Sustainable (Resilient) Cities

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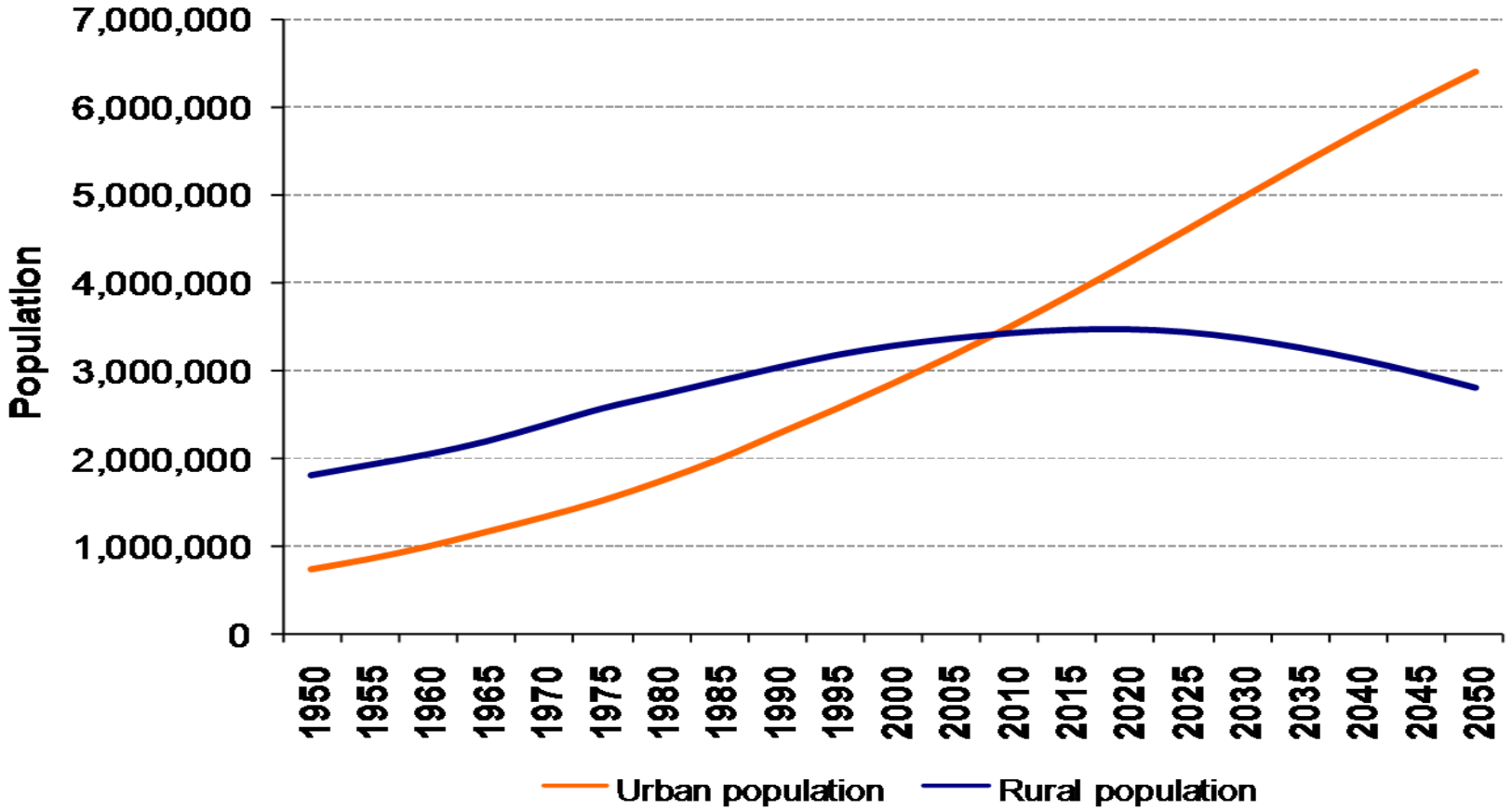
Daniel Hoornweg
Jeffrey Boyce Research Chair, UOIT
Chief Safety and Risk Officer, Ontario

UNIVERSITY OF ONTARIO INSTITUTE OF TECHNOLOGY

2 billion new urban residents by 2030, 3 billion by 2050



Many problems already from cities, e.g. climate change.

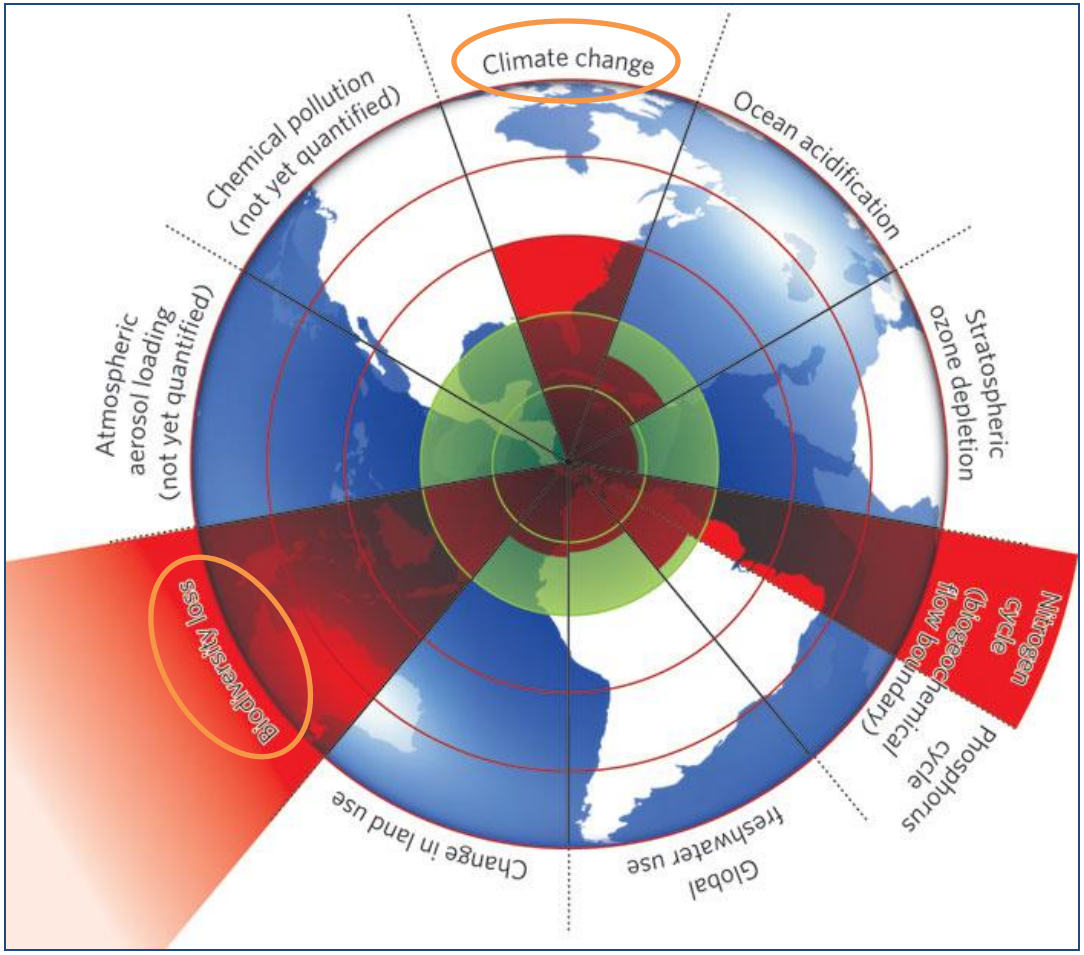
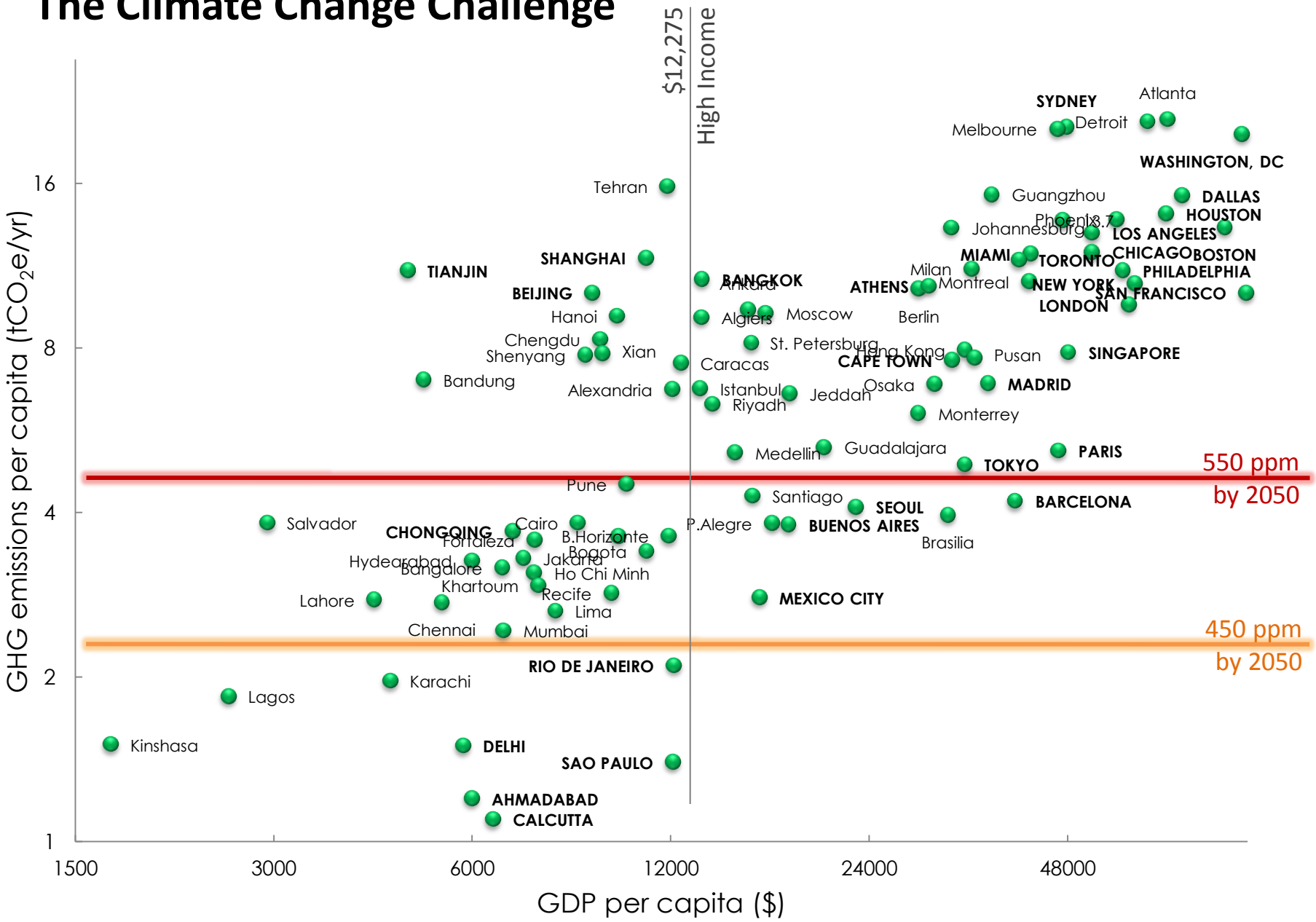


Figure: Exceeding the safe operating space in global environmental systems The green circle above represents the proposed safe operating space for each system above. Red shading denotes an estimate of the current status of each. The boundaries rate of biodiversity loss, climate change and human interference with the nitrogen cycle are far beyond the safe operating space (Rockstrom *et al* 2009).

The Climate Change Challenge



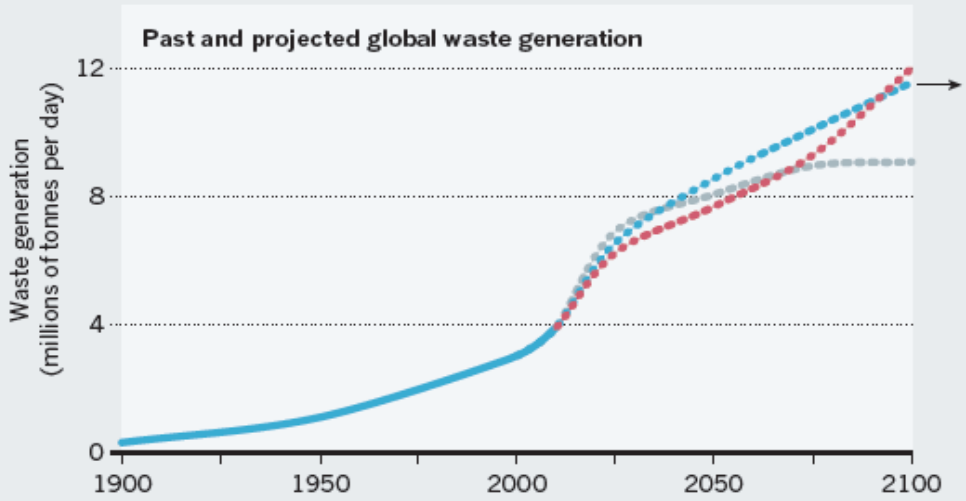
WHEN WILL WASTE PEAK?

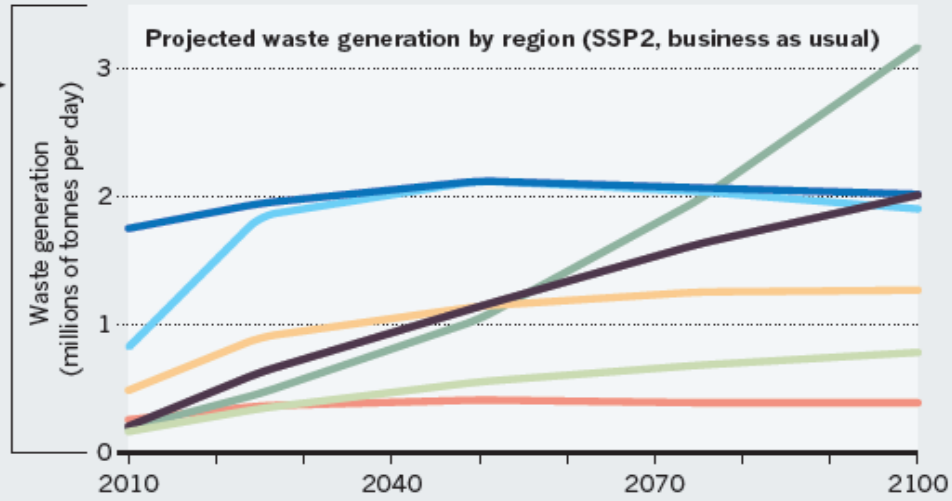
Three projections to 2100 for waste generation spell very different futures. In the first Shared Socioeconomic Pathway[9] scenario (SSP1), the 7-billion population is 90% urbanized, development goals are achieved, fossil-fuel consumption is reduced and populations are more environmentally conscious. SSP2 is the 'business-as-usual' forecast, with an estimated population of 9.5 million and 80% urbanization. In SSP3, 70% of the world's 13.5 billion live in cities and there are pockets of extreme poverty and moderate wealth, and many countries with rapidly growing populations.

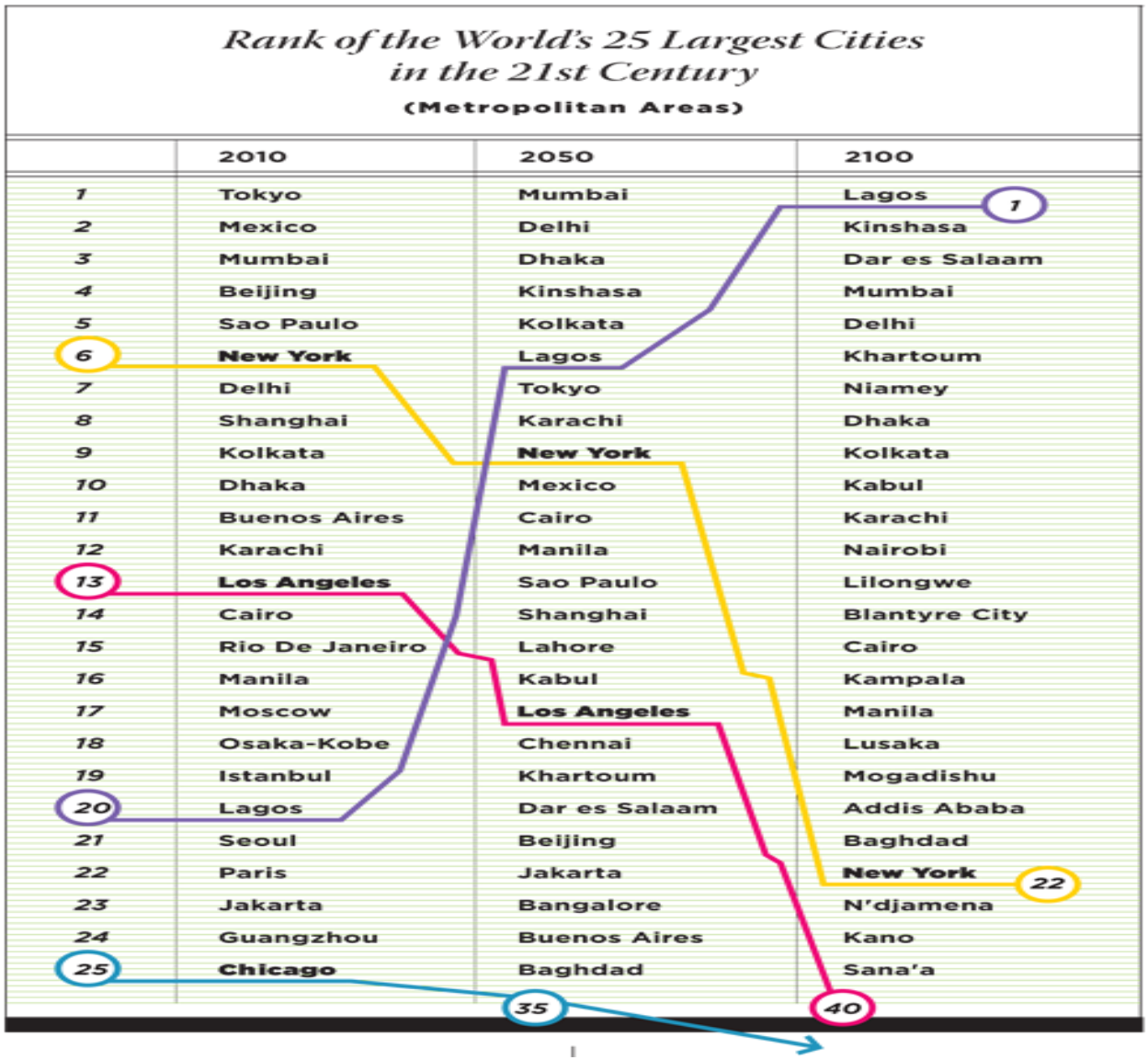
SSP1 SSP2 SSP3

*Organisation for Economic Co-operation and Development

Sub-Saharan Africa
East Asia and Pacific
Europe and central Asia
South Asia
Latin America and the Caribbean
Middle East and North Africa
High-income and OECD* countries

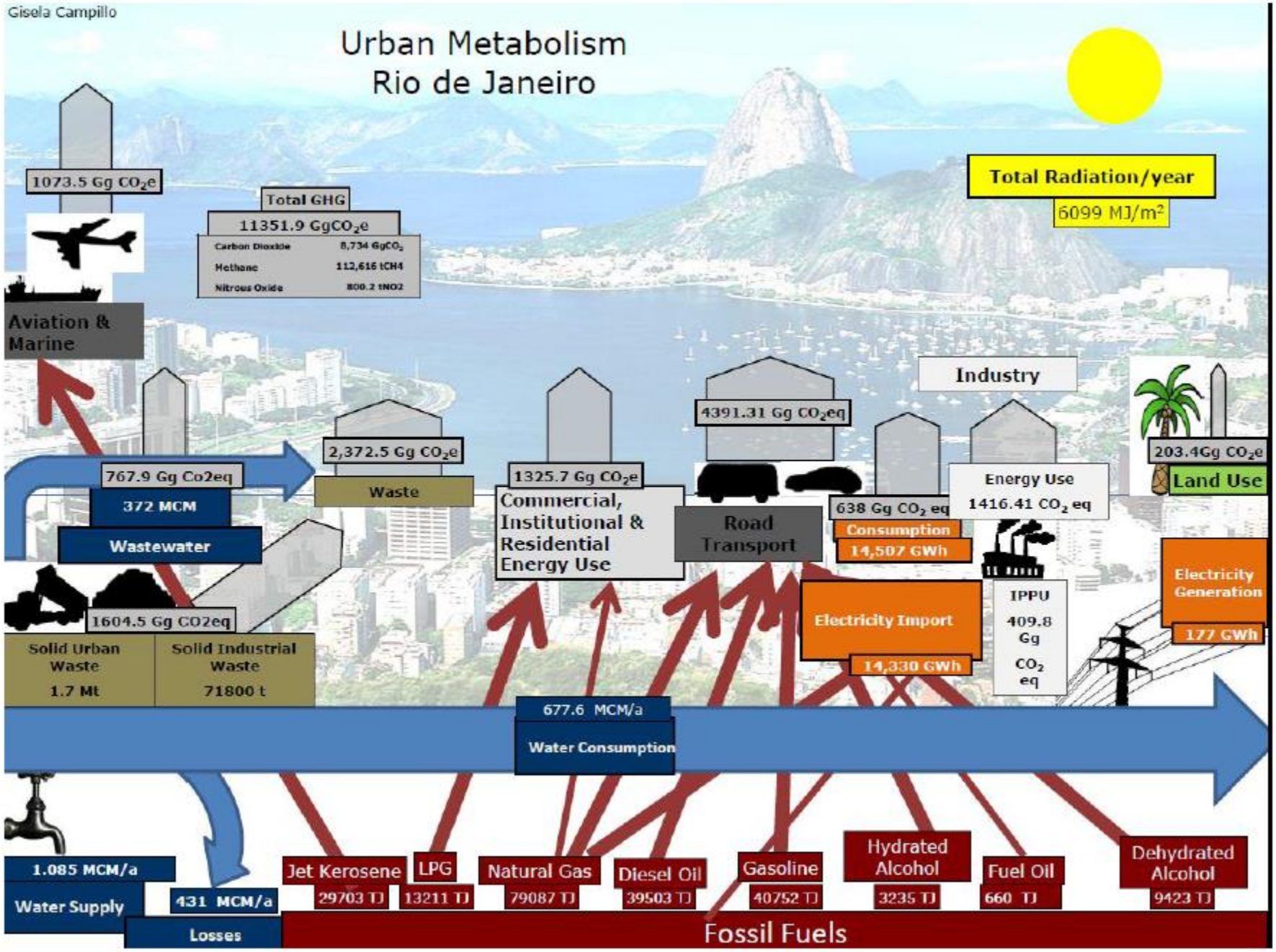





Rank of the World's 25 Largest Cities in the 21st Century
(Metropolitan Areas)
2010
2050
2100
1 Tokyo
2 Mexico
3 Mumbai
4 Beijing
5 Sao Paulo
6 New York
7 Delhi
8 Shanghai
9 Kolkata
10 Dhaka
11 Buenos Aires
12 Karachi
13 Los Angeles
14 Cairo
15 Rio De Janeiro
16 Manila
17 Moscow
18 Osaka-Kobe
19 Istanbul
20 Lagos
21 Seoul
22 Paris
23 Jakarta
24 Guangzhou
25 Chicago
Mumbai
Delhi
Dhaka
Kinshasa
Kolkata
Lagos
Tokyo
Karachi
New York
Mexico
Cairo
Manila
Sao Paulo
Shanghai
Lahore
Kabul
Los Angeles
Chennai
Khartoum
Dar es Salaam
Beijing
Jakarta
Bangalore
Buenos Aires
Baghdad
Lagos
Kinshasa
Dar es Salaam
Mumbai
Delhi
Khartoum
Niamey
Dhaka
Kolkata
Kabul
Karachi
Nairobi
Lilongwe
Blantyre City
Cairo
Kampala
Manila
Lusaka
Mogadishu
Addis Ababa
Baghdad
New York
N'djamena
Kano
Sana'a
1
22
35
40

Emerging Global Challenges for Cities

We Need a New Urban Agenda



Source: Author with information from Rio de Janeiro Municipal Secretary of Environment and COPPE

Building Sustainable (Resilient) Cities

Urban Form

Public Policy

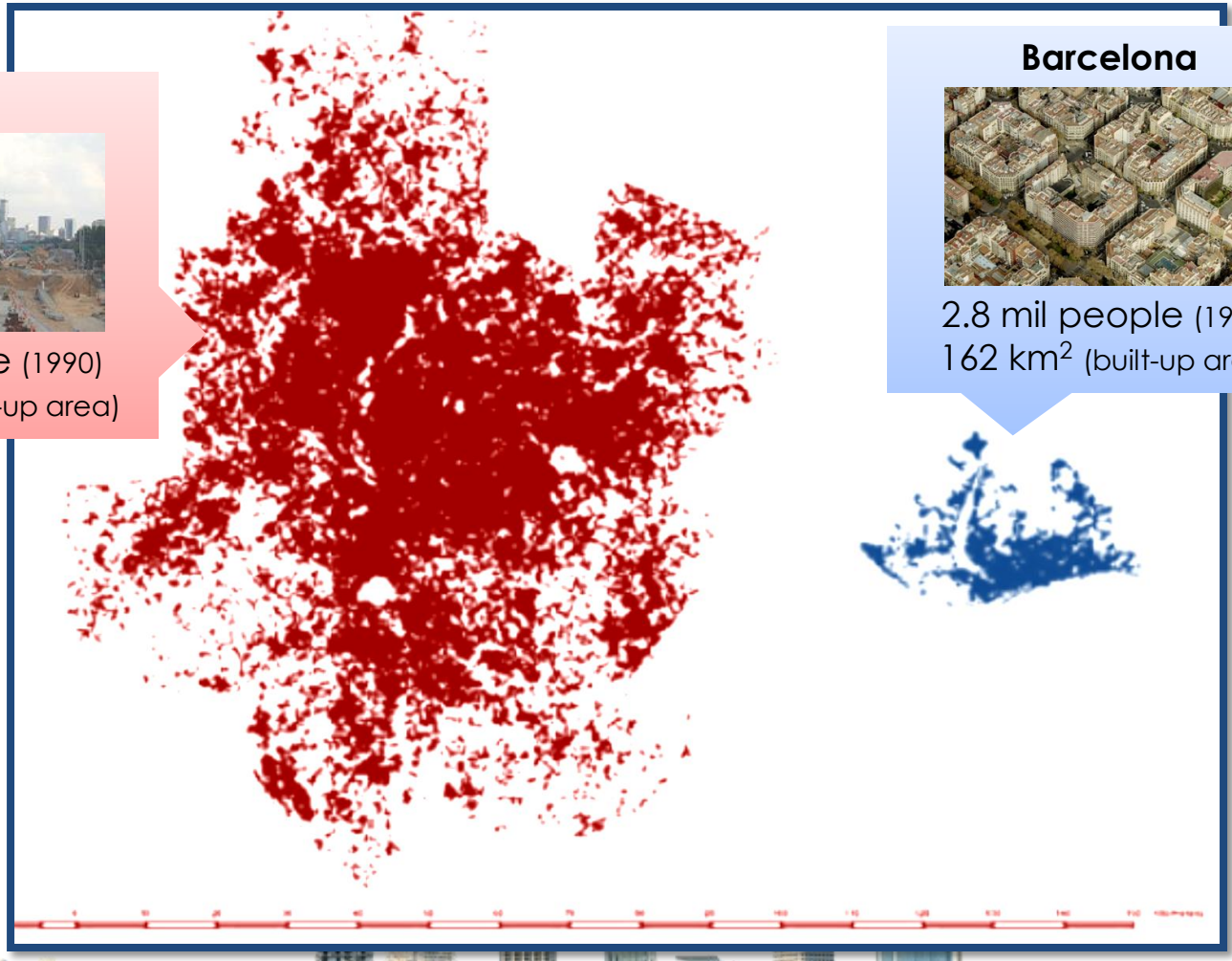
Metrics

1. Urban Form — it's critical

the built-up area of Atlanta and Barcelona

Atlanta

2.5 mil people (1990)
4,280 km^2 (built-up area)

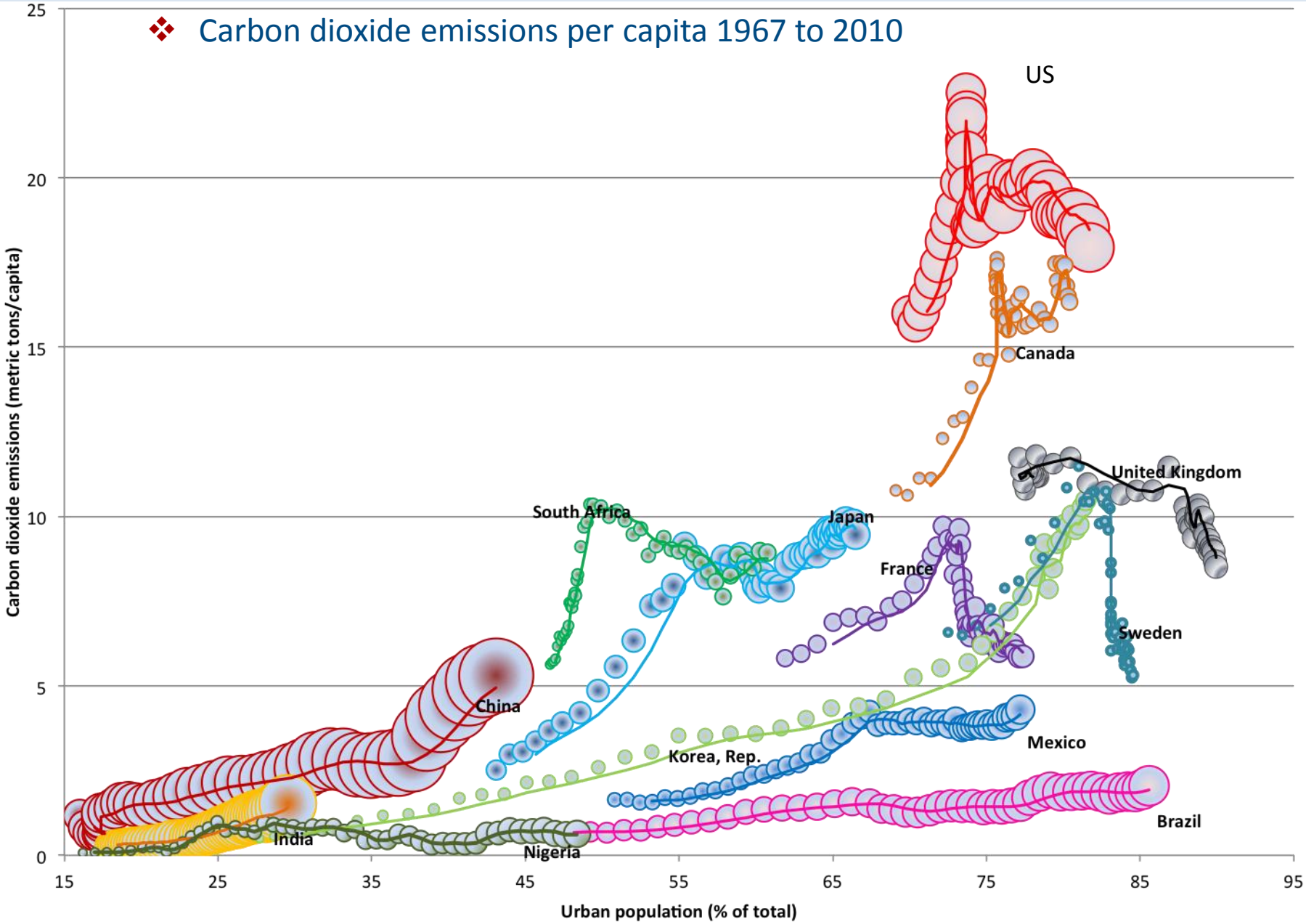


Barcelona

2.8 mil people (1990)
162 km^2 (built-up area)

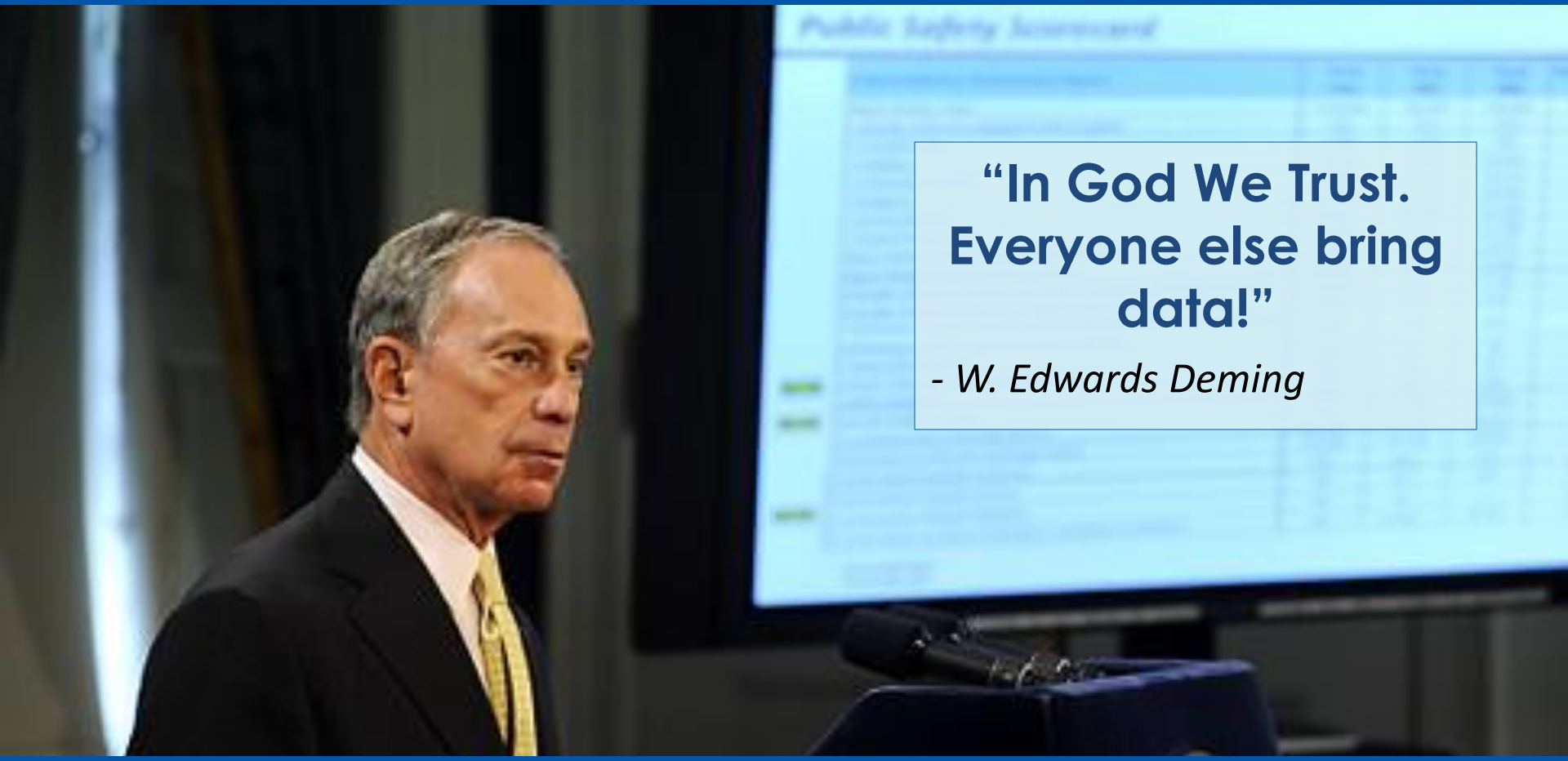
2. Public Policies Matter

- Carbon dioxide emissions per capita 1967 to 2010



3. Sustainable Cities manage for results

Sustainable Cities make decisions based on evidence, not just good intentions



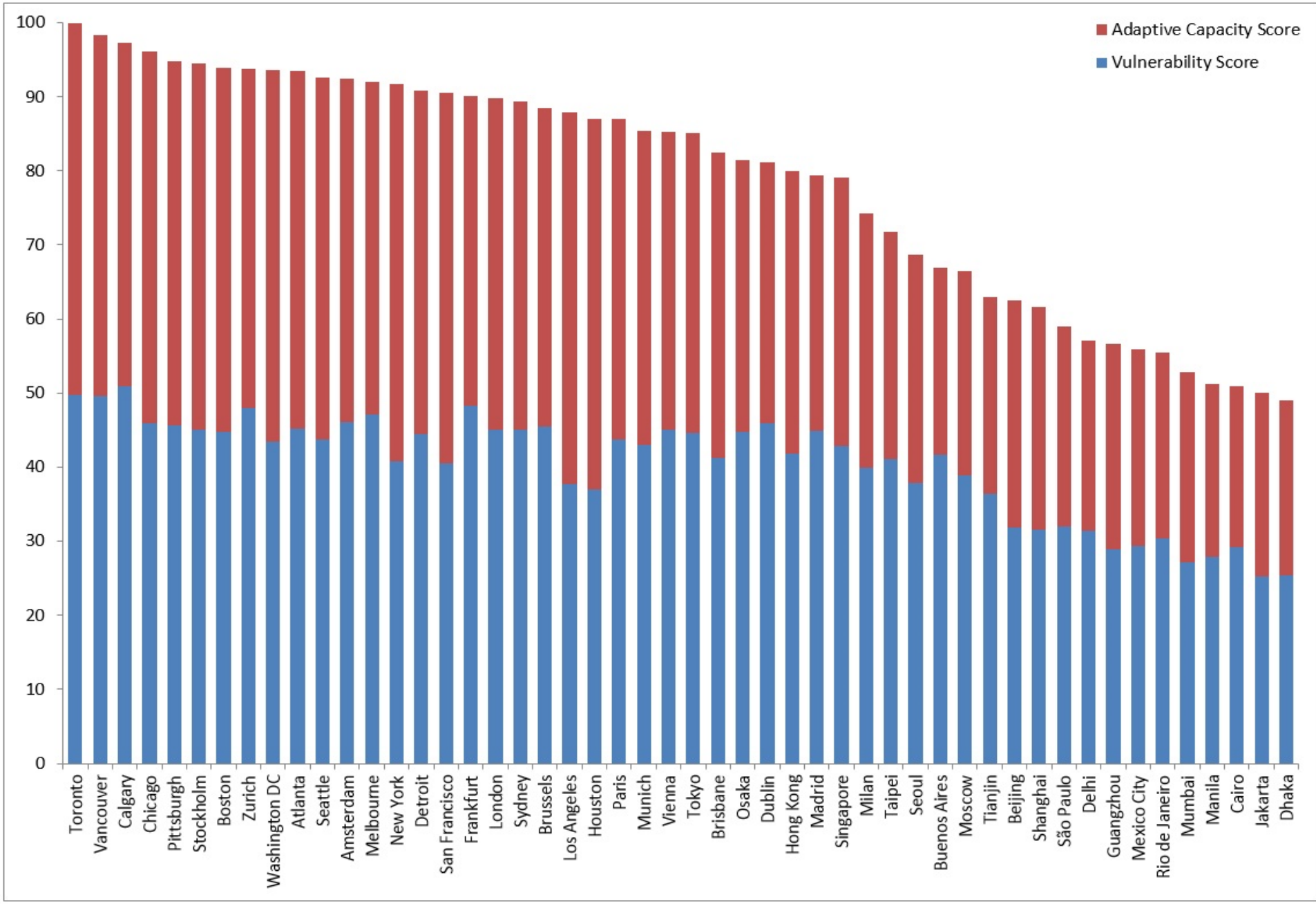
Metrics Matter

Global City Indicators Facility

New ISO Standard: APPROVED City Indicators ISO37120

The first ISO Standard on City indictaors

Toronto - ‘most resilient city’ (Grosvenor UK, 2014)



Thank You