



**URBAN
ENVIRONMENT &
SOCIAL INCLUSION
INDEX**

SUSTAINABLE AND INCLUSIVE:

Are cities meeting goals for
equitable environmental growth?

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November 7, 2019

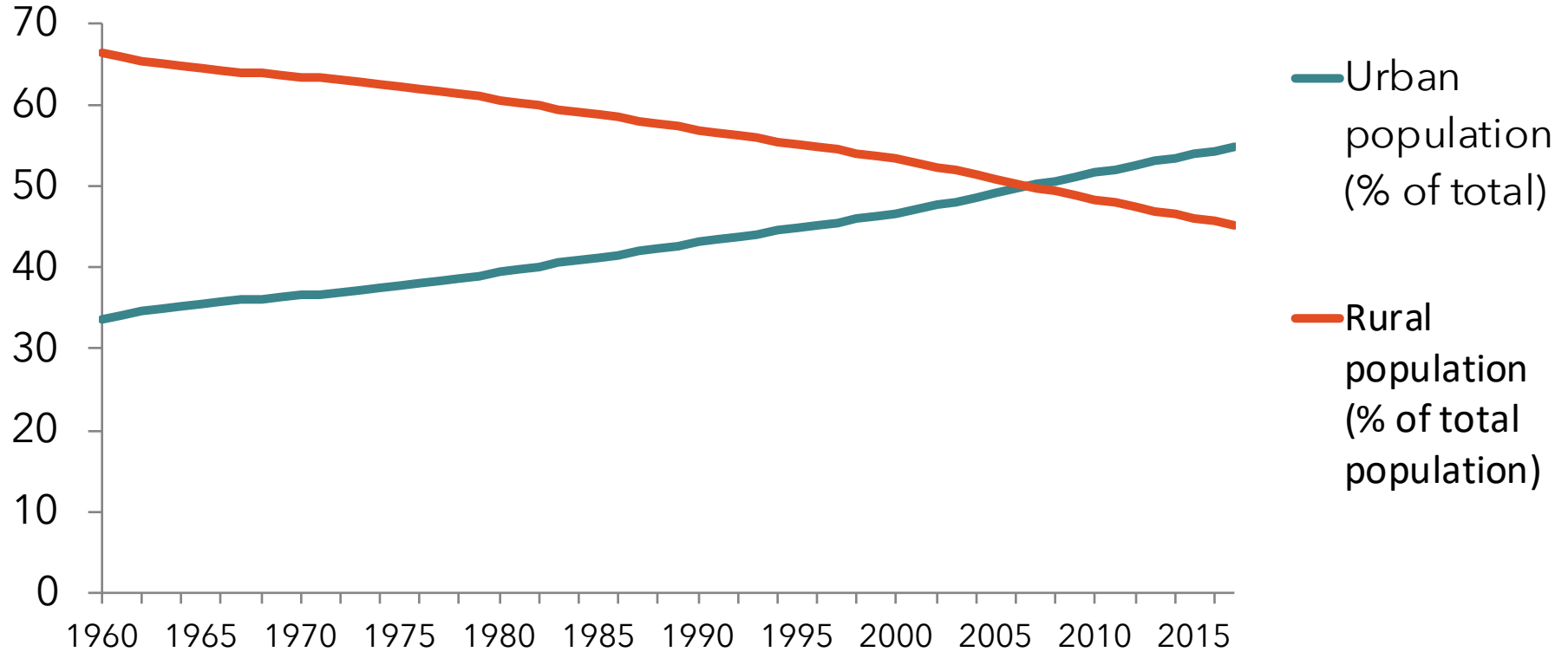


**SAMUEL CENTRE
FOR SOCIAL
CONNECTEDNESS**



**DATA
DRIVEN
ENVIROLAB**

THE URBAN CENTURY



11 SUSTAINABLE CITIES AND COMMUNITIES

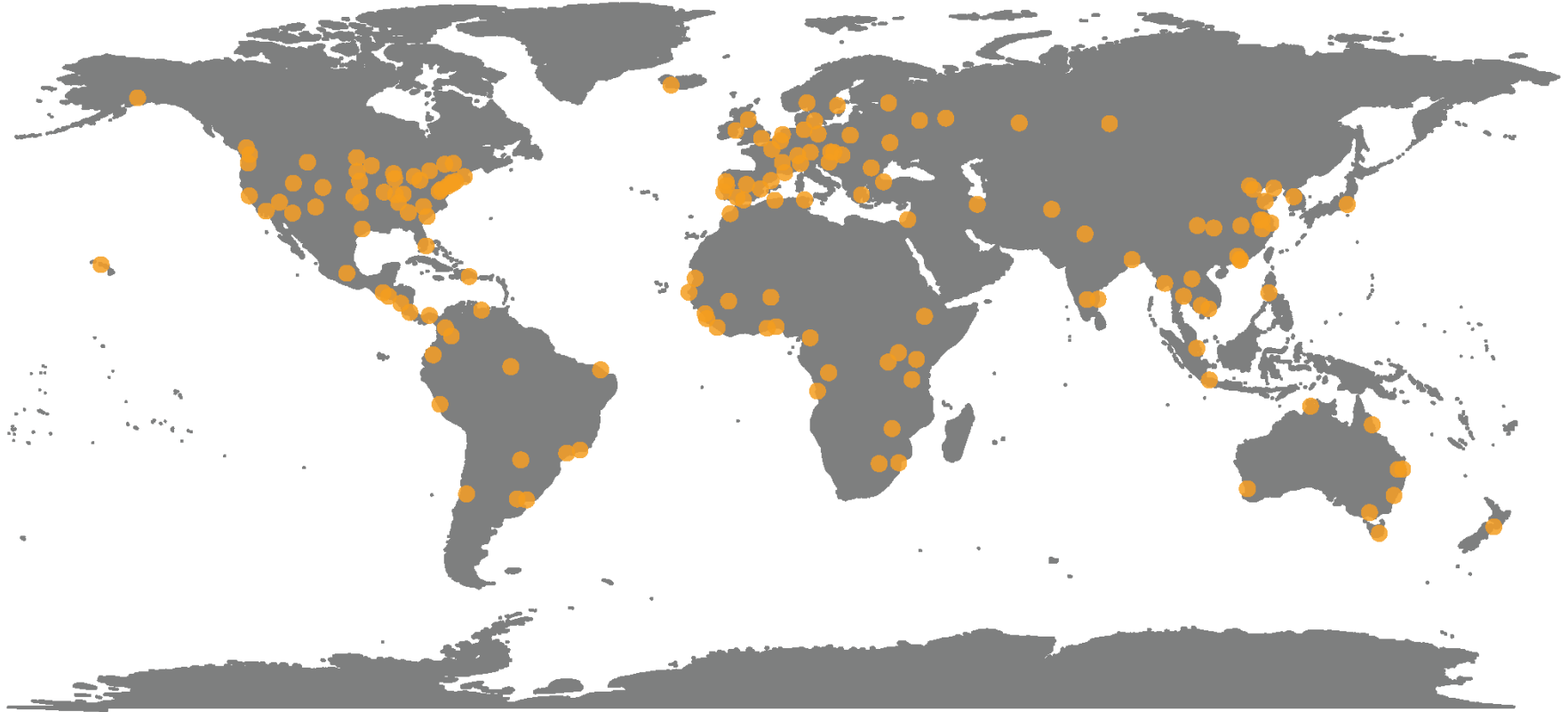


| Target | Indicator |
|--|--|
| 11.1 By 2030, ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums | 11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing |
| 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons | 11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities |
| 11.3 By 2030, enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries | 11.3.1 Ratio of land consumption rate to population growth rate |
| | 11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically |
| 11.6 By 2030, reduce the adverse per capita environmental impact of cities, including by paying special attention to air quality and municipal and other waste management | 11.6.2 Annual mean levels of fine particulate matter (e.g. PM _{2.5} and PM ₁₀) in cities (population weighted) |
| 11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities | 11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities |

URBAN ENVIRONMENT + SOCIAL INCLUSION INDEX (UESI) MEASURES 5 DIMENSIONS



UESI CITIES - INCLUDES 165

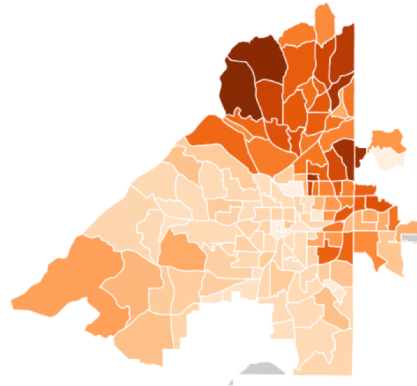


City Atlanta

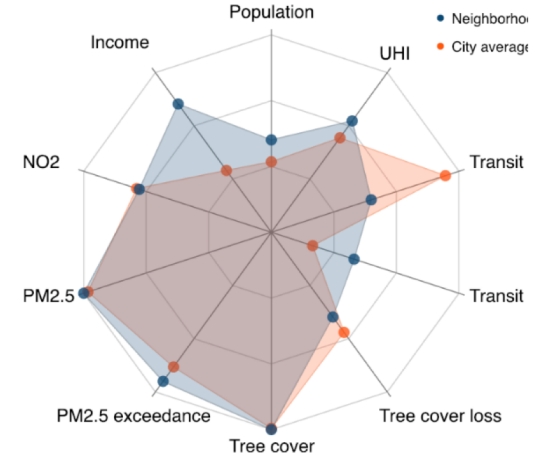
Key Facts

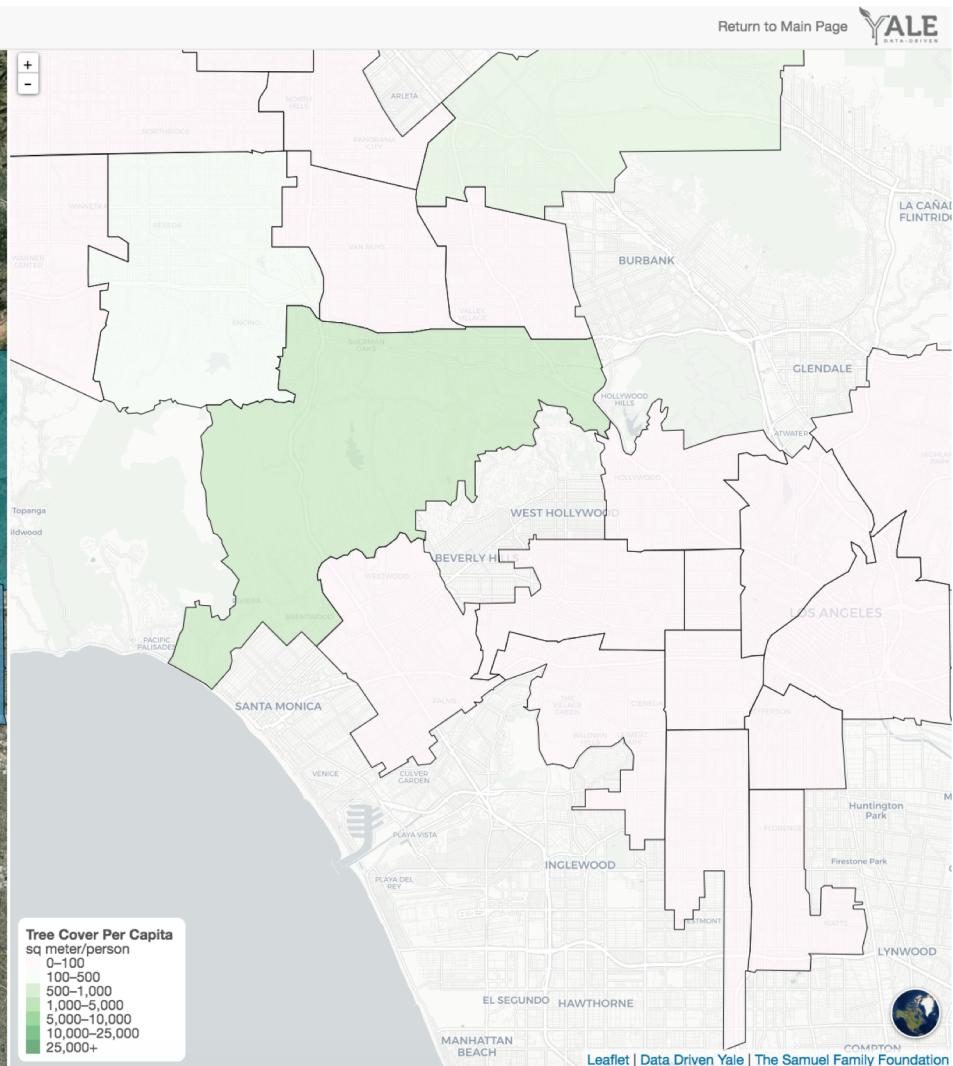
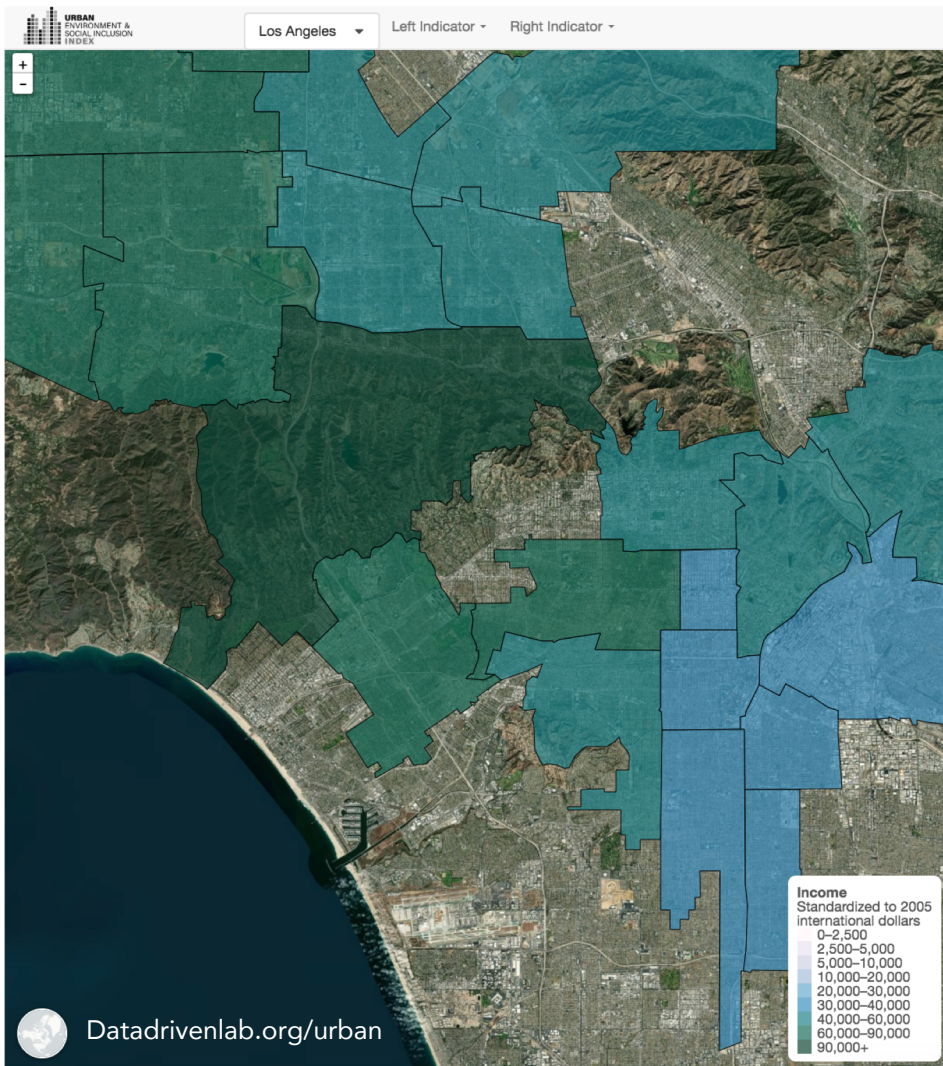
| | |
|--|----------------------|
| City Area (km ²) | 425 |
| City Population | 495,377 |
| Mean neighborhood income per capita (local currency) | \$30,317 |
| UESI Category | Average Score |
| Air Quality | 85 |
| Urban Heat Island | 59 |
| Climate Policy | N/A |
| Tree Cover | 81 |
| Water | N/A |
| Public Transit | 57 |

Atlanta



Indicator scores





EarthTime



Search for a location...

US All Household Income 2012-2016 (US Census / ACS2016 / NHGIS)
■ $\geq \$100K/yr$ ■ $\$50K-\$100K/yr$ ■ $\$20K-\$50K/yr$ ■ $< \$20K/yr$



Simi Valley

Thousand Oaks

Malibu

Santa Monica

Los Angeles

Pasadena

Angeleno National Forest

10 km
10 mi

Torrance

Base Layer © Google

EarthTime
CMU CREATE Lab

Choose an Indicator

Demographics

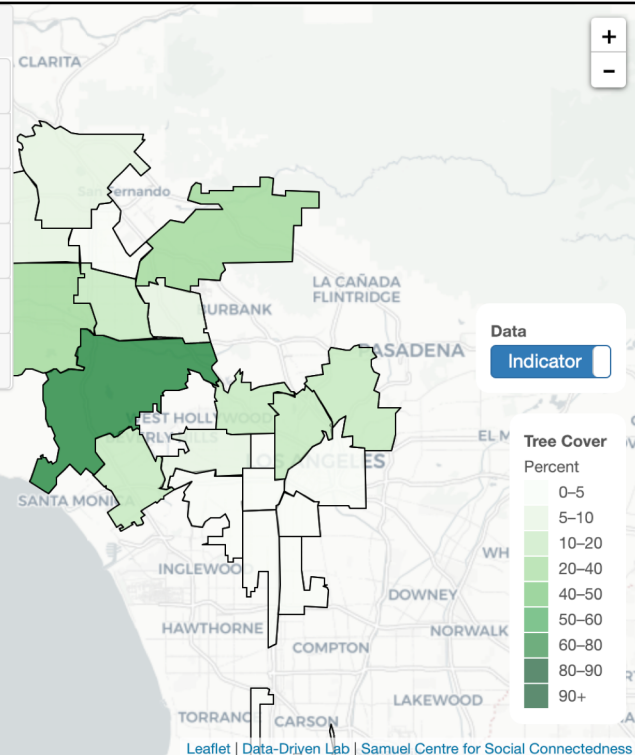
Air

Climate

Tree Cover

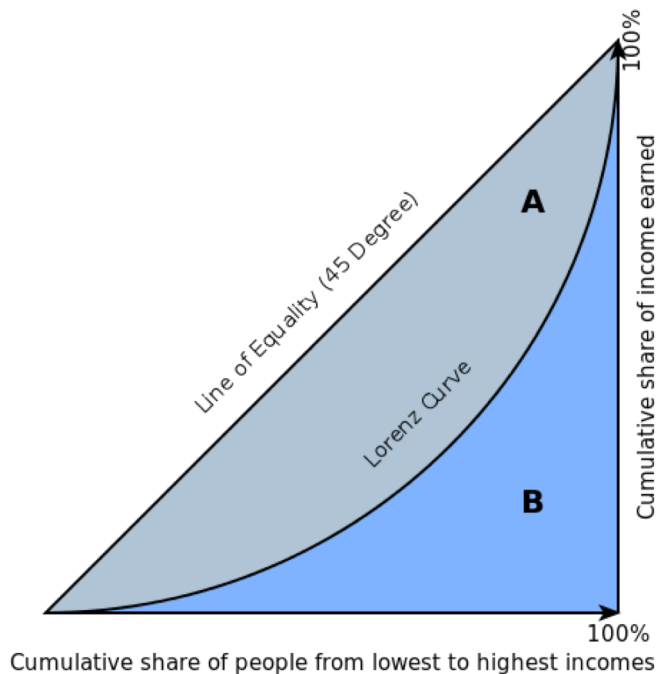
Water

Transportation

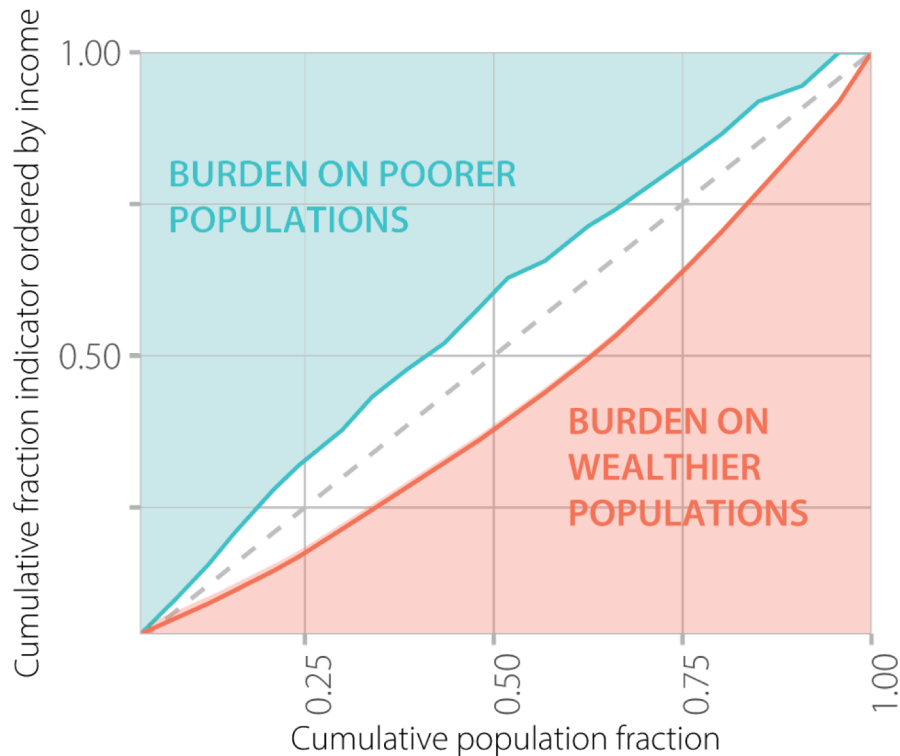


Leaflet | Data-Driven Lab | Samuel Centre for Social Connectedness

LORENZ + CONCENTRATION CURVES

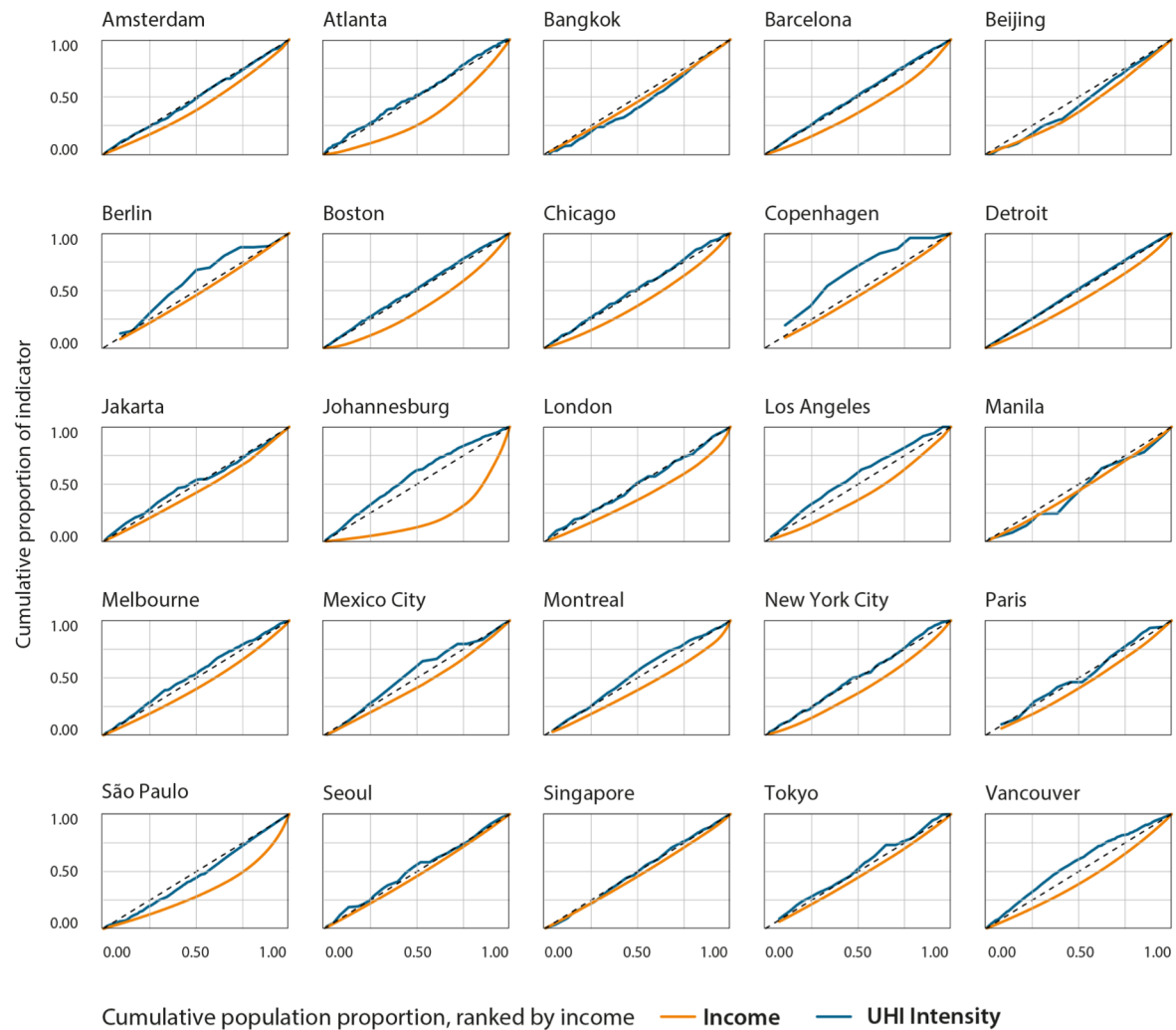


$$\text{Gini} = A/(A+B)$$



$$\text{ECI} = 1 - 2 * \text{AUC}_{\text{env}}$$

UHI Intensity Distribution



Positive EO

Positive Concentration Index (> 0)

Negative Concentration Index (< 0)

Negative EO

Negative Concentration Index (< 0)

Positive Concentration Index (> 0)

**Low Gini
(< 0.36)**

Cities where the environmental outcome is allocated to the lowest income earners (Low ECI) and there is low income inequality (Low Gini).

In this quadrant, although there is low income inequality, the environmental pressure potentially exacerbates the gap between poorer and richer citizens.

1

Cities where the environmental outcome is allocated to the highest income earners (High ECI) and there is low income inequality (Low Gini).

In this quadrant the allocation of environmental outcomes is placed among the highest earners of the city, potentially avoiding environmental pressure on lowest earners.

2

**High Gini
(> 0.36)**

Cities where environmental outcome is allocated to the lowest income earners (Low ECI) and there is high income inequality (High Gini).

The existing income inequality is prominently exacerbated by the environmental pressure, significantly increasing the gap between poorer and richer citizens.

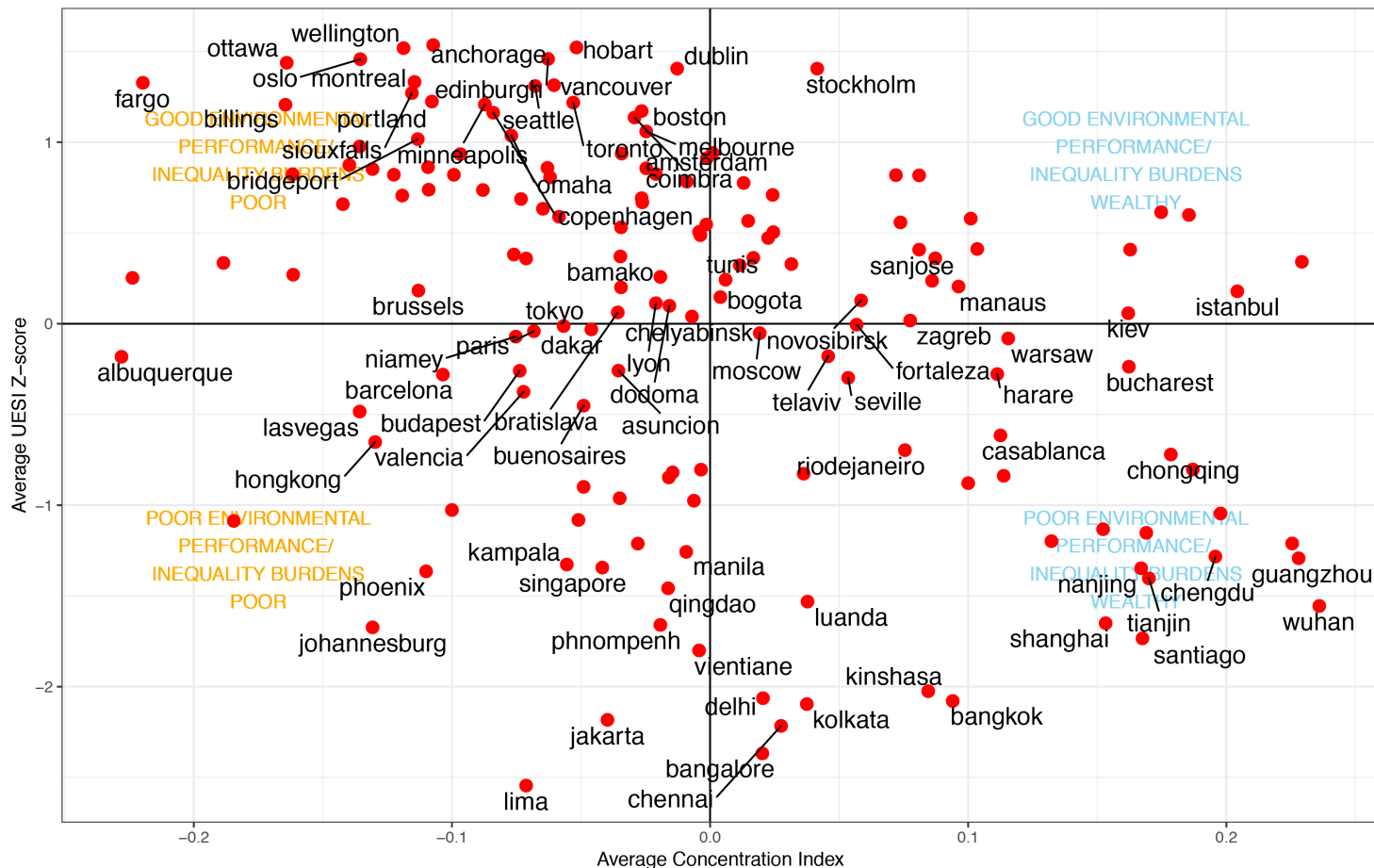
3

Cities where the environmental outcome is allocated to the highest income earners (High ECI) and there is high income inequality (High Gini).

The existing income inequality is not exacerbated by the environmental pressure, as it is allocated to the highest income earners.

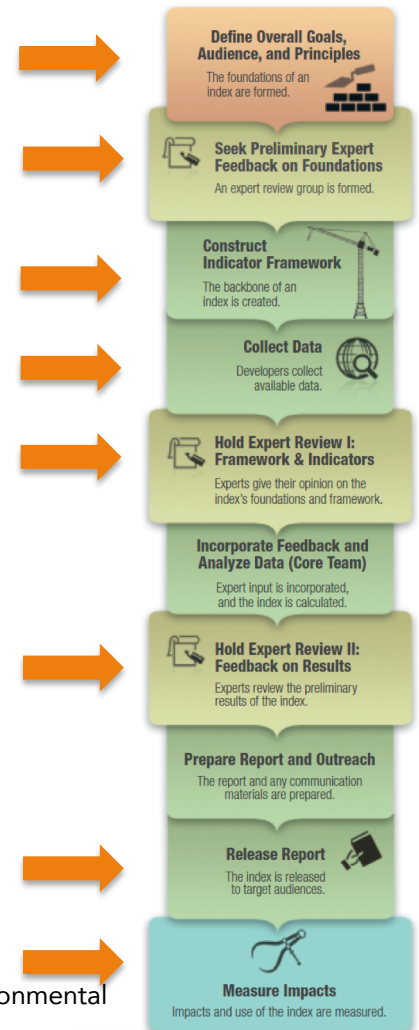
4

MAJORITY OF CITIES BURDENING POOR



ENGAGING POLICY ACTORS




- Consultation
- Design
- Data collection
- Indicator selection, construction, calculation
- Peer review
- Outreach
- Communcation






BIGGEST CHALLENGES


- Complexity vs. simplicity
- Communicating nuance
- Methodological changes
 - comparing change over time.





[World](#)[SUBSCRIBE](#)

Beijing's Bad Air Would Be Step Up for Smoggy Delhi



"It's always puzzled me that the focus is always on China and not India," said Dr. Angel Hsu, director of the environmental performance measurement program at the Yale Center for Environmental Law and Policy. "China has realized that it can't hide behind its usual opacity, whereas India gets no pressure to release better data. So there simply isn't good public data on India like there is for China."

New York Times, Jan. 26, 2014

THANK YOU

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