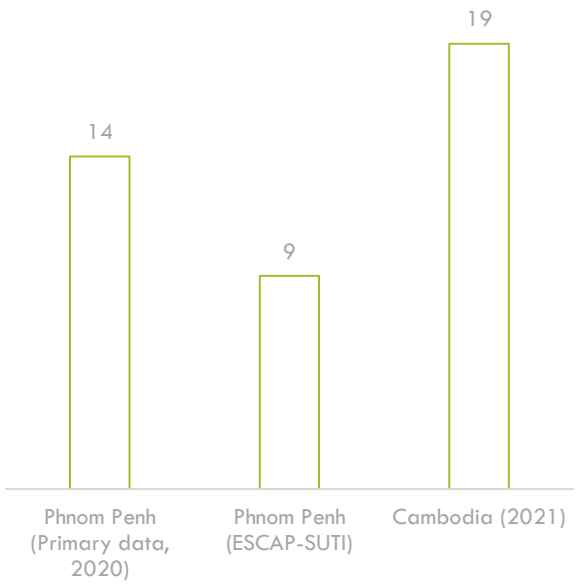
PM 2.5 concentration

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



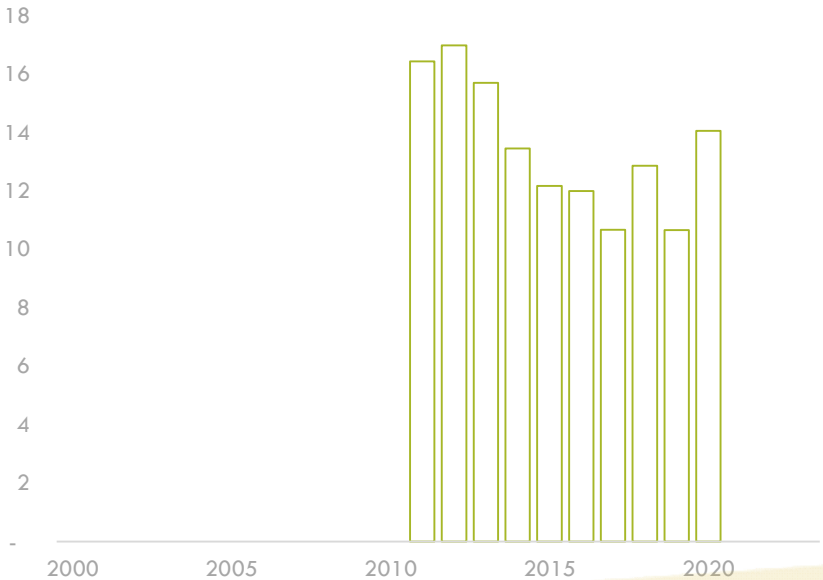
Road crash fatality rate

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)

Phnom Penh 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

Phnom Penh 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

Phnom Penh 0.04/1.00
(2020) (GHS)

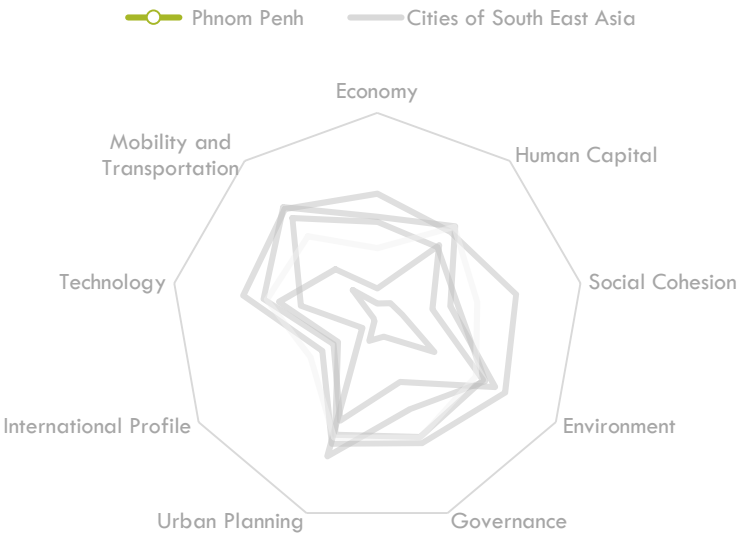
SUTI Geometric Mean

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

Phnom Penh 34 score out of 100
(2024) (UNESCAP - SUTI)

Cities in Motion index ranking by subcomponent

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



Transport relevant policy documents

Year published	Document name
2014	Comprehensive Urban Transport Plan in Phnom Penh Capital City (PPUTMP) - Part 1
2014	Comprehensive Urban Transport Plan in Phnom Penh Capital City (PPUTMP) - Part 2
2015	Sub-decree on Phnom Penh Land Use Master Plan 2035
2017	Urban Development in Phnom Penh
2018	Phnom Penh Sustainable City Plan 2018-2030
2021	Assessment of Urban Transport and Impacts of COVID-19 on Mobility for Phnom Penh City
2021	Transforming Urban Mobility in Phnom Penh
2023	Data Collection Survey on Urban Transport in Phnom Penh - Part 1
2023	Data Collection Survey on Urban Transport in Phnom Penh - Part 2

References

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Primary data — This includes city official reports or MDB/ Research organisation/ Third party report endorced/ accepted/ guided by the city government

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WHO — WHO. (2024). WHO Ambient Air quality database. https://www.who.int/data/gho/data/themes/air-pollution/who-air-quality-database

WB — WB. (2024). The Container Port Performance Index 2023. https://documents1.worldbank.org/curated/en/099060324114539683/pdf/P175833138923008 71be641a5ea7b90e0e6.pdf