



Press Release: Most cities burdening low-income residents with unfair share of environmental hazards, according to Index that will launch at the World Urban Forum on Feb. 9

Low-income neighborhoods often miss out on their fair share of environmental benefits, even in cities recognized as environmental leaders. A handful of cities show how to enact more equitable environmental management.

Embargoed until 12:01 AM CET on Friday February 7, 2020: A first-of-its-kind survey of urban environmental performance finds that most cities are disproportionately burdening lower-income communities with poor air quality, exposure to urban heat, and lower levels of tree cover and public transport access.

To be launched at the World Urban Forum on Feb. 9 by [Data-Driven EnviroLab](#) (Data-Driven Lab), in collaboration with the [Samuel Centre for Social Connectedness](#), the Urban Environment and Social Inclusion Index (UESI) merges satellite, census, and crowd-sourced data, to measure two aspects of urban performance: cities' overall progress towards environmental goals, and how fairly or unfairly their performance is distributed across a city.

In 95 out of 162 cities, lower-income communities are burdened with more than their fair share of environmental hazards and less than their fair share of access to amenities like public transit and green space. This holds true even in cities that perform well on sustainability overall, such as Copenhagen and Portland.

“Most urban indices treat cities as a whole. While it’s important to understand a city’s overall progress towards environmental goals, the Index demonstrates how the lived experience of a city can change dramatically based on what you earn and where you live,” said Dr. Angel Hsu, Assistant Professor of Environmental Studies at Yale-NUS College and the Principal Investigator of the UESI. “Tracking these kinds of metrics is vital to integrating discussions about equity into cities’ sustainability approaches.”

The Index finds that wealthier cities in developed countries often score highest in terms of their overall environmental performance. However, a disproportionate share of environmental benefits in these cities flow to wealthier communities. In contrast, many cities in emerging economies, particularly in China, India, and Africa, expose all of their residents – both rich and poor – to burdens like higher levels of air pollution and lower levels of tree cover, byproducts of these areas’ rapid development.

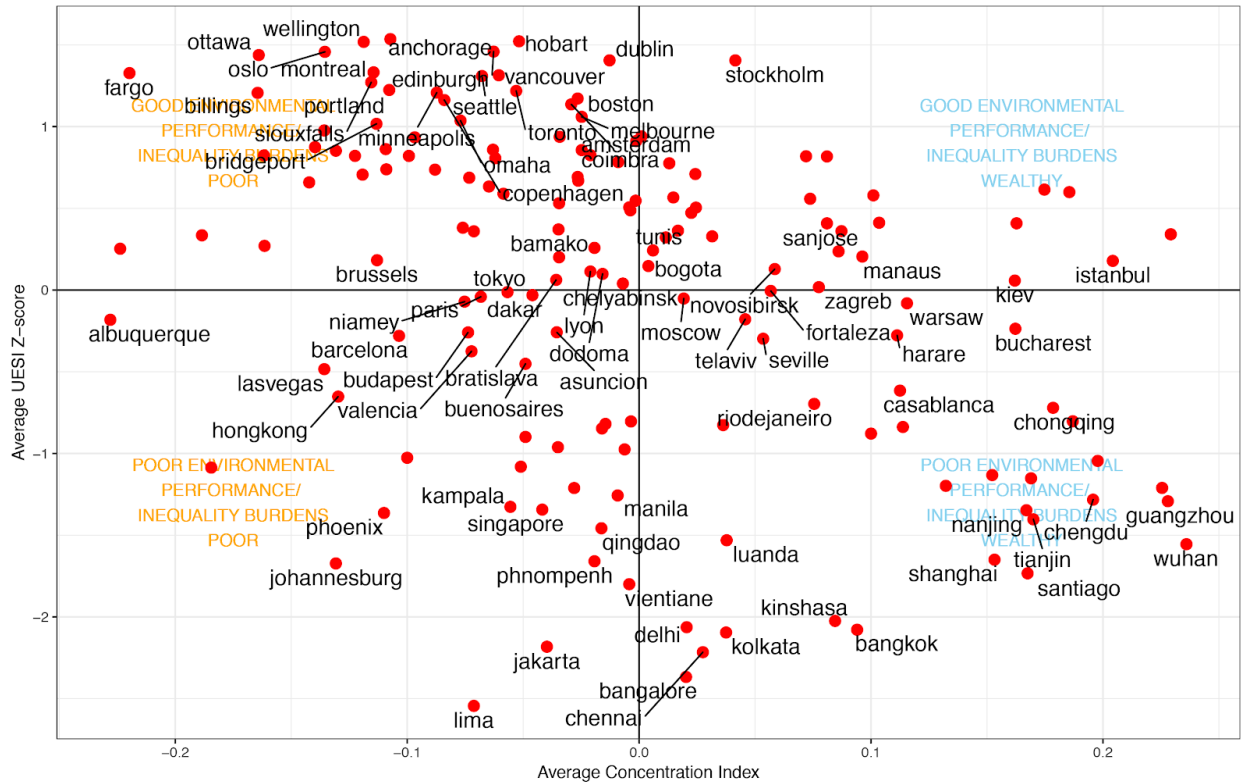


Figure 1. A four-quadrant plot examining relationship between environmental performance (in terms of average z-score indicating the distance from the mean for or a city’s average performance on the UESI indicators) and equity (in terms of average concentration index). Cities towards the top of the chart perform better on environmental issues, while cities towards the bottom of the chart perform more poorly. Along the horizontal axis, the farther away cities are from the center of the figure, the more unequally environmental burdens are distributed. In cities towards the right-hand side of the figure, wealthier neighborhoods are more heavily burdened, while in cities towards the left-hand side of the figure, poorer neighborhoods are more heavily burdened.

These findings speak to the need to address equity globally – ensuring that developing and emerging economies have access to the resources needed to grow sustainably – and locally, making equity an active part of urban environmental and development interventions. Cities that perform well on both environmental and equity indicators could offer one source of solutions. These include cities like Amsterdam and Stockholm, which frequently top environment and livability indices, as well as lower-profile examples, such as Perth, Bogotá, Tunis, and Lisbon.

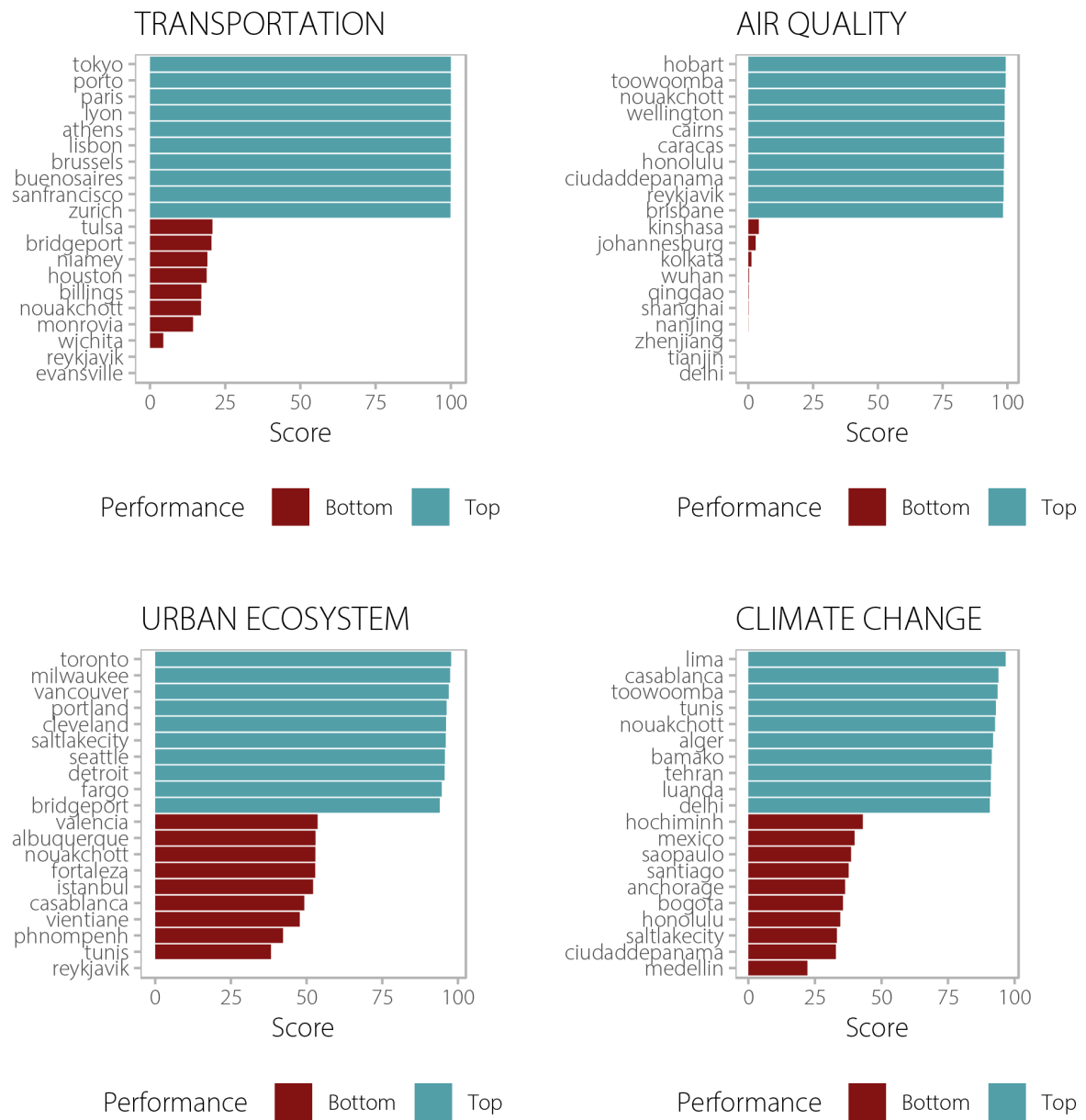


Figure 2. Top and bottom performers for four of the UESI issue categories, based on average indicator scores.

The Index also provides a big-picture look at cities’ performance on some of the defining challenges of urban sustainability. Key findings include:

- **Cities’ average performance on different indicators varies widely.** Many are already meeting the UN-Habitat’s recommended level of tree cover per person, but no city achieves a perfect score on climate change or air quality.

- **86 percent of people living in the UESI's cities, compared to 90 percent globally, breathe unsafe air** that does not meet the World Health Organization's guidelines for safe exposure to fine particulate pollution, particles that are fine enough to lodge deep in human lung and blood tissue, contributing to health risks like lung disease and stroke. 57 cities, including Oslo, Vancouver, Wellington, Anchorage, and Portland, demonstrate that stronger and more equitable performance on air quality is possible: 100 percent of these cities' neighborhoods have fine particulate pollution levels that fall within World Health Organization standards.
- **UESI cities lost a total of 3,348.5 square kilometers of urban tree cover from 2001 to 2016 – an area more than four times the size of New York City.** North American cities tend to perform well on tree cover; the Canadian cities of Toronto and Vancouver and the US cities of Milwaukee and Portland all score well. Cities in developing countries, such as Tunis, Phnom Penh, Vientiane, and Casablanca, have some of the lowest scores, which may reflect their rapid growth over the last several decades, as vegetated areas are converted into new developments and infrastructure.
- **Only about a third of UESI cities (72 cities) have average access to public transit within walking distance** (1.2 kilometers or 0.75 miles, the distance an average city resident is willing to walk to a metro stop). Athens, Barcelona, Lisbon, San Francisco, and Paris have neighborhoods with an average walking distance of less than 200 meters, while cities such as Chongqing, Dalian, Maputo or Houston require residents to walk an average distance of 5 kilometers (just over 3 miles) to reach a public transit station. In just 35 cities, residents are within walking distance (1.2 kilometers) of a public transit station no matter what neighborhood they find themselves in; in most other cities, access to public transit varies dramatically across different parts of the city.
- **Nearly a quarter of UESI cities are water stressed.** The UESI cities with the greatest level of demand on their water supply include the U.S. city of Charlotte, North Carolina; the Indian cities of Kolkata and Chennai; Fortaleza, Brazil; Santiago, Chile; and Tel Aviv, Israel, each of which relies on water sources where almost the entire available water supply is withdrawn each year for urban, agricultural, and industry use.

The UESI will be launched at the [10th Session of the World Urban Forum](#), as part of its [Urban Library series](#). This year, the Forum will bring over 16,000 participants from across 168 countries together, to explore the ways culture and innovation can drive sustainable urbanization. Tools like the Index, which help map the ways environmental quality of life vary within a city, can provide a powerful basis for making the invisible variations in environmental quality of life visible, sparking conversations and collaborations between local communities and urban policymakers.

“Cities will be a vital part of delivering the world’s commitment to fostering sustainable, inclusive growth. Achieving the Sustainable Development Goals – a global roadmap for a safe, inclusive future – will depend, in large part on cities, but scarce data tracks their progress,” said Amy Weinfurter, a Research Associate with the Data-Driven Lab who will be presenting the

UESI at the World Urban Forum Meeting on Feb. 9. “The UESI’s approach has created a dataset with an unprecedented level of coverage and detail, making it possible to fill these data gaps, and empowering cities to benchmark their performance and learn from each other.”

The UESI’s findings and interactive portal can be explored at: <http://datadrivenlab.org/urban/>.

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About the Data-Driven EnviroLab

The Data-Driven EnviroLab ([Data-Driven Lab](#)) is an interdisciplinary and international group of researchers, scientists, programmers, and visual designers based at Yale-NUS College, Singapore. The Data-Driven Lab uses innovative data analytics to distill signals from large-scale and unconventional datasets and develop policy solutions to contemporary environmental problems. Working with scholars and policymakers across the globe, the Data-Driven Lab strives to strengthen environmental policy at all levels. We promote evidence-based approaches to problem solving while boosting information disclosure and transparency among public institutions, private companies, civic organizations and individual citizens.