URBAN ENVIRONMENT & SOCIAL INCLUSION INDEX

www.datadriven.yale.edu/urban

POLICYMAKERS' SUMMARY

What is the UESI?

Cities will shape the future of our planet. Like never before, cities are where people confront environmental problems and tackle the challenges of sustainable development.

Why don't we know more about their performance? Does where one lives affect the quality of the air they breathe? Does income determine one's environmental quality of life?

The Urban Environment and Social Inclusion Index (UESI), created by Data-Driven Yale, provides a first-of-its-kind look at the ways cities perform at the intersection of environment and social equity.

The Index incorporates novel geospatial datasets, including remotely-sensed data and open-source datasets, alongside more traditional data sources, to understand urban environmental performance and social inclusion across the globe.

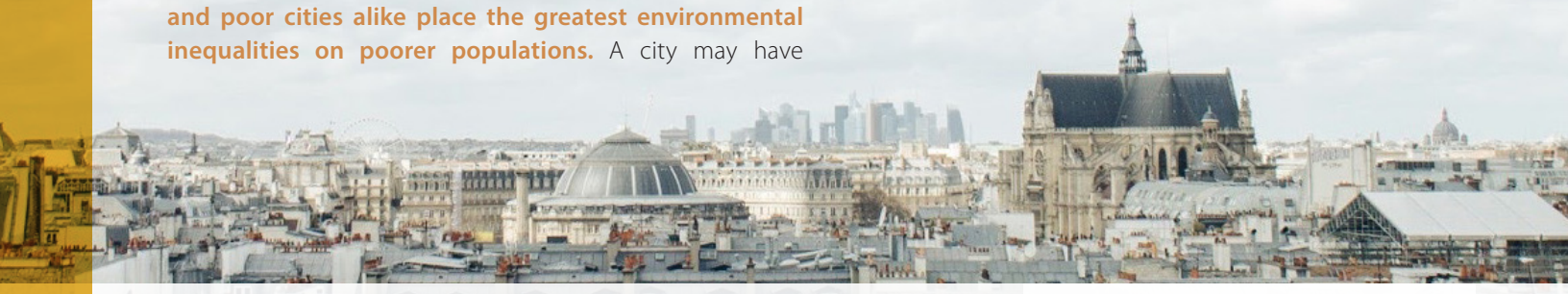
To explore the results in more detail, visit the UESI portal at:
http://datadriven.yale.edu/urban

KEY FINDINGS

Cities' environmental performance tends to reflect their geography and development. Cities located in similar climates or regions show similarities across environmental indicators. Broadly speaking, a city's environmental quality aligns with its economic development. Cities and neighborhoods with higher levels of GDP per capita tend to score more highly on the UESI's range of environmental indicators, although this relationship is weak.

Higher levels of income, however, do not lead to more equitable outcomes. The UESI results show that wealthy and poor cities alike place the greatest environmental inequalities on poorer populations. A city may have high overall levels of urban green space, but its low-income communities may not receive their fair share of this environmental benefit.

Cities generally perform well on the public transit access and water stress indicators, but perform poorly in measures of wastewater treatment, climate change and air pollution. There is a wide range of performance on wastewater treatment, climate policy, and fine particulate air pollution, suggesting that some cities perform well, while others have room for improvement.

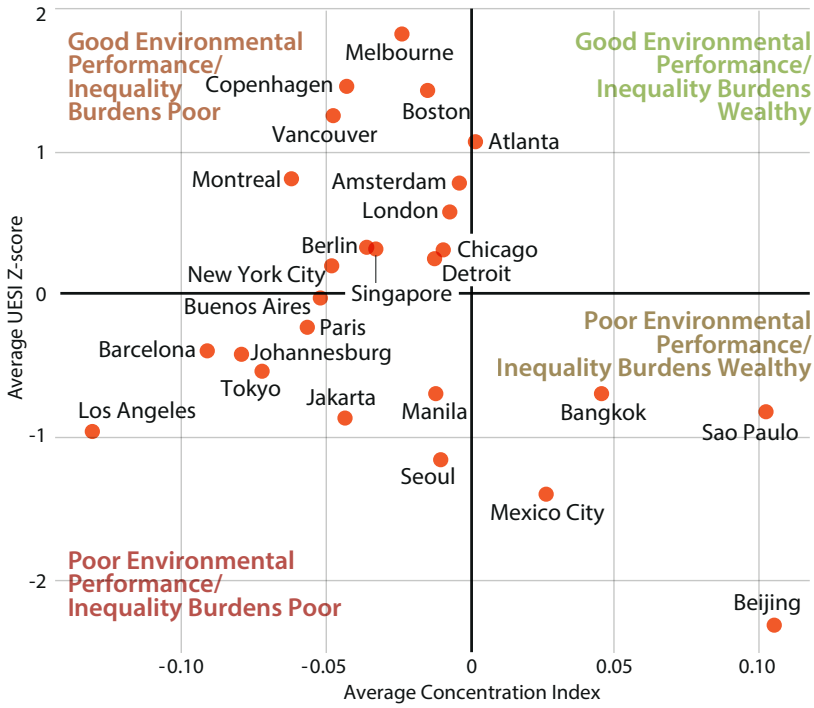


YALE DATA-DRIVEN

Data-Driven Yale, a joint research initiative between Yale School of Forestry and Environmental Studies and Yale-NUS College

In collaboration with SAMUEL CENTRE FOR SOCIAL CONNECTEDNESS

Figure 1. Overall relationship between UESI environmental performance and social inclusion.



Air pollution is one of the biggest urban environmental threats to human health. 96 percent of people living in the UESI's pilot cities breathe air that does not meet the World Health Organization's guideline (10 micrograms per cubic meter) for safe exposure to fine particulate pollution ($PM_{2.5}$).

Cities' levels of wastewater treatment and of water stress often vary alongside their geographic and financial circumstances. Available data suggests that wastewater treatment levels are highest, for the most part, in high-income cities, and lowest in low-income areas.

Between 2001 and 2015, the UESI pilot cities lost 206 square kilometers of urban tree cover, an area roughly twice the size of Barcelona. Bangalore, Casablanca, Singapore, Los Angeles, and Atlanta experienced particularly large losses, which may reflect the replacement of vegetated space by new developments and city infrastructure.

The urban heat island effect is exacerbated in cities that have low tree cover or large amounts of built-up areas, which store and trap heat, and replace vegetation that could provide evaporative cooling.

On average, UESI cities are providing sustainable public transit to half of their residents. Access ranges from near universal coverage in cities like Barcelona, London, Tel Aviv, Paris, and Boston to as low as 30 percent in Manila.

Figure 2. Global map of $PM_{2.5}$ exceedances according to the World Health Organization (WHO) targets.