UN HABITAT
FOR A BETTER URBAN FUTURE

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2 Global Urbanization Trends

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4 New Urban Frontiers: city expansion

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10 Knowledge and Research

11 Knowledge for Policy Change

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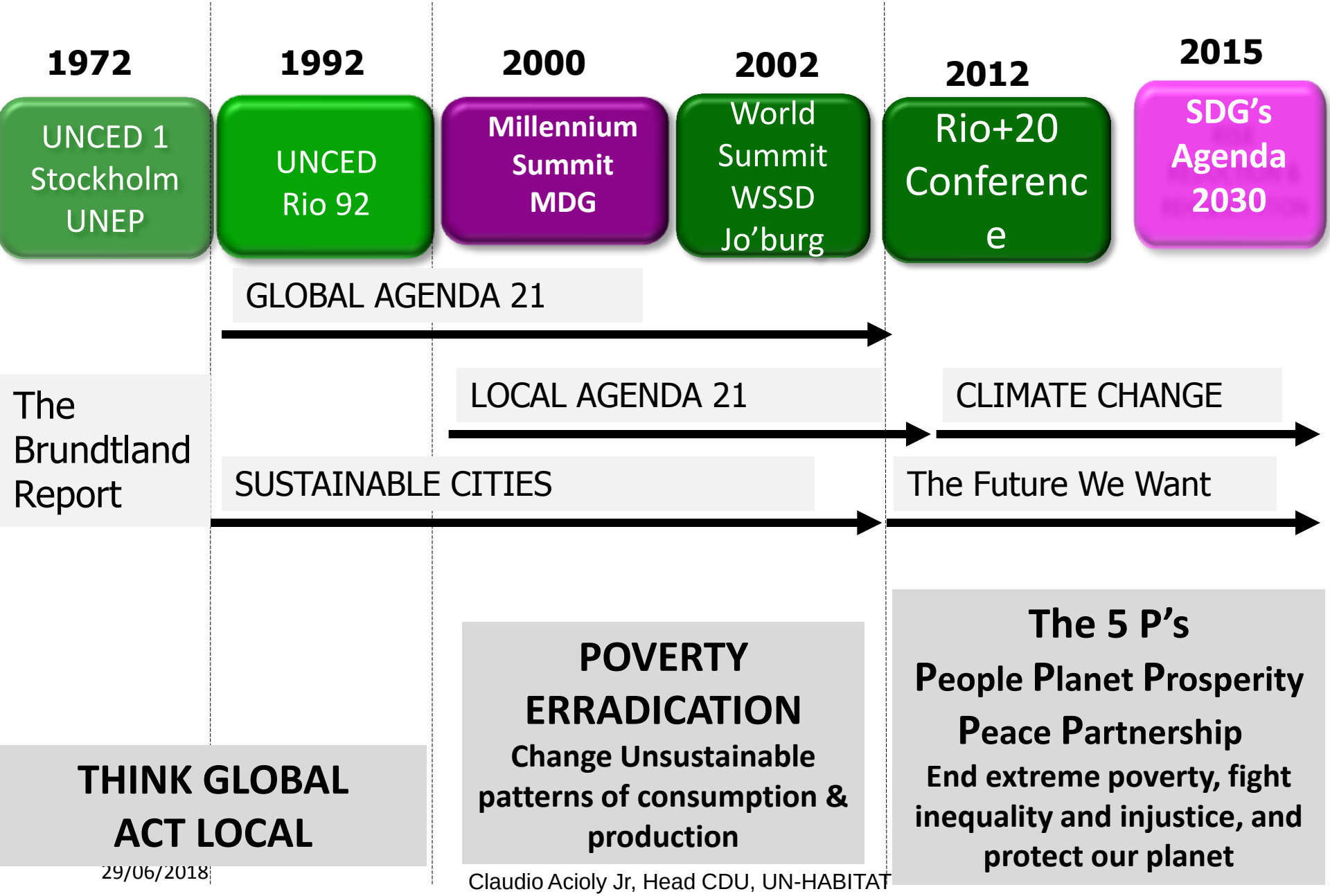
3.

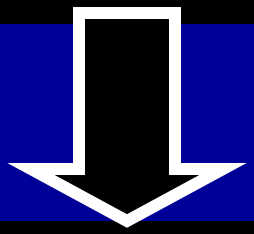
Understanding Sustainable Development:

Let’s us remember where we came from 20 years ago. The evolution of our thinking & action

The Sustainable Development Agenda



Rio, 1992: ‘Our Common Future’



Rio, 2012: ‘The Future We Want’
Rio+20

What is sustainable development?

“Sustainable development meets the needs of the present generation without compromising the ability of future generations to meet their own needs”

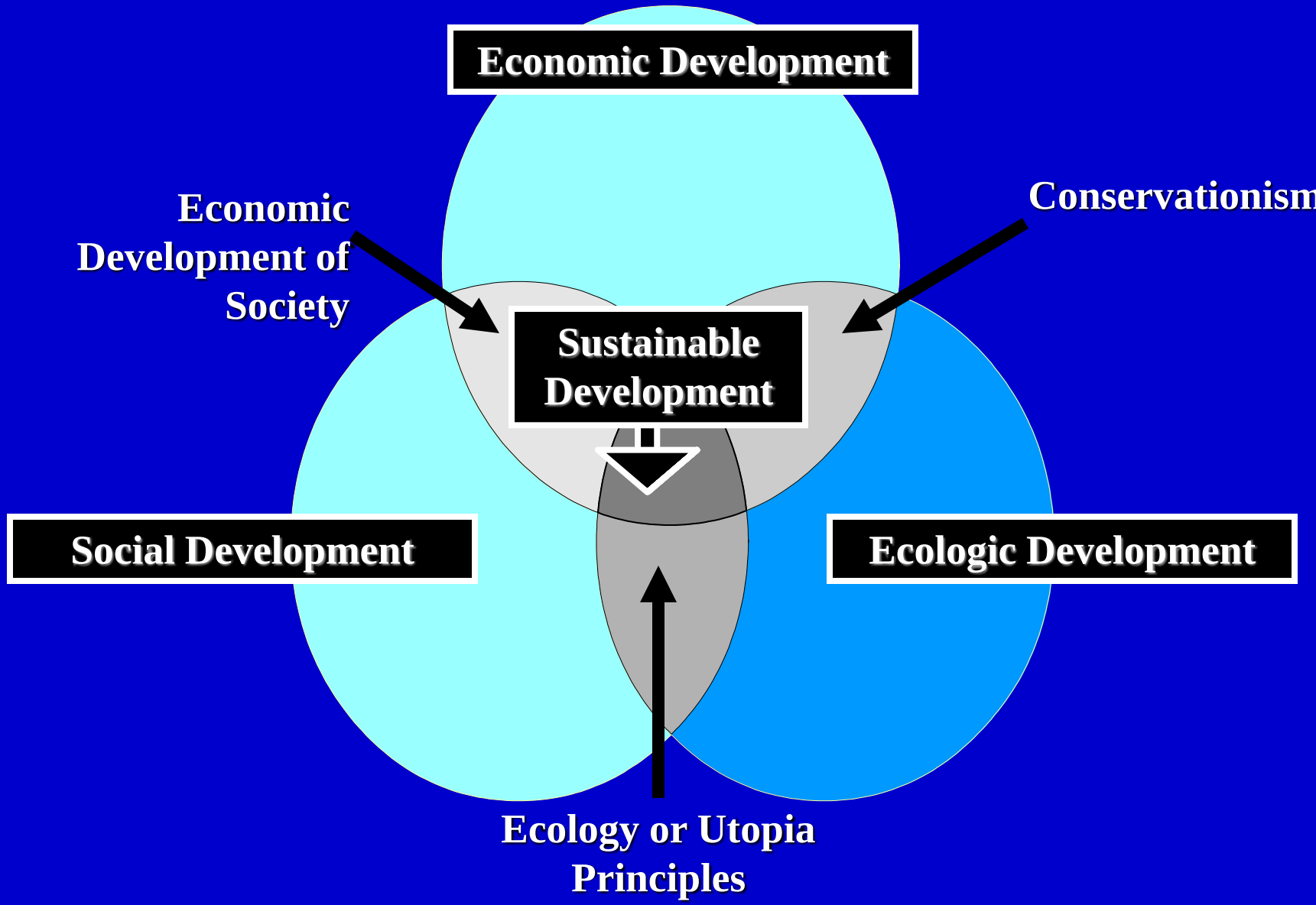
Rio, 1992: ‘Our Common Future’

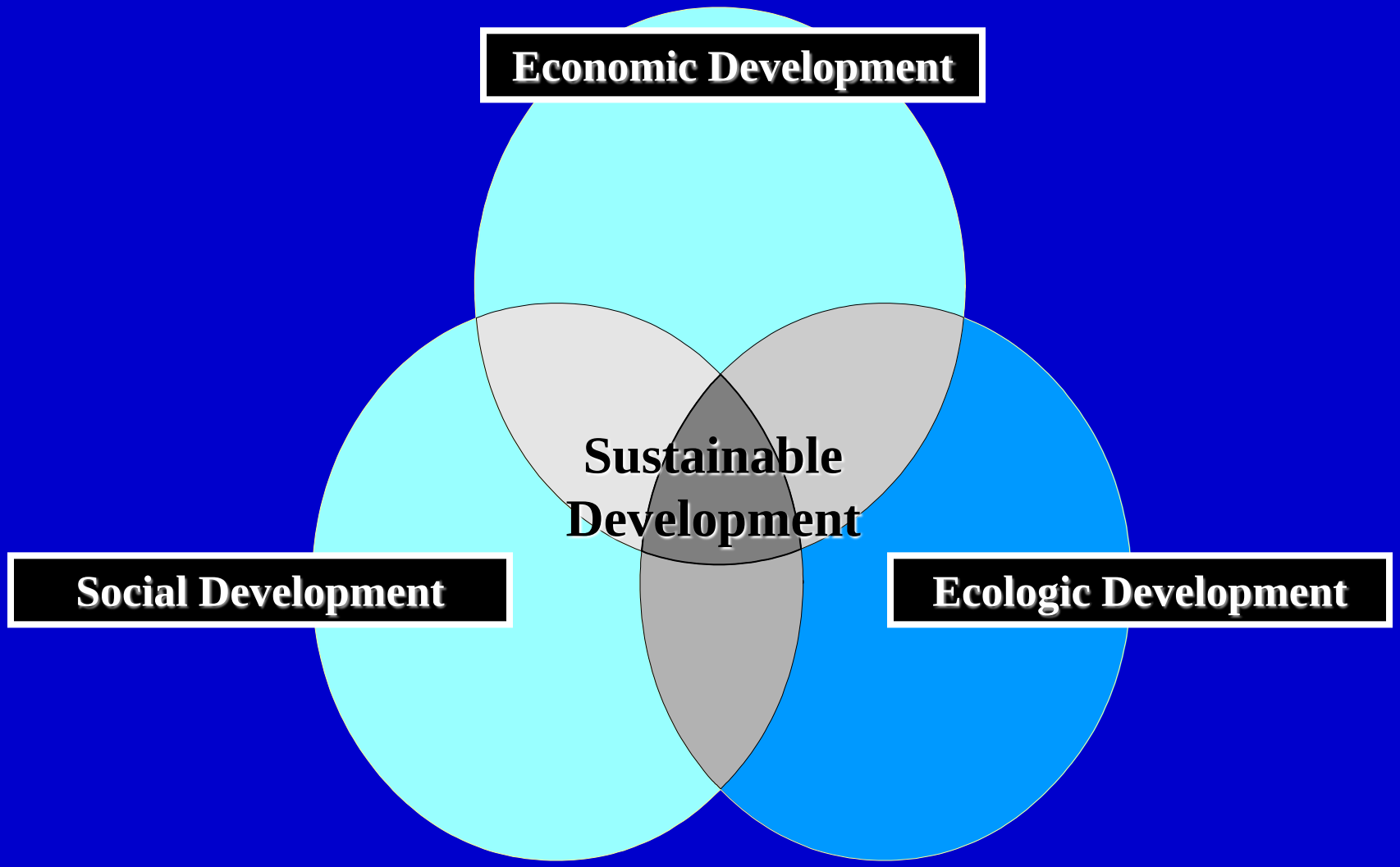
AGENDA 21,
Chapter 7: Human Settlements
Chapter 28: Local Agenda 21

Sustainable Cities

ACT LOCALLY, THINK GLOBALLY.

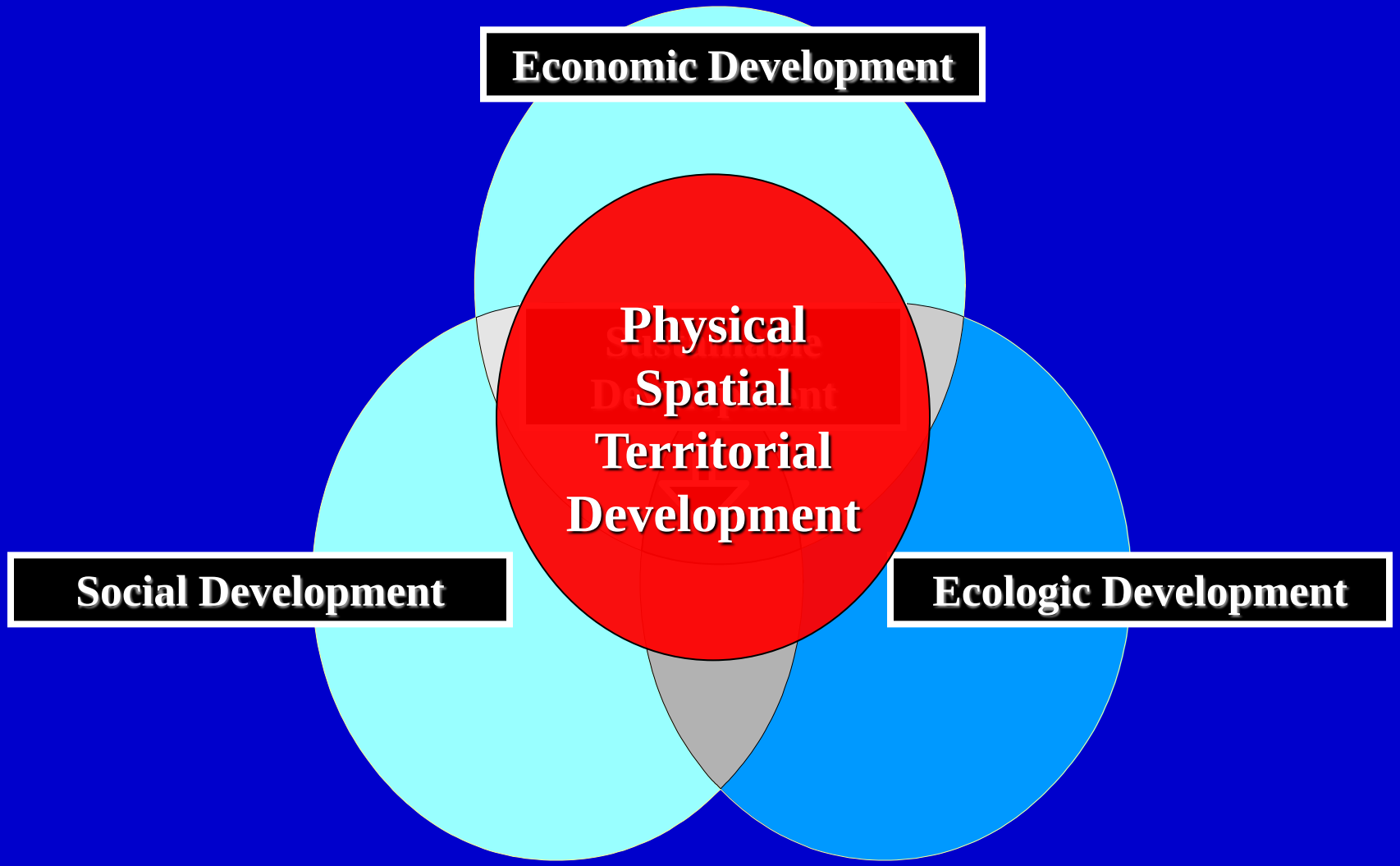
What's sustainable development?



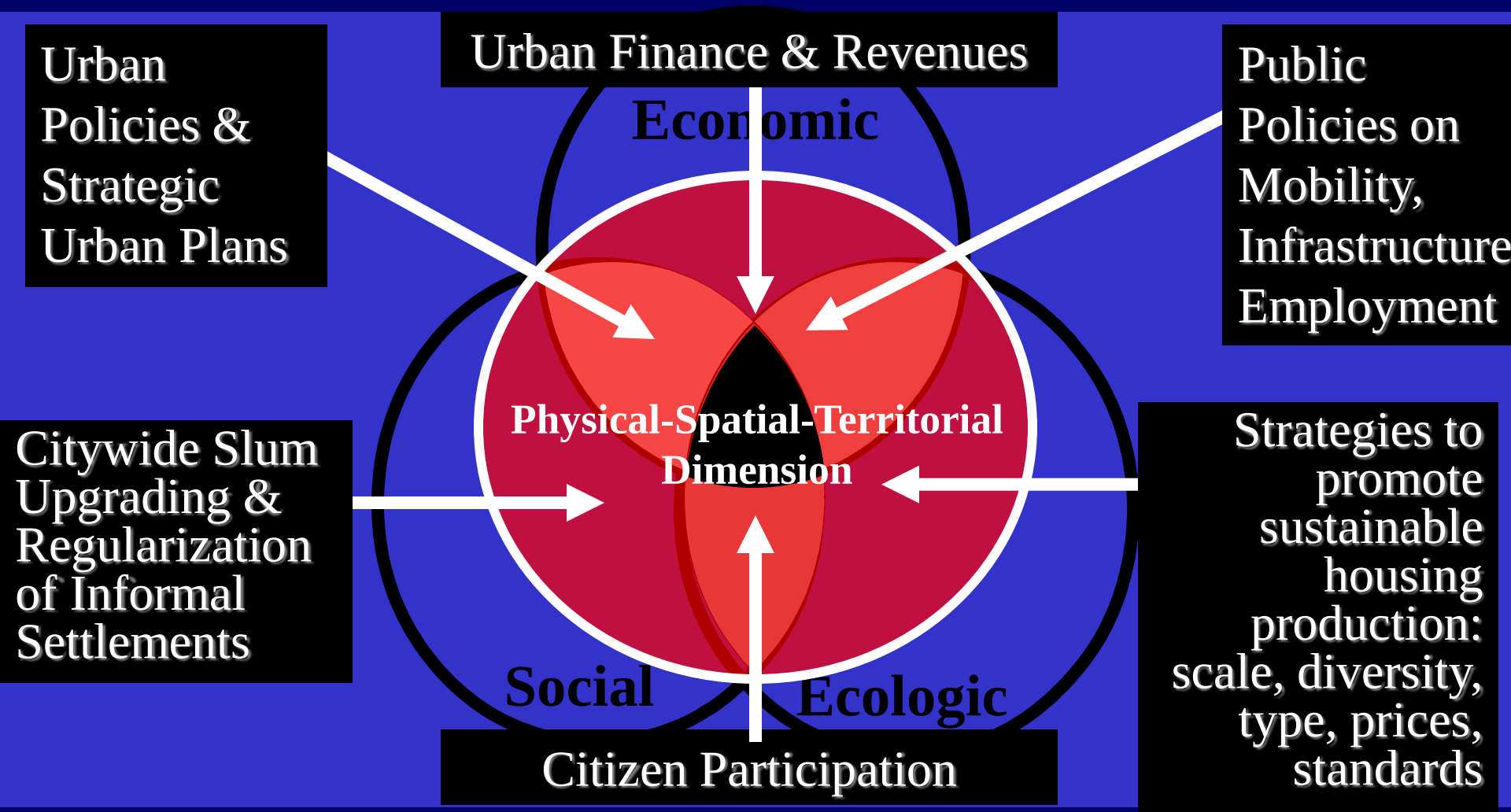


How to reconcile goals and interests of multiple actors, institutions and processes?

Are we missing a dimension in the Sustainable Development equation?

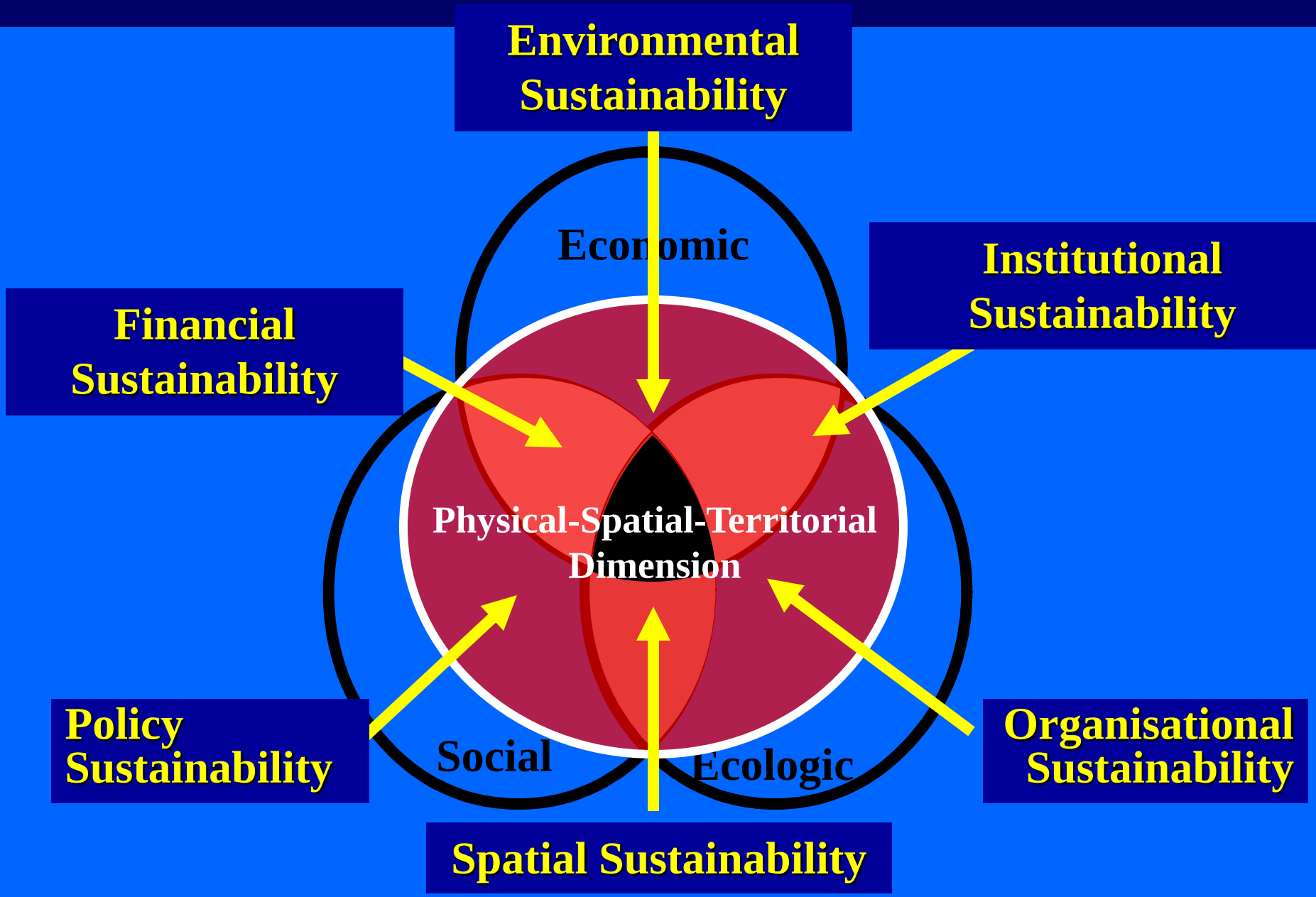


Sustainable Urban Development

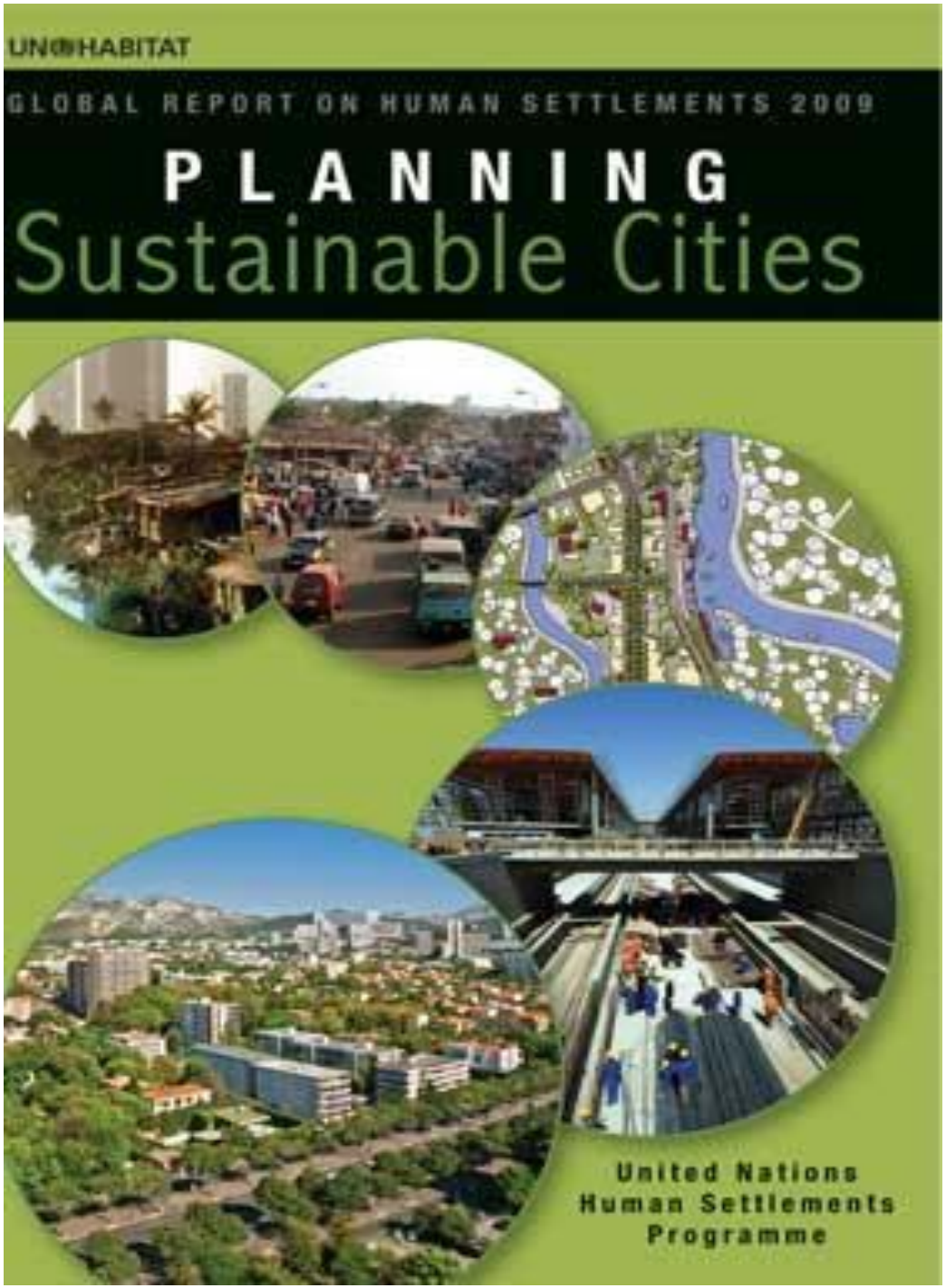


Management and Planning for Urbanisation is crucial for the future of a planet of cities

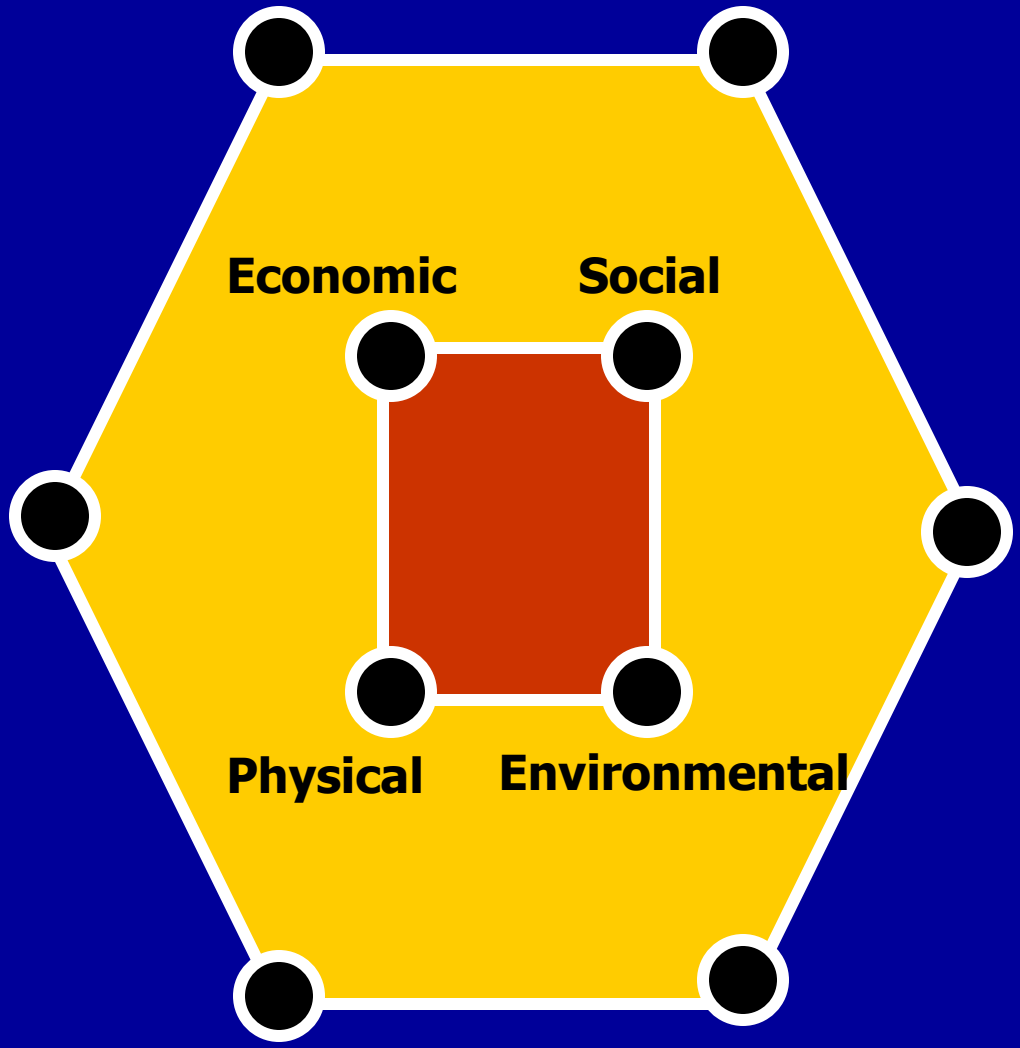
Sustainable Urban Development



TIME TO THINK URBAN


UN-HABITAT
GLOBAL REPORT ON HUMAN SETTLEMENTS 2009
PLANNING
Sustainable Cities
United Nations
Human Settlements
Programme

Are we missing a dimension?

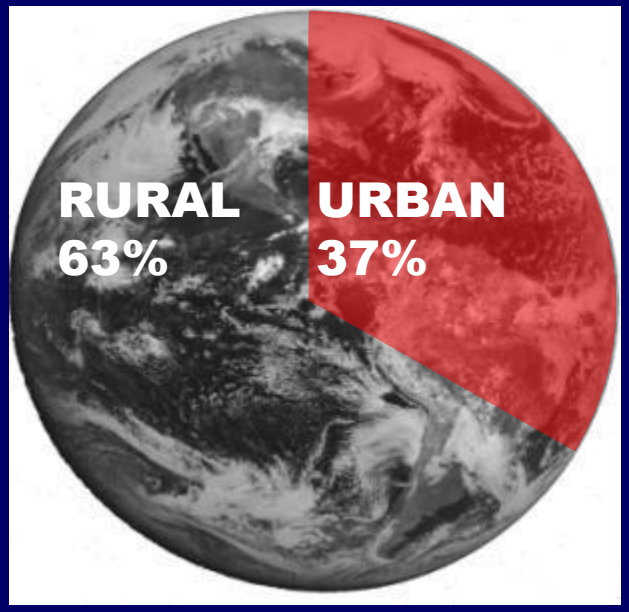


4.

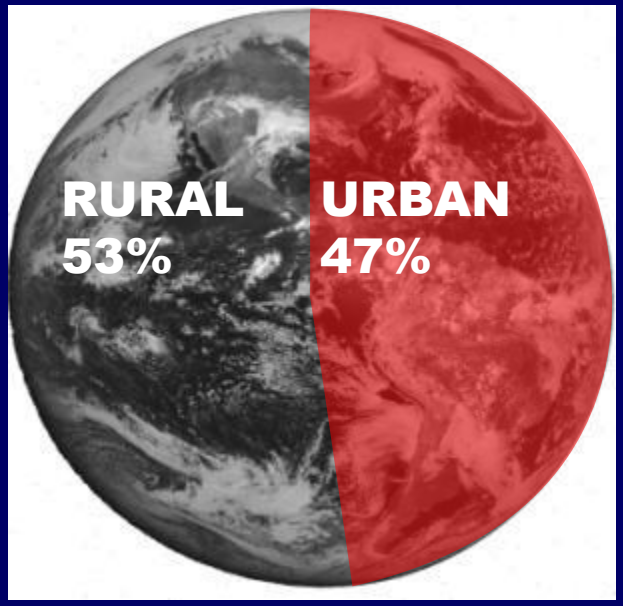
Urban Expansion and New Frontiers of Urban Boundaries:

The sustainable urbanization concept.

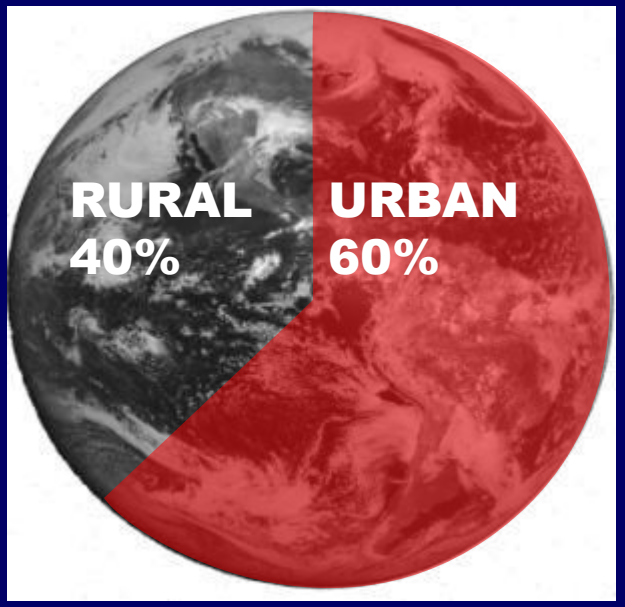
Preparing to Absorb Urbanisation



1970



2000



2030

Source: UN-HABITAT, 2008

Sustainable urban development is the spatial manifestation of urban development processes that create a built environment with norms, institutions and governance systems that enable individuals, households and societies to maximize their potential. These urban development processes must also improve access to a vast range of environmentally and economically efficient services so that homes and neighborhoods, cities and towns are planned, built, renewed and consolidated in ways that minimize any adverse impact on the environment and safeguard the quality of life and livelihood of current and future inhabitants. The term "sustainable urban development" can thus be defined as the spatial transformation of the urban environment and the quality of life of its inhabitants – through participatory, equitable, accountable and effective planning, management and governance processes and systems – making neighborhoods, towns and cities more environmentally sound, economically productive and socially inclusive for present and future generations.

GC23 Theme Paper, **HSP**/GC/23/4, 28 January 2011

INCORPORATING THE "SPATIAL DIMENSION" INTO A DEFINITION OF SUSTAINABLE URBAN DEVELOPMENT

"sustainable urban development can be defined as the spatial manifestation of urban development processes that creates a built environment with norms, institutions and governance systems enabling individuals, households and societies to maximize their potential, optimize a vast range of services so that homes and dynamic neighborhoods, cities and towns are planned, built, renewed and consolidated restraining adverse impacts on the environment while safeguarding the quality of life, needs and livelihood of its present and future populations". *Source: UN-Habitat contribution to Rio+20, 27 October 2011.*

Urbanisation at Night

5.

The Sustainable City:

Enabling cities to maximize its role as engine of development & economic growth without jeopardizing the opportunities of future generations.

THE "SPATIAL DIMENSION" OF SUSTAINABLE URBAN DEVELOPMENT (1)

1. The physical manifestation of urbanisation
2. Planning and Managing the built environment: land, buildings, infrastructure, services
3. Setting up rules: urban laws, norms, institutions, policies and governance systems
4. Regulations to enable, prevent and/or harmonize activities & interests of individuals, households and firms
5. Harmonize and maximize the economy of scale derived from concentration of people and economic activities

Source: UN-Habitat contribution to Rio+20, 27 October 2011.

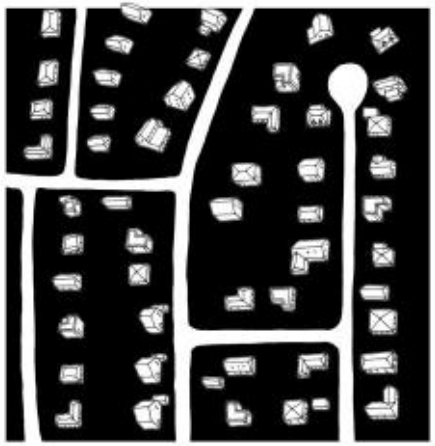
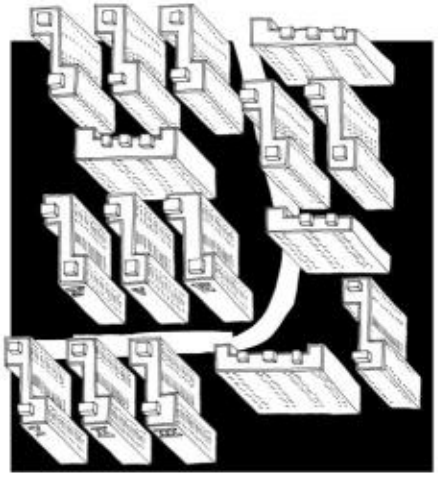
THE "SPATIAL DIMENSION" OF SUSTAINABLE URBAN DEVELOPMENT (2)

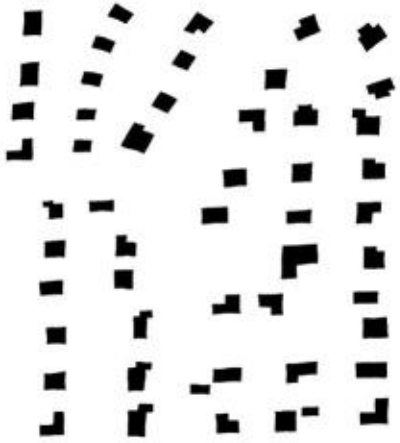
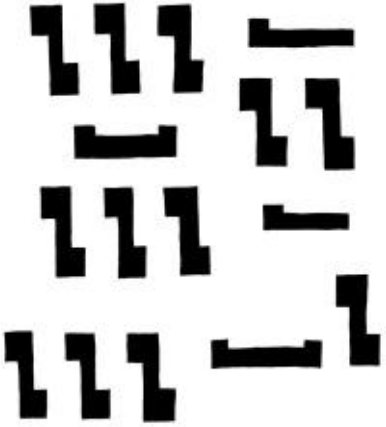
6. Maximize the LOCUS of economic opportunities & wealth production: major part of GNP of countries is produced in cities.

- Policies to agglomerations providing services, homes, business opportunities, education, technological innovation
- Adaptation & Mitigation: concentration of environmental vulnerabilities & economic growth
- Systems to safeguard quality of life, needs and livelihood of its present and future populations: human development
- Going green with building cities: construction technologies, use and production, emissions, mobility, behaviour

Source: UN-Habitat contribution to Rio+20, 27 October 2011.

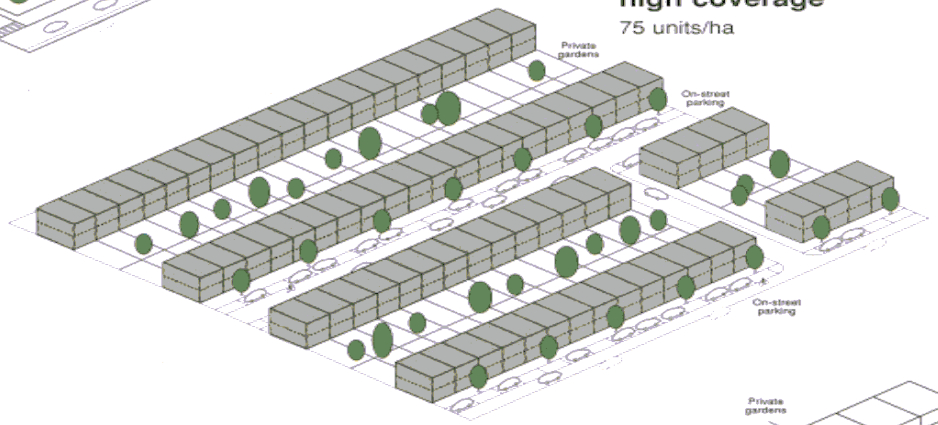
Urban Form & Densities:
the urban & ecological footprint of cities

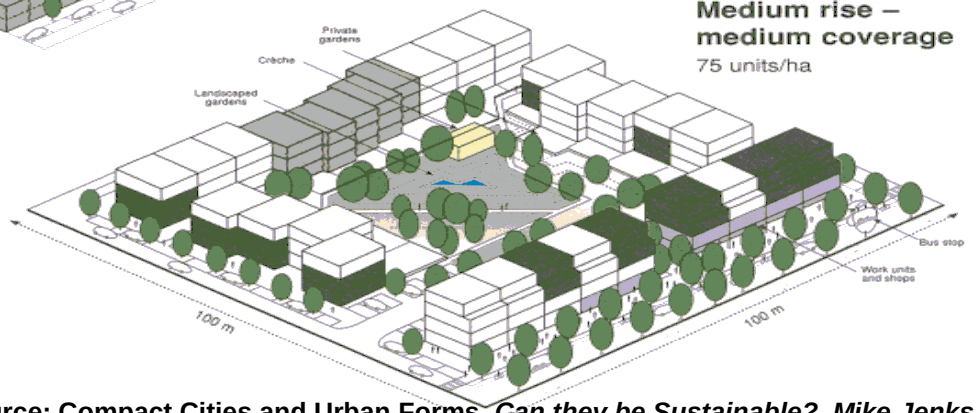



Housing Typology: seeking optimal densities, appropriate design and technologies

High rise – low coverage
75 units/ha



Low rise – high coverage
75 units/ha



Medium rise – medium coverage
75 units/ha

Key
Target a mix of activities
Include a variety of house types

- Community facilities
- Shops and workspaces
- Maisonettes
- Houses
- Apartments

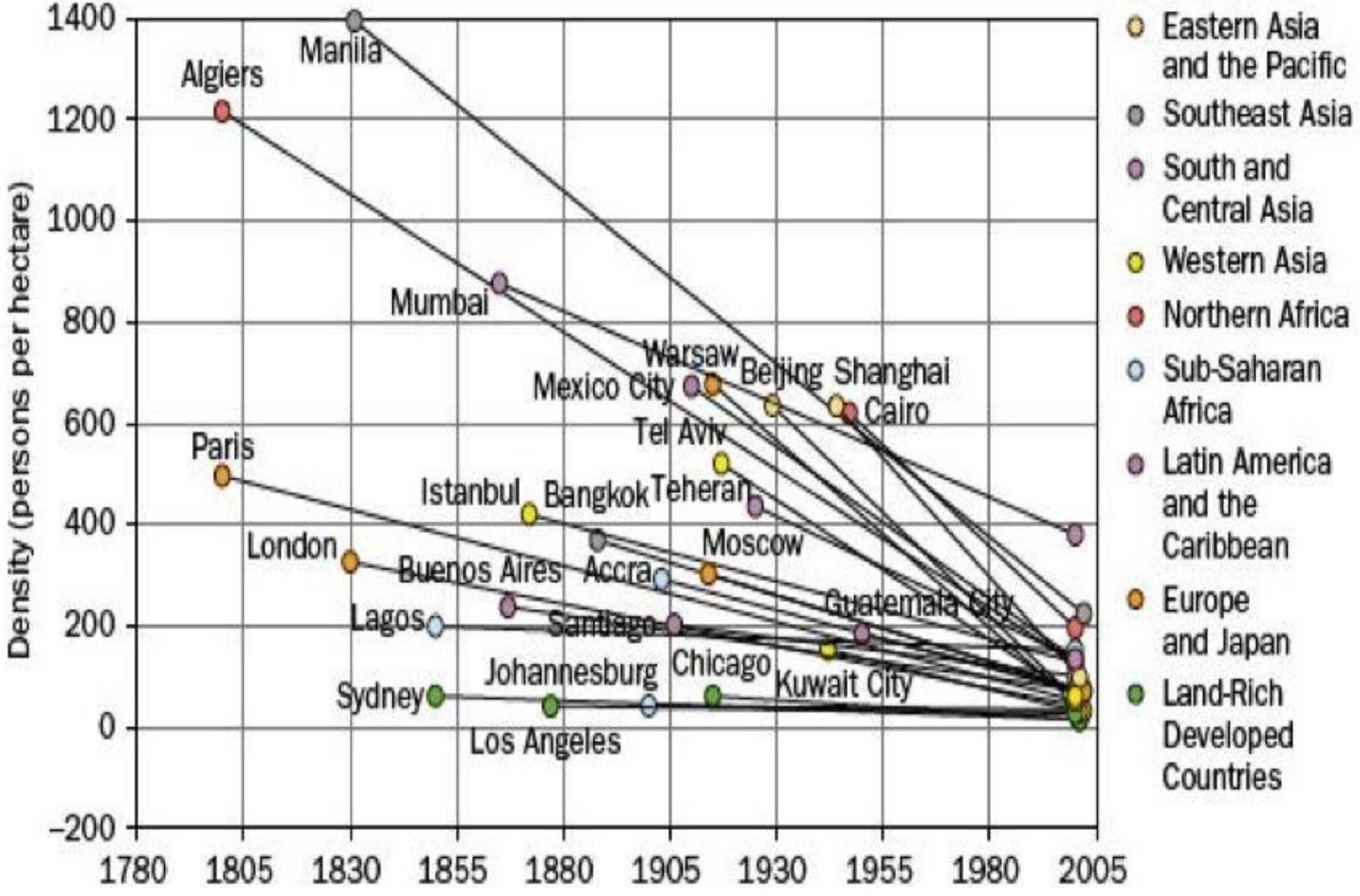
Source: Compact Cities and Urban Forms. *Can they be Sustainable?, Mike Jenks.*

6.

Urban Density:

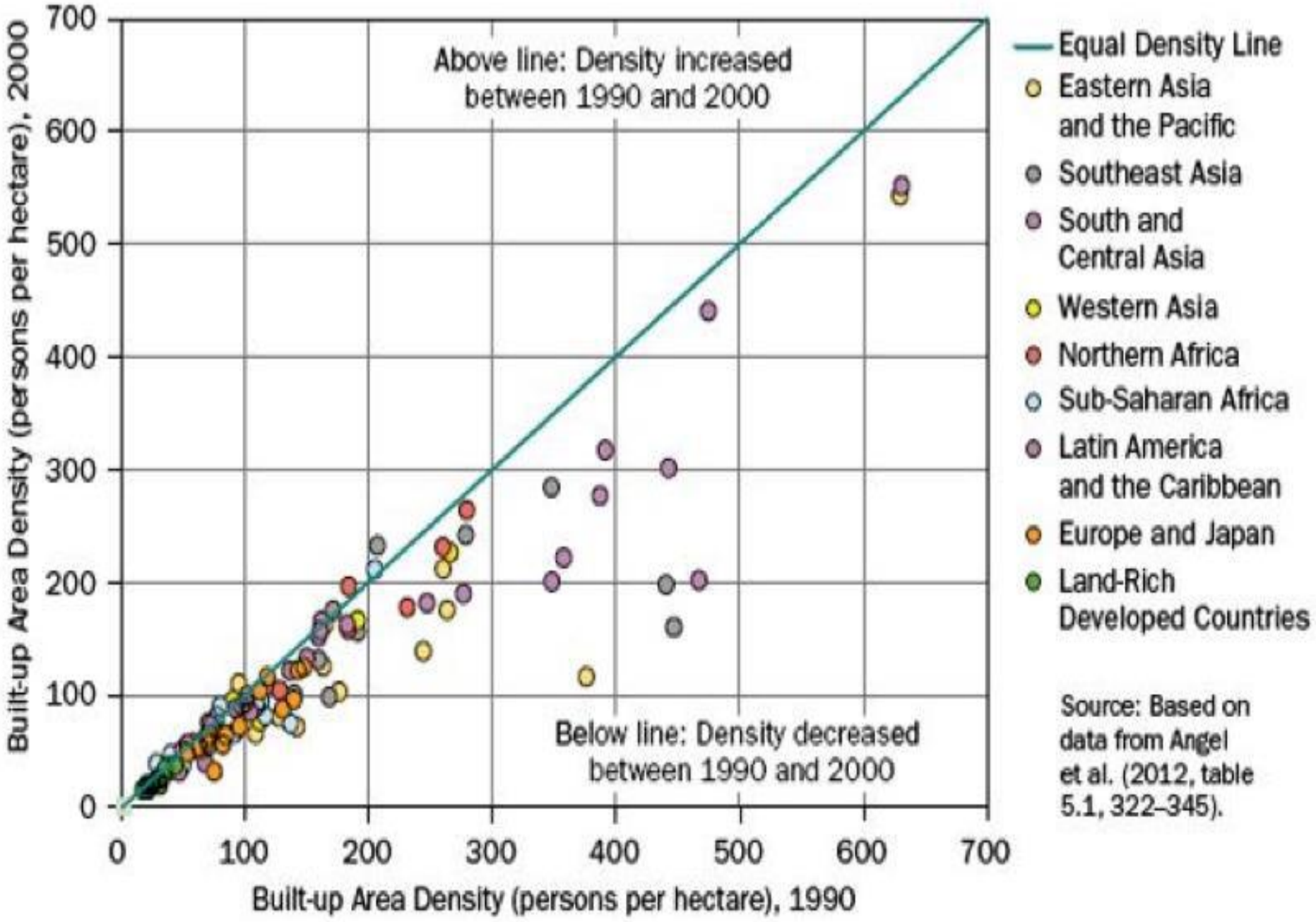
Planning and Urban Management Instruments to enable cities to maximize its resources, infrastructure, land but what is the limit?

Density Decline in 25 Cities from the Peak Density Year to circa 2000



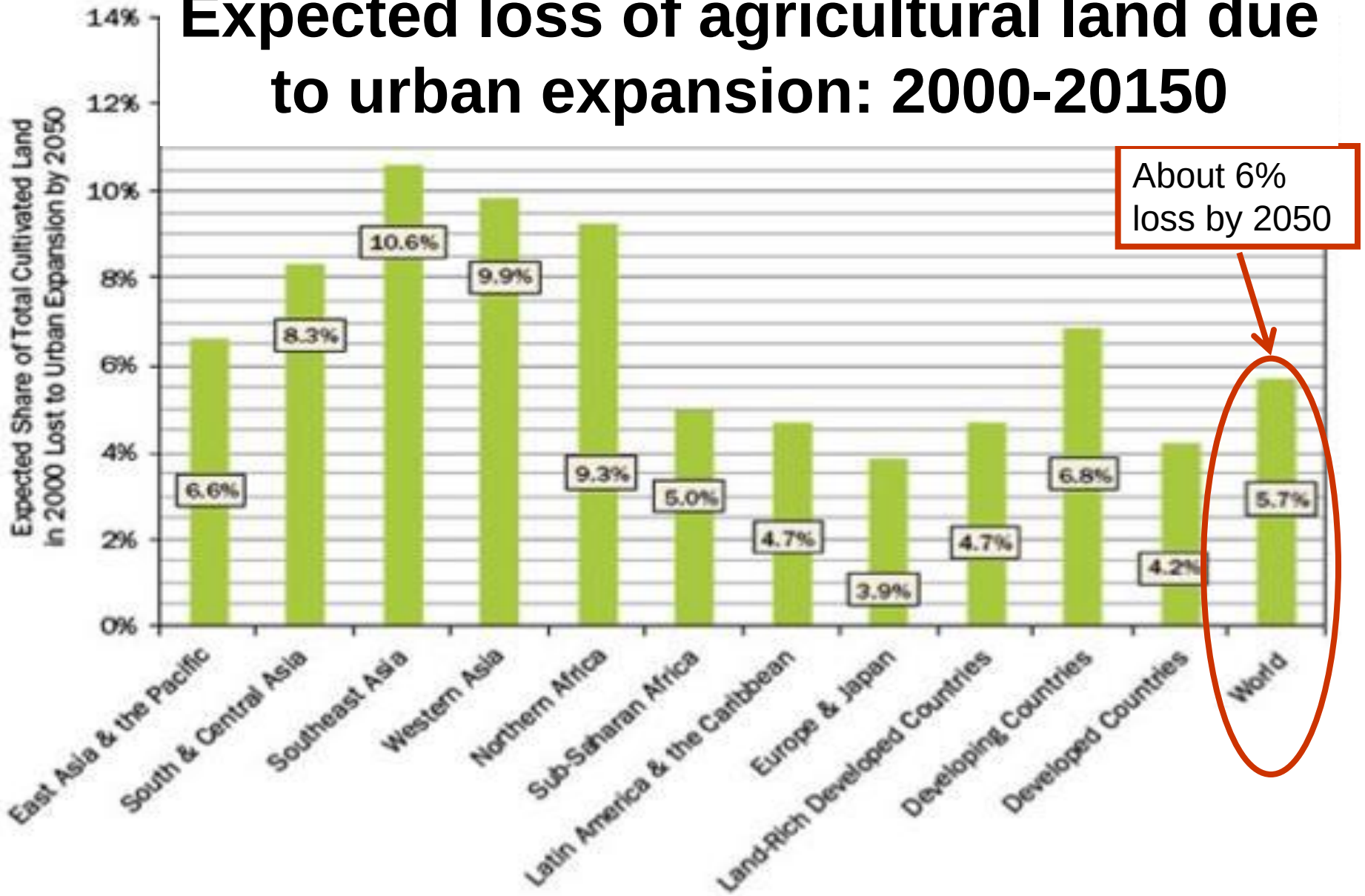
Source: Based on data from Angel et al. (2012, table 5.2, 346–349).

A Comparison of Densities in the Global Sample of 120 Cities, 1990 and 2000



Source: Based on data from Angel et al. (2012, table 5.1, 322–345).

Expected loss of agricultural land due to urban expansion: 2000-20150



Note: Estimates assume a 2 percent annual density decline.
Sources: Urban land cover data from Angel et al. (2012 online); cultivated land map based on MODIS data in Friedl et al. (2002); and urban expansion estimates based on United Nations Population Division (2010) and the author's density projections.

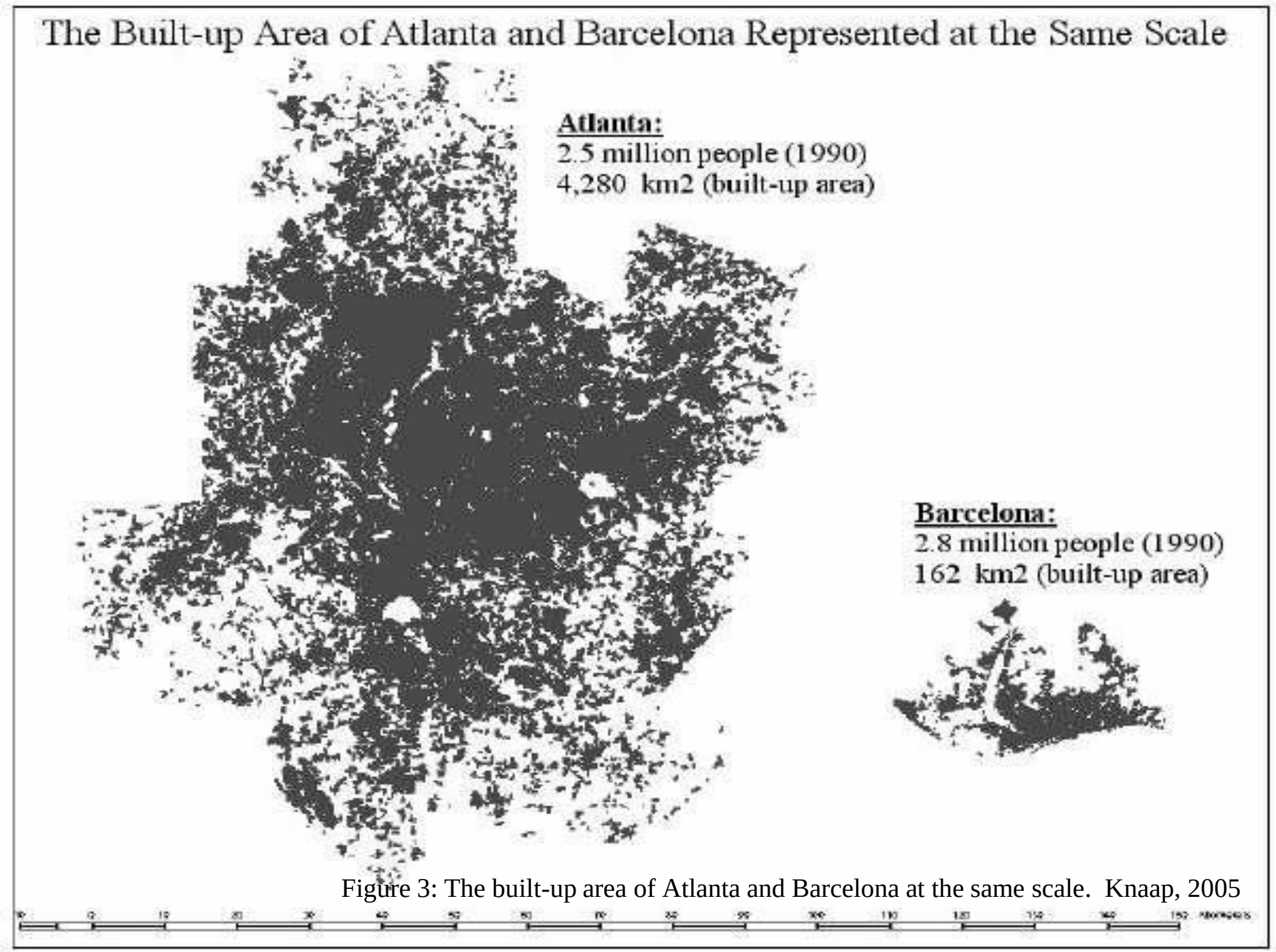
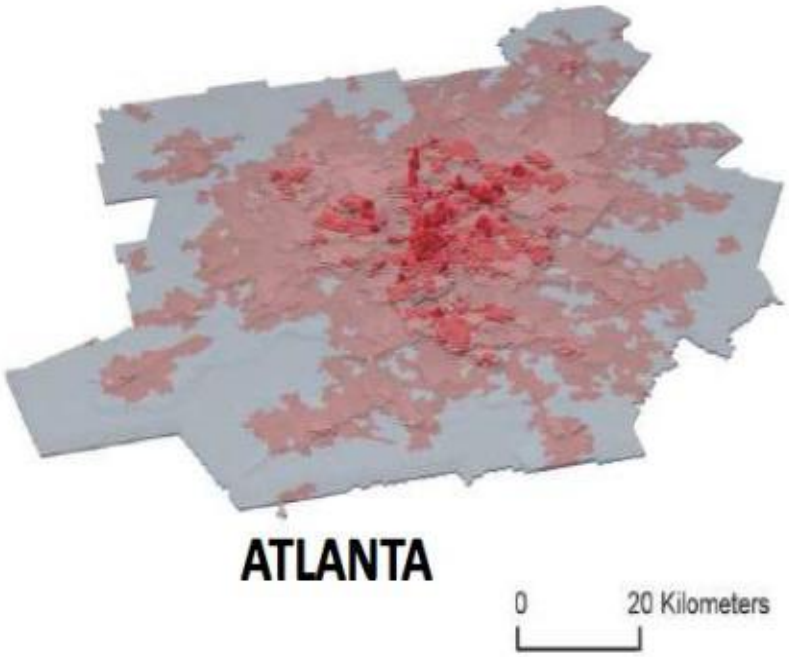
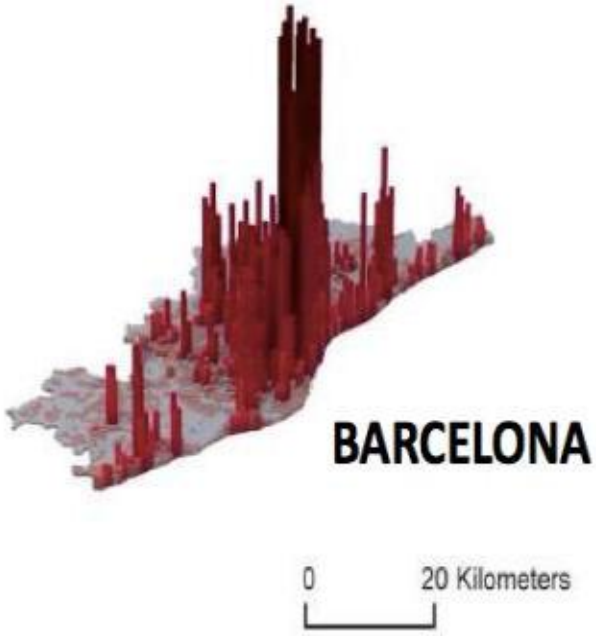


Figure 3: The built-up area of Atlanta and Barcelona at the same scale. Knaap, 2005

Similar populations…





but **Atlanta** using **11.8x** **more urban land**, **5.75x** **more emissions** per **capita**

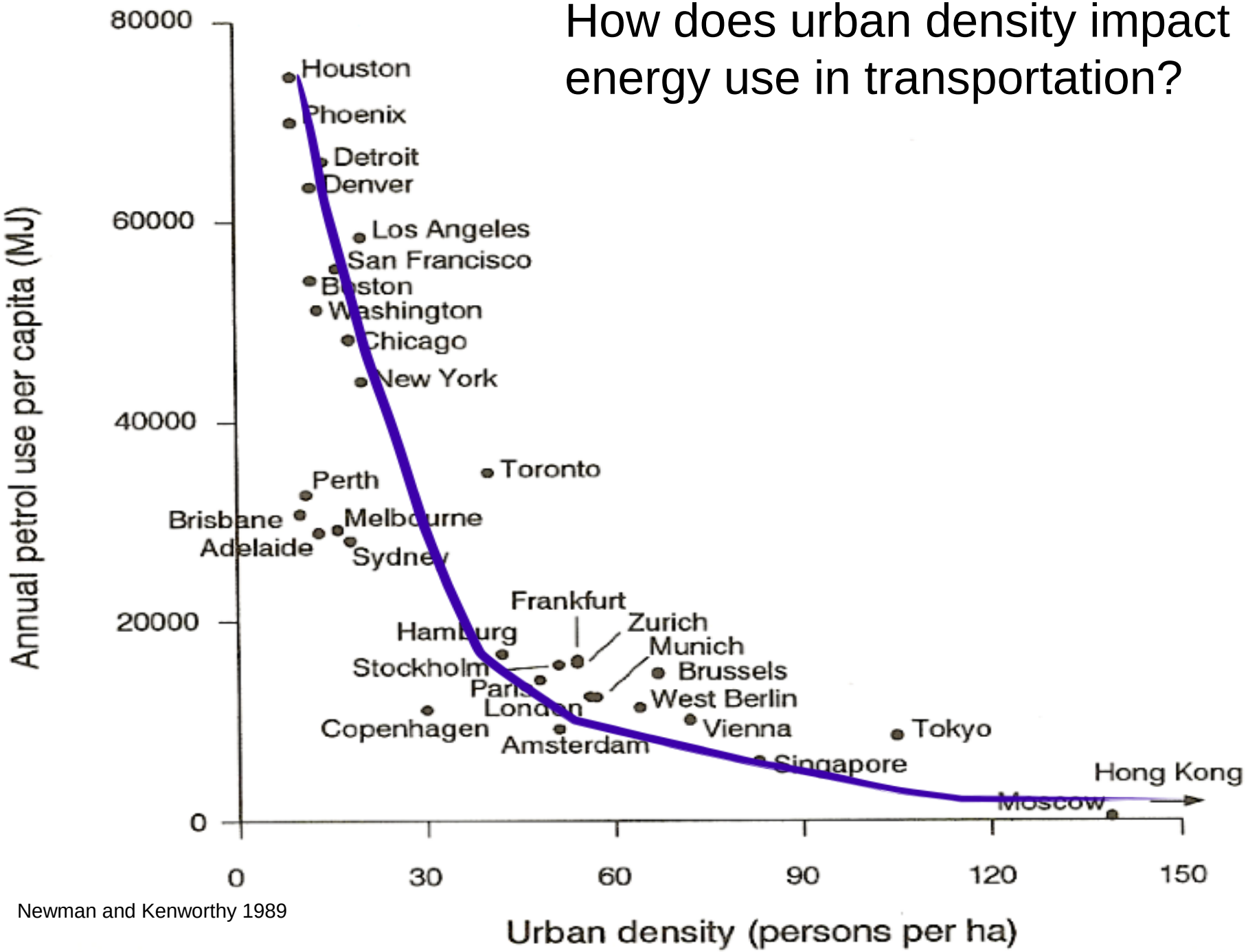
Population 5.3 M	**Population** 5 M
Urban area 7,692 km^2	**Urban area** 648 km^2
Transport emissions 6.9 tons CO_2	**Transport emissions** 1.2 tons CO_2

Atlanta versus Barcelona

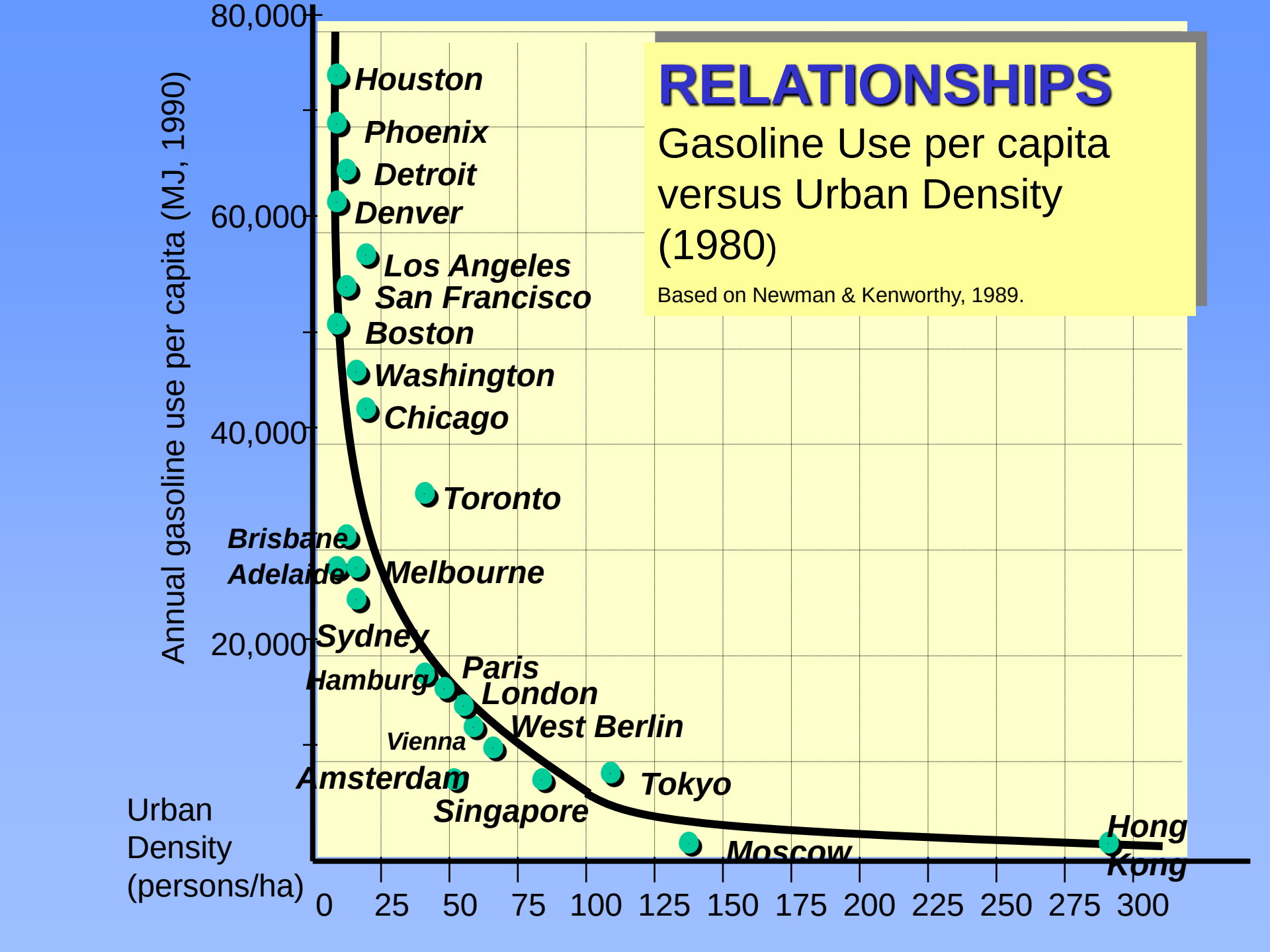
- Because of the difference of density, Atlanta's built-up area is 28 time larger than Barcelona's
- As a consequence, the metro of Barcelona is only 99 km long and its stations are within walking distance to 60% of the population
- By contrast, to provide the same service to the same number of people , Atlanta would have to develop 3400 km of metro track!

Source: Knaap, 2005

How does urban density impact energy use in transportation?



Newman and Kenworthy 1989

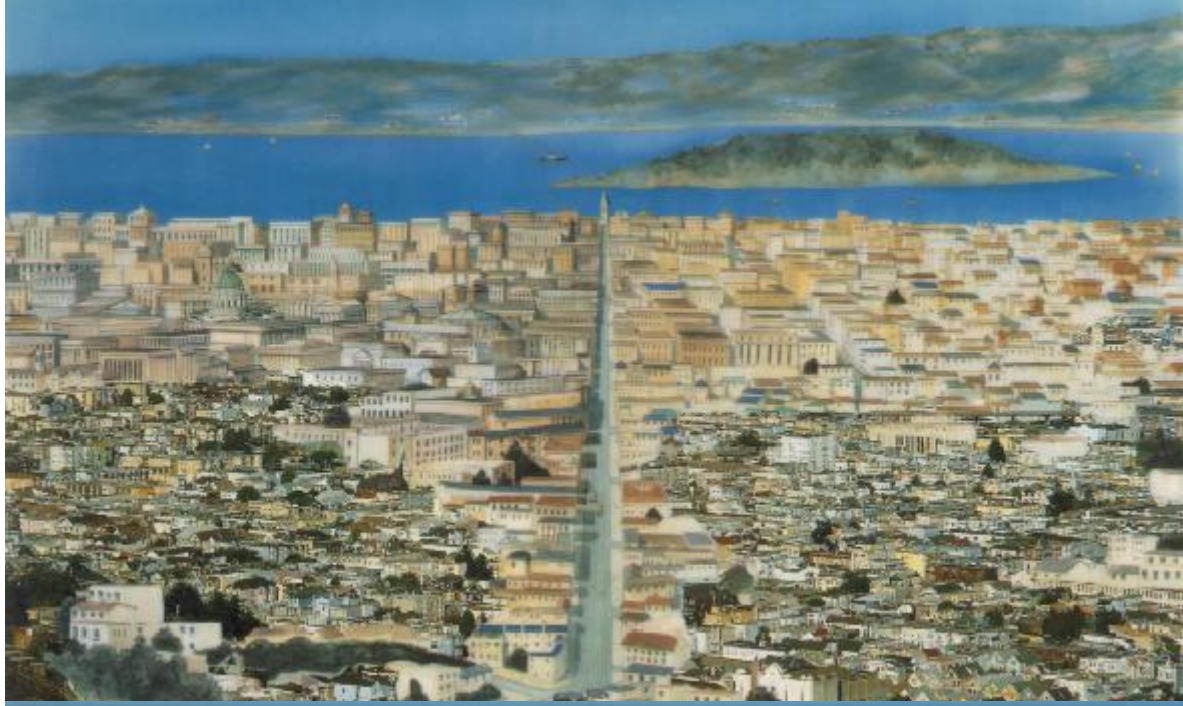

RELATIONSHIPS
Gasoline Use per capita versus Urban Density (1980)
Based on Newman & Kenworthy, 1989.
Annual gasoline use per capita (MJ, 1990)
80,000
60,000
40,000
20,000
Houston
Phoenix
Detroit
Denver
Los Angeles
San Francisco
Boston
Washington
Chicago
Toronto
Brisbane
Adelaide
Melbourne
Sydney
Hamburg
Paris
London
West Berlin
Vienna
Amsterdam
Singapore
Tokyo
Moscow
Hong Kong
Urban Density (persons/ha)
0
25
50
75
100
125
150
175
200
225
250
275
300

Achieving the Right Balance & Optimal Use of Land

Source: www.urban-advantage.com

Urban Management

San Franciso 1916



Densification

San Francisco 1990's

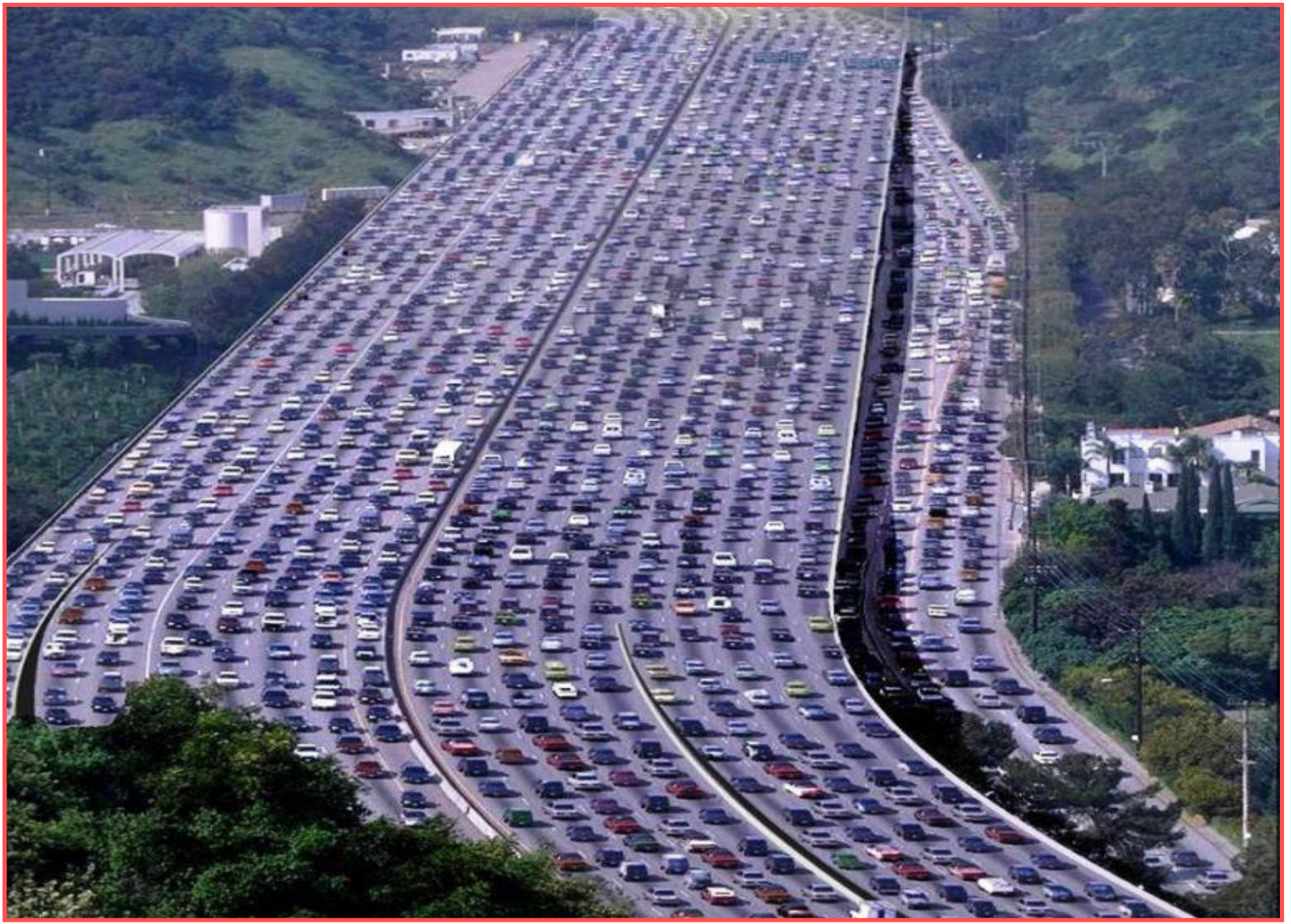
source: Cities then and Now, Antoniou, J MacMillan 1994

USA

Mexico

China

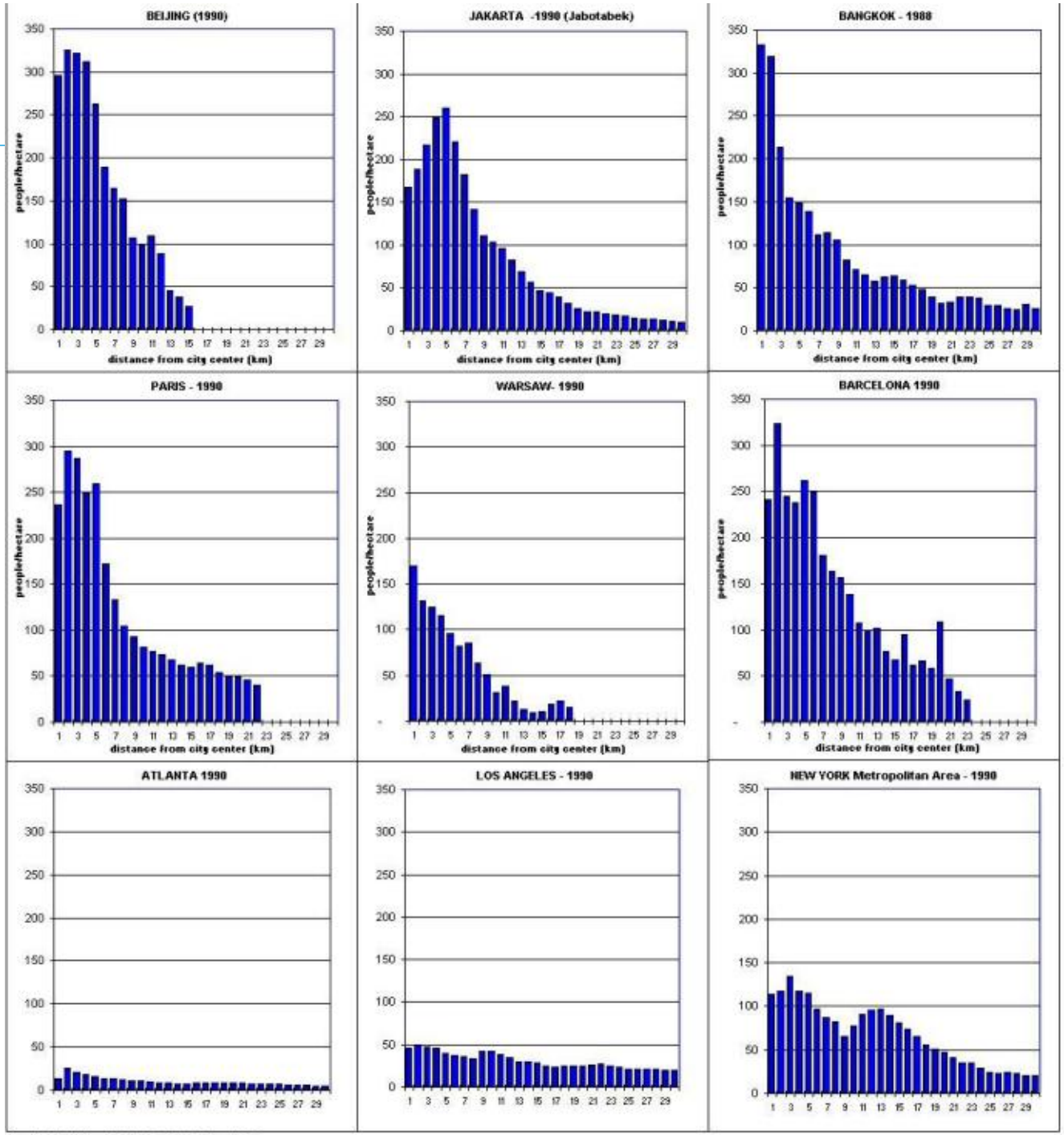
Bolivia



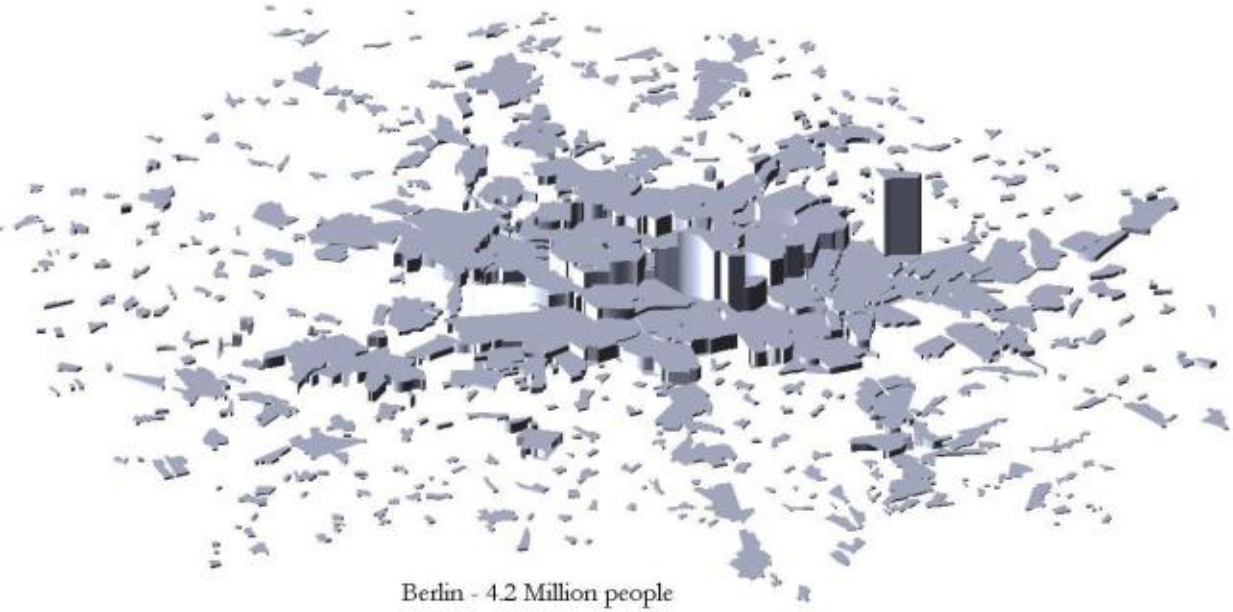
Comparative density profile: nine cities in Asia, Europe, and USA

Person/ HA vs. Distance in km

Alain Bertaud

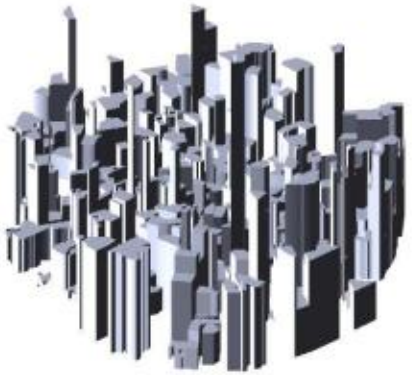


from "Order Without Design", Alain Bertaud, 2003

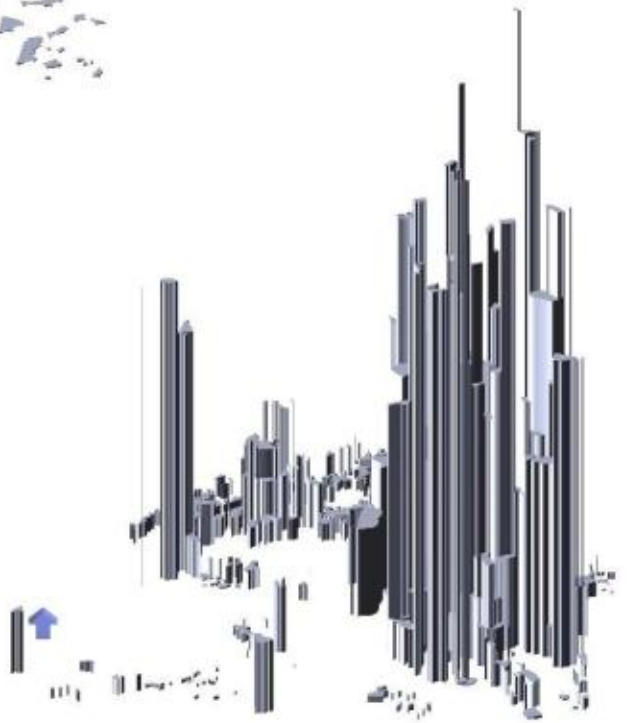


Berlin - 4.2 Million people

Bombay - 9.8 Million people

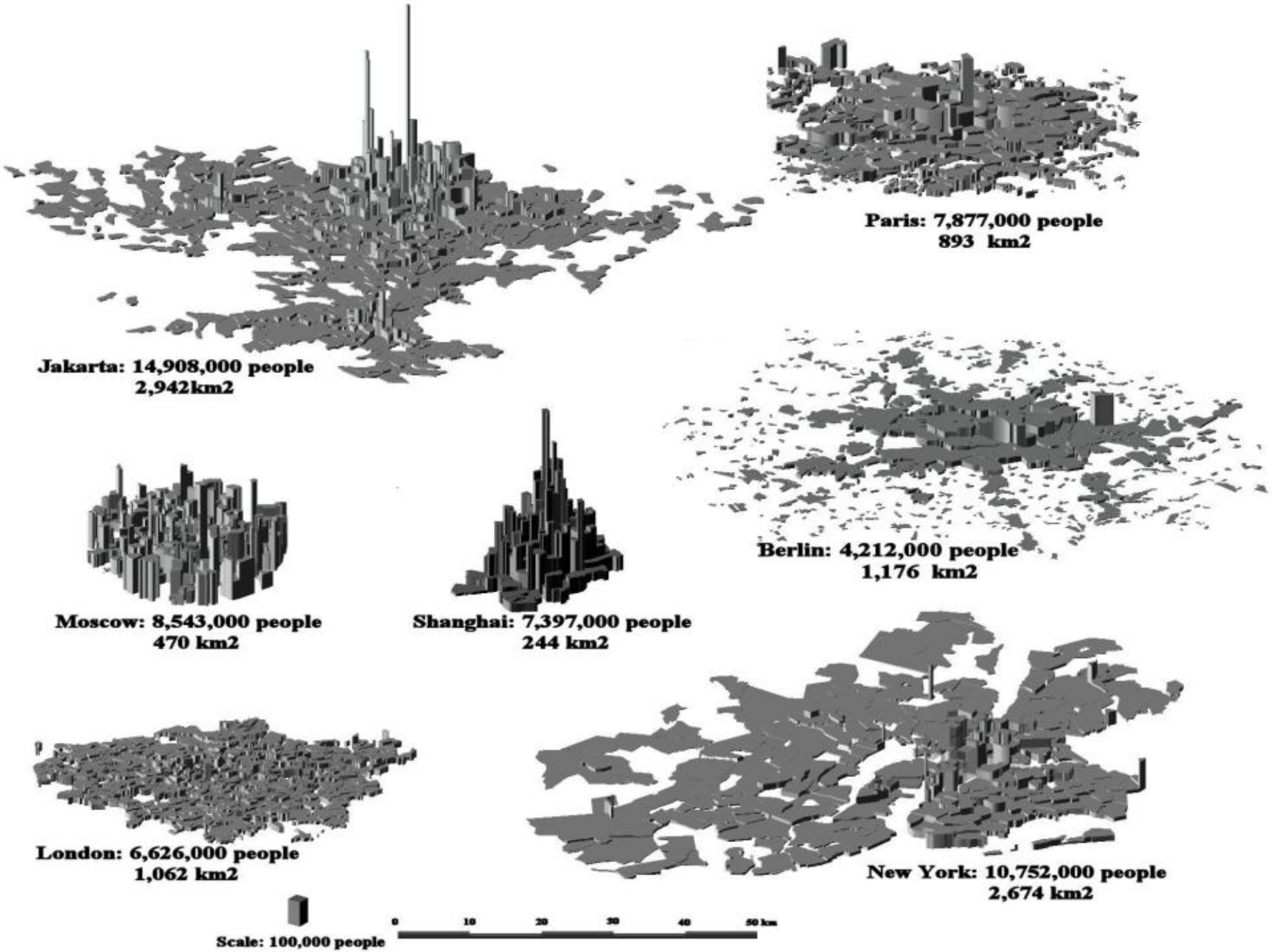


Moscow - 8.5 Million people



Hong Kong - 5.4 Million people

Source: Jim Brown, LILP, 2005; Alain Bertaud,

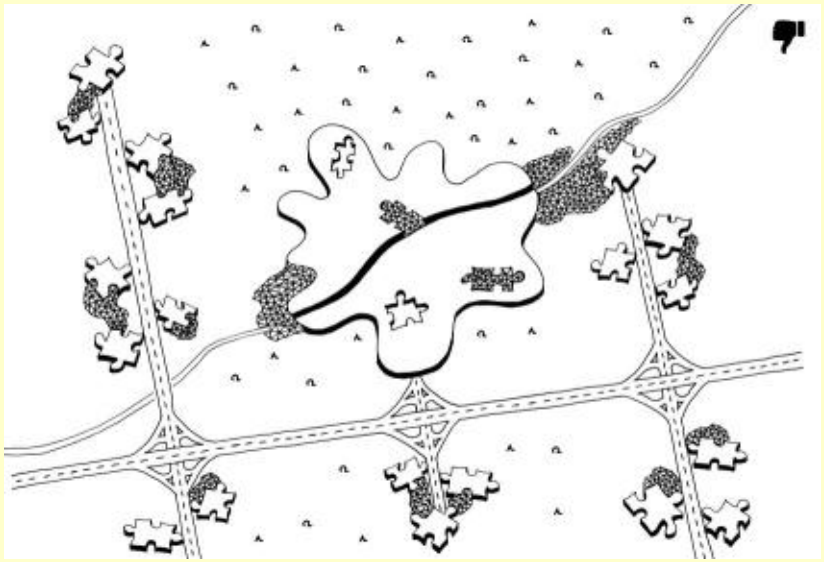

Jakarta: 14,908,000 people
2,942km2
Paris: 7,877,000 people
893 km2
Berlin: 4,212,000 people
1,176 km2
Moscow: 8,543,000 people
470 km2
Shanghai: 7,397,000 people
244 km2
London: 6,626,000 people
1,062 km2
New York: 10,752,000 people
2,674 km2
Scale: 100,000 people
0
10
20
30
40
50 km

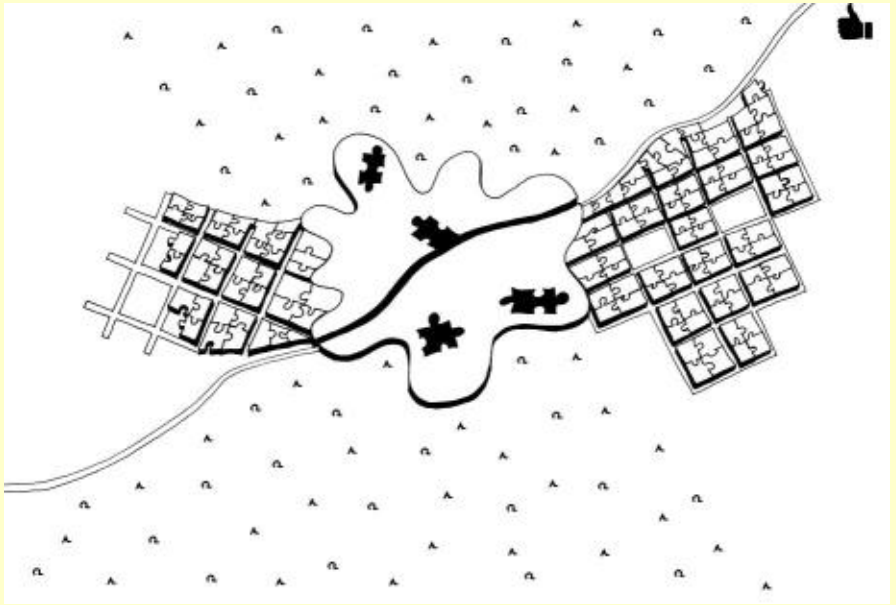
7.

UN-Habitat response to the urban environmental problems:

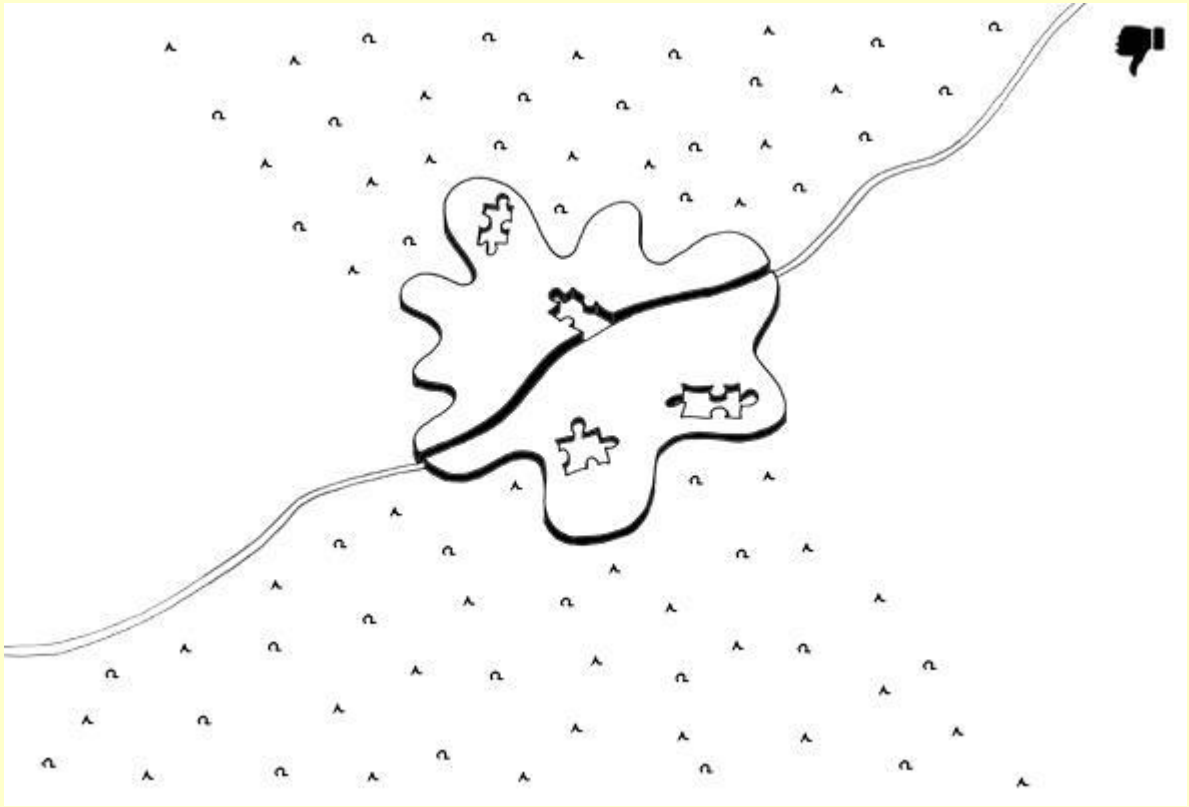
The Sustainable Cities Programme and the Localizing Agenda 21 Initiative.

Unsustainable and Sustainable City Growth?

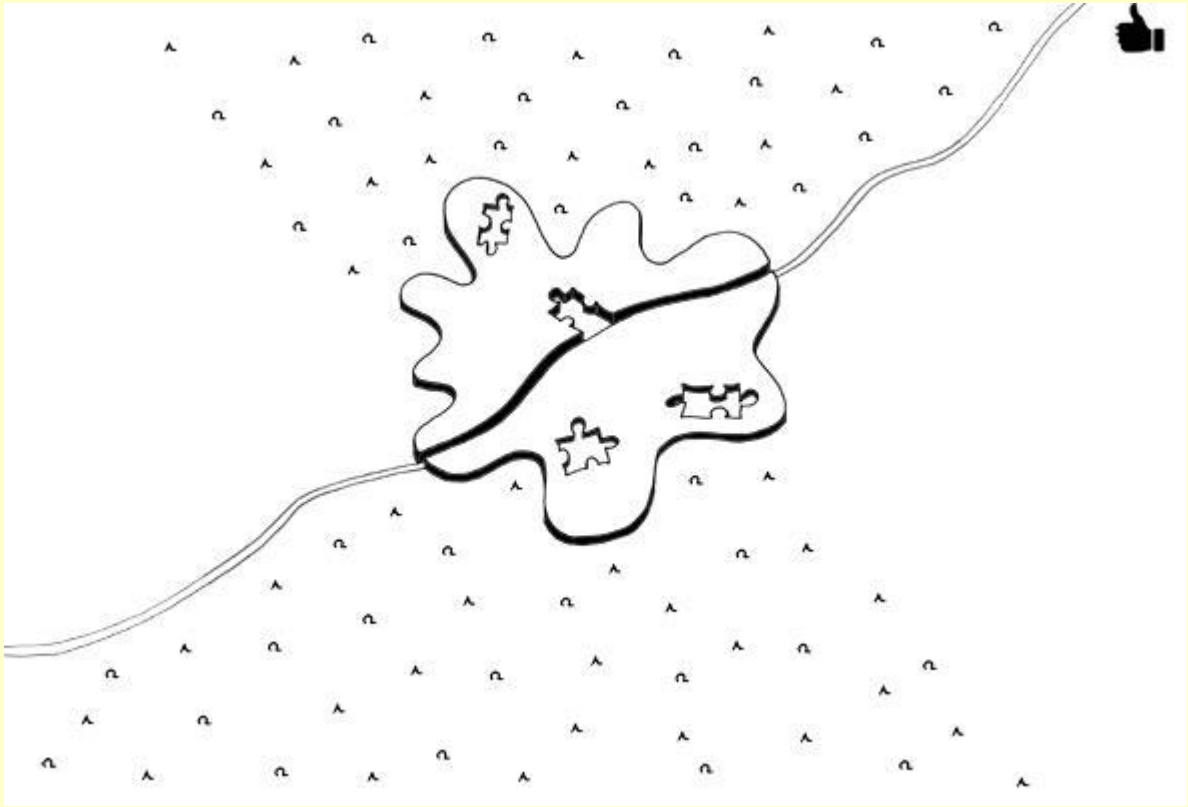




Sustainable City Growth?



Sustainable City Growth?



THE END

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