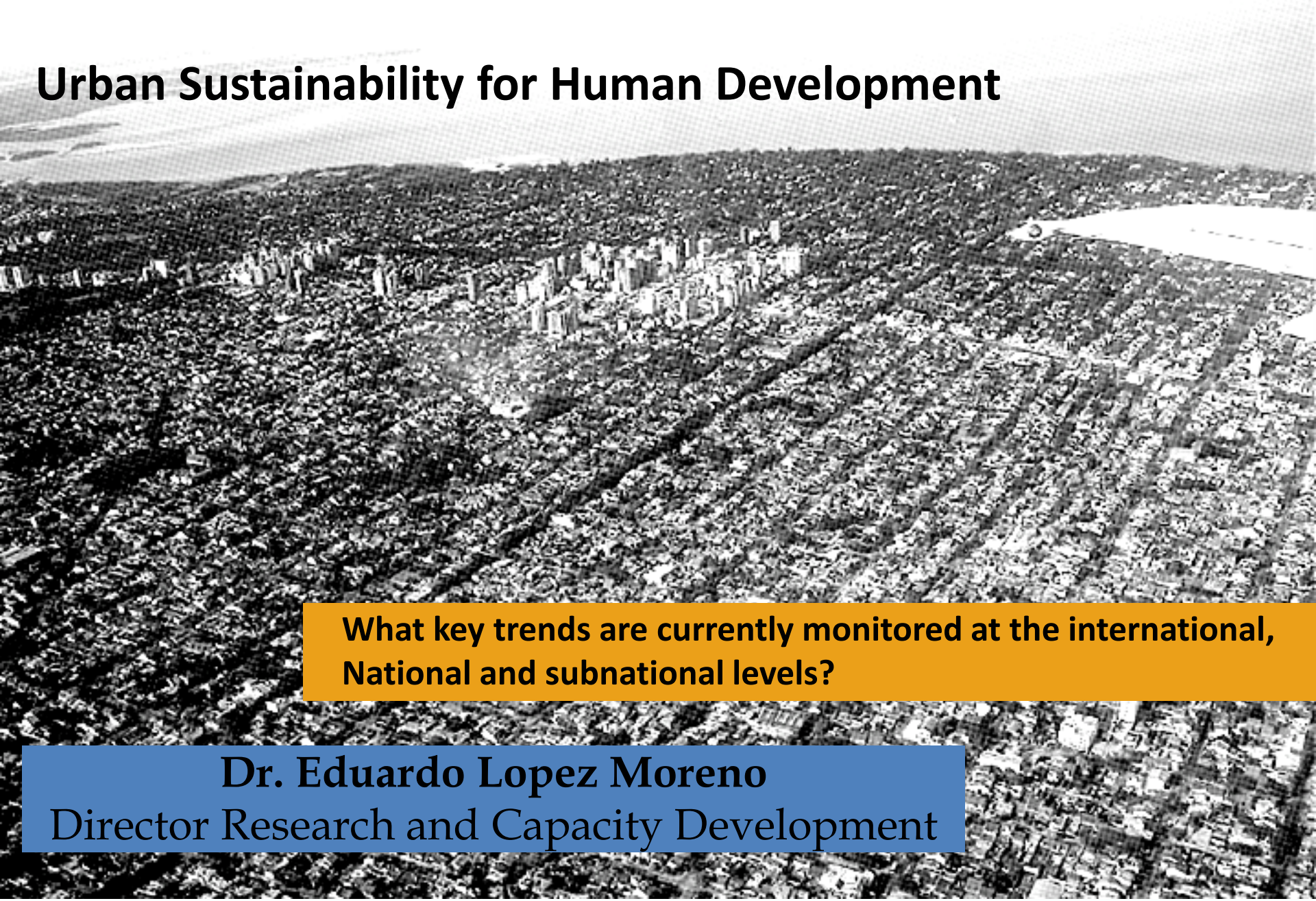
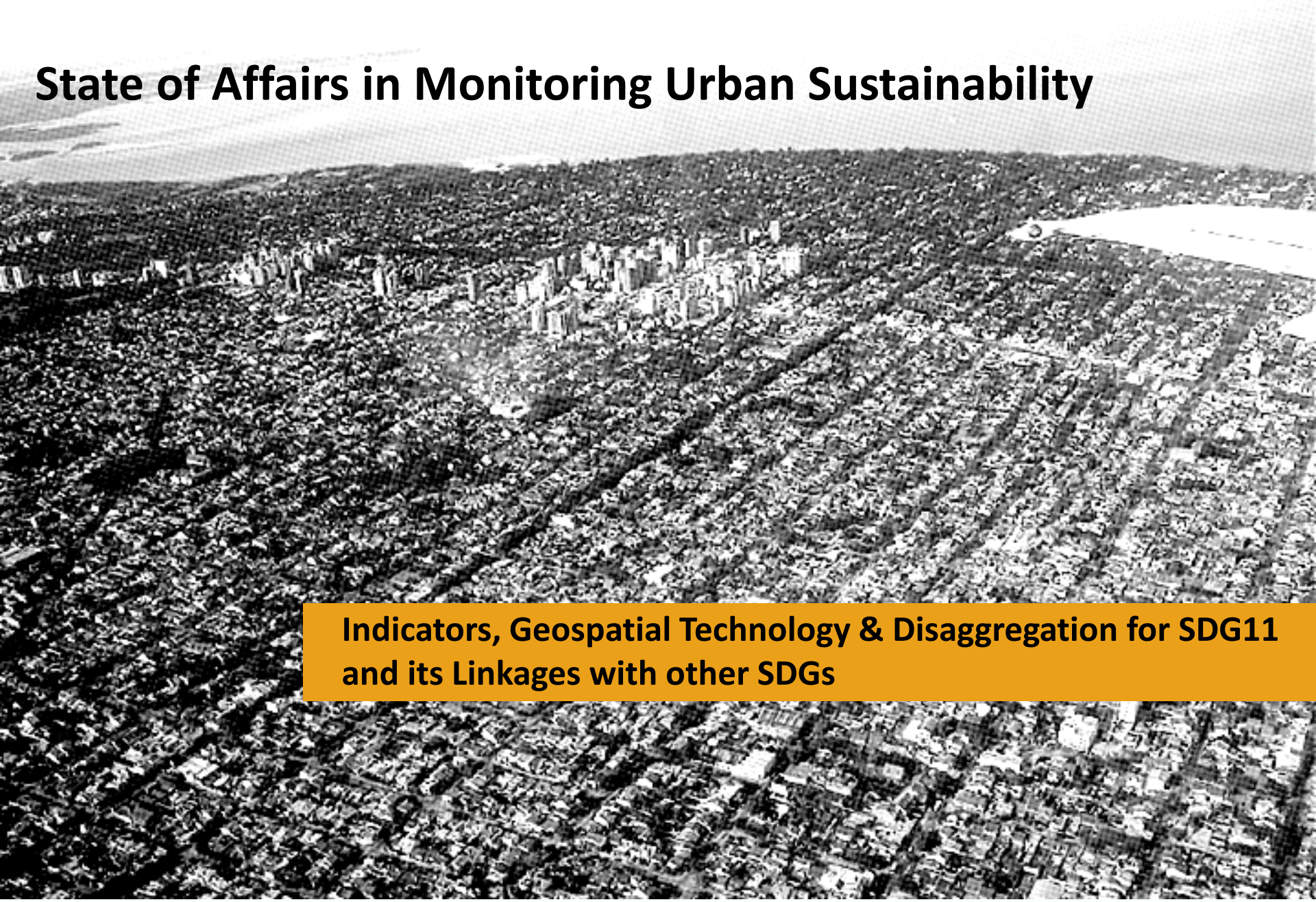
Urban Sustainability for Human Development



What key trends are currently monitored at the international, National and subnational levels?

Dr. Eduardo Lopez Moreno
Director Research and Capacity Development

State of Affairs in Monitoring Urban Sustainability



Indicators, Geospatial Technology & Disaggregation for SDG11 and its Linkages with other SDGs

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FOR A BETTER URBAN FUTURE

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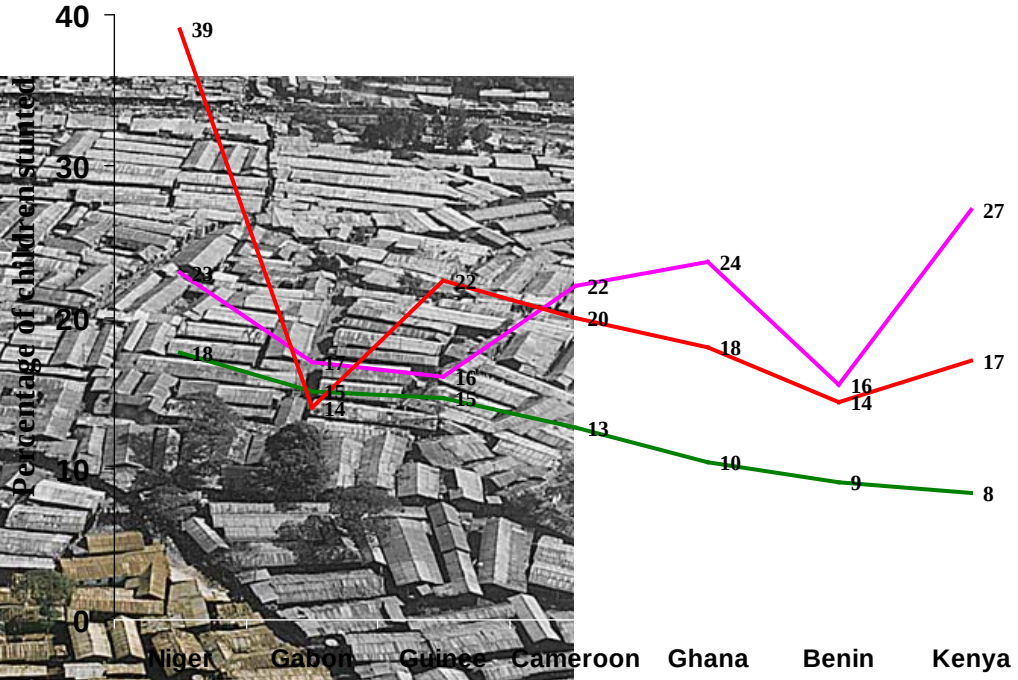
Some Preliminary Remarks…



Conventional urban studies dominated by demographic & statistics without clear space analysis

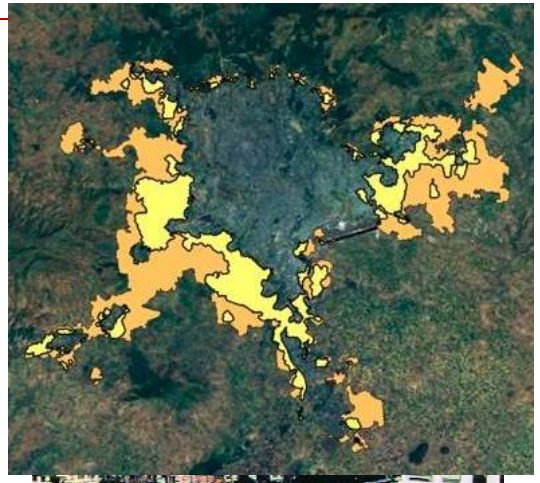
Some Preliminary Remarks…

- Great technological advances in space related information is increasingly available
- Still, poor operational connection to the urbanization process:

  Which cities grow faster, why?
  UIP 2010 … 80% of cities lack spatial monitoring systems

  - Spatial information & policies are poorly connected
  - Sub-city level information more available, but not integrated to decision-making

NYU Stern



The depiction of the city -potential and problems- using spatial analysis still progressing

Various Institutions are increasingly integrating the spatial dimension…. to

- Monitor global/regional trends
- Identify distressed areas and inequality
- Assess housing & basic service delivery
- Support urban planning practices
- Identify environmental problems/ solutions
- Identify economic potentials in cities
- Assess policy implementation/ community-led accountability
- Monitor impact of implemented policies
- Identify potentials for climate change mitigation

Geo-information, policies and monitoring

1. GLOBAL DATA BASE
Collect + Aggregate + Analyze

2. METADATA (End-results)
Communicate + disseminate

3. INFORMATION MANAGEMENT
Metrics + dialogue + use data

Visualize and understand global trends

Knowledge
reference
portal

data evidence
Policies
tools
Monitoring

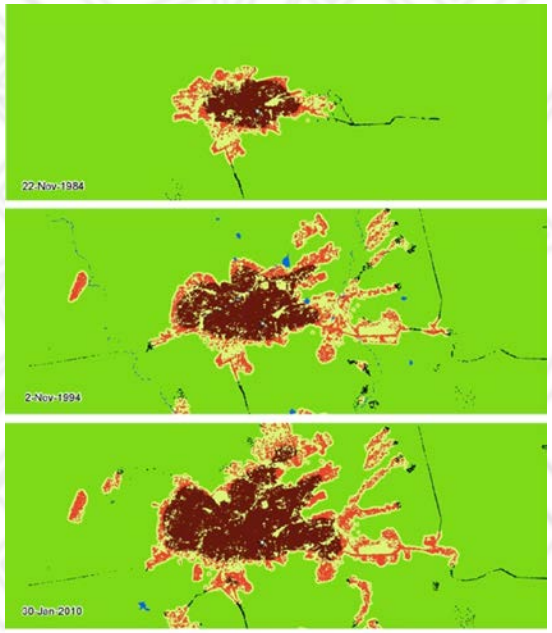
Development agencies, partners, academia

Governments, local authorities, different actors, multi-users

Monitoring Urban Sustainability -Use of Spatial Indicators - examples:

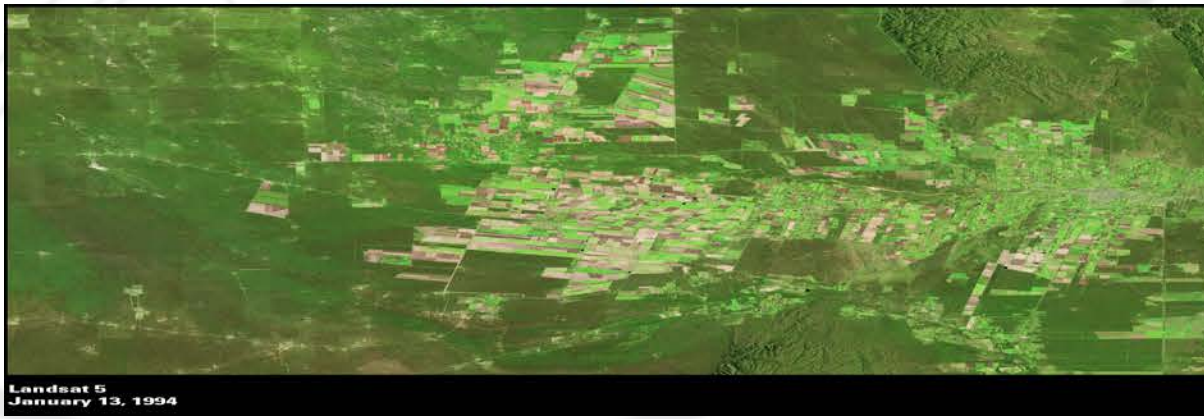
Monitoring Global Urban Expansions

(NYU Stern Urbanization Project)



Global Human Settlement Layer

))



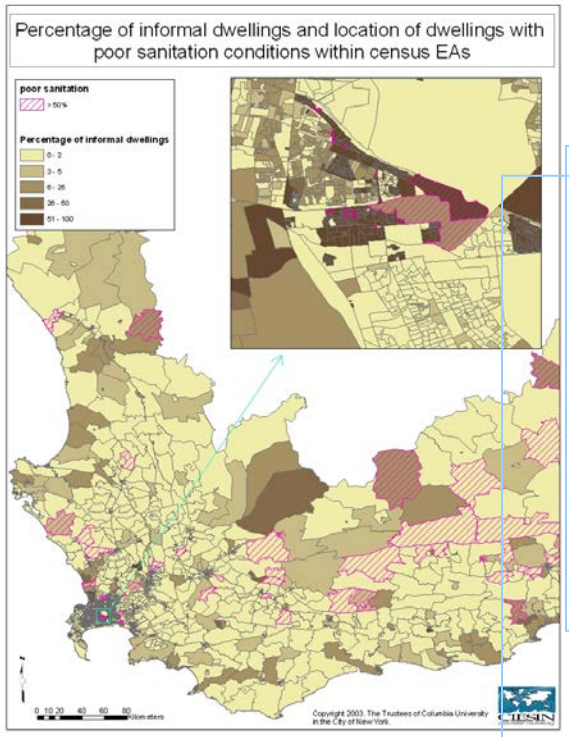
Monitoring Urban Sustainability -Use of Spatial Indicators - examples:

Community-led data collection

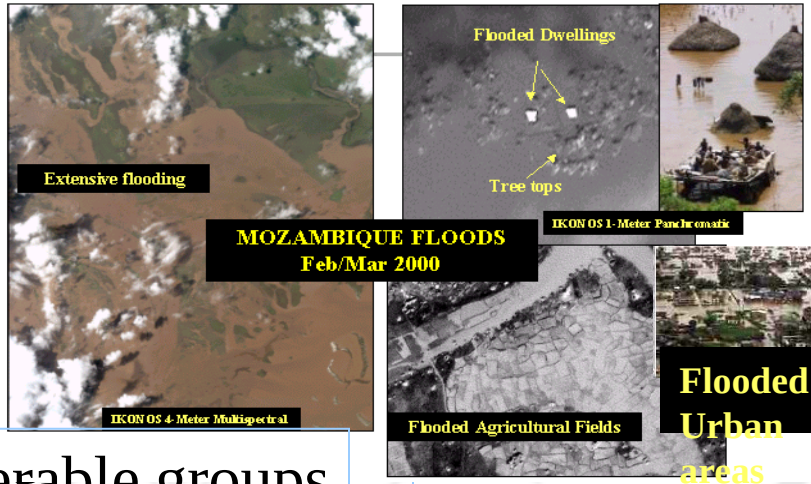
National Governments (NSO)

Monitoring Urban Sustainability -Use of Spatial Indicators -

Integrate small area estimates



Warning, tracking, damage assessment

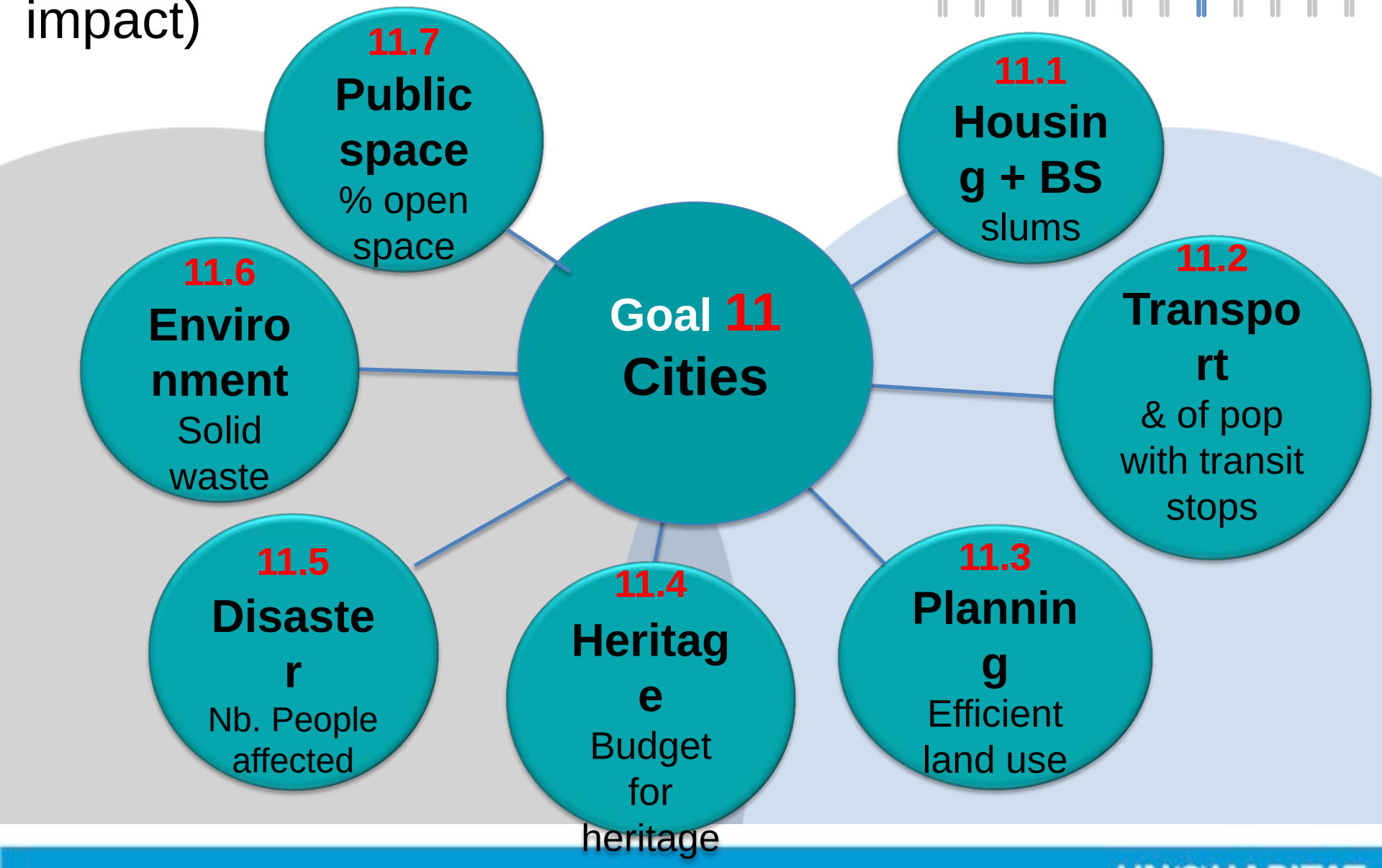


- Improve samplir
- Identifying vulnerable groups
- Segregate variables/indicators
- Increase level of accuracy
- Allocate resources
- Monitor changes overtime

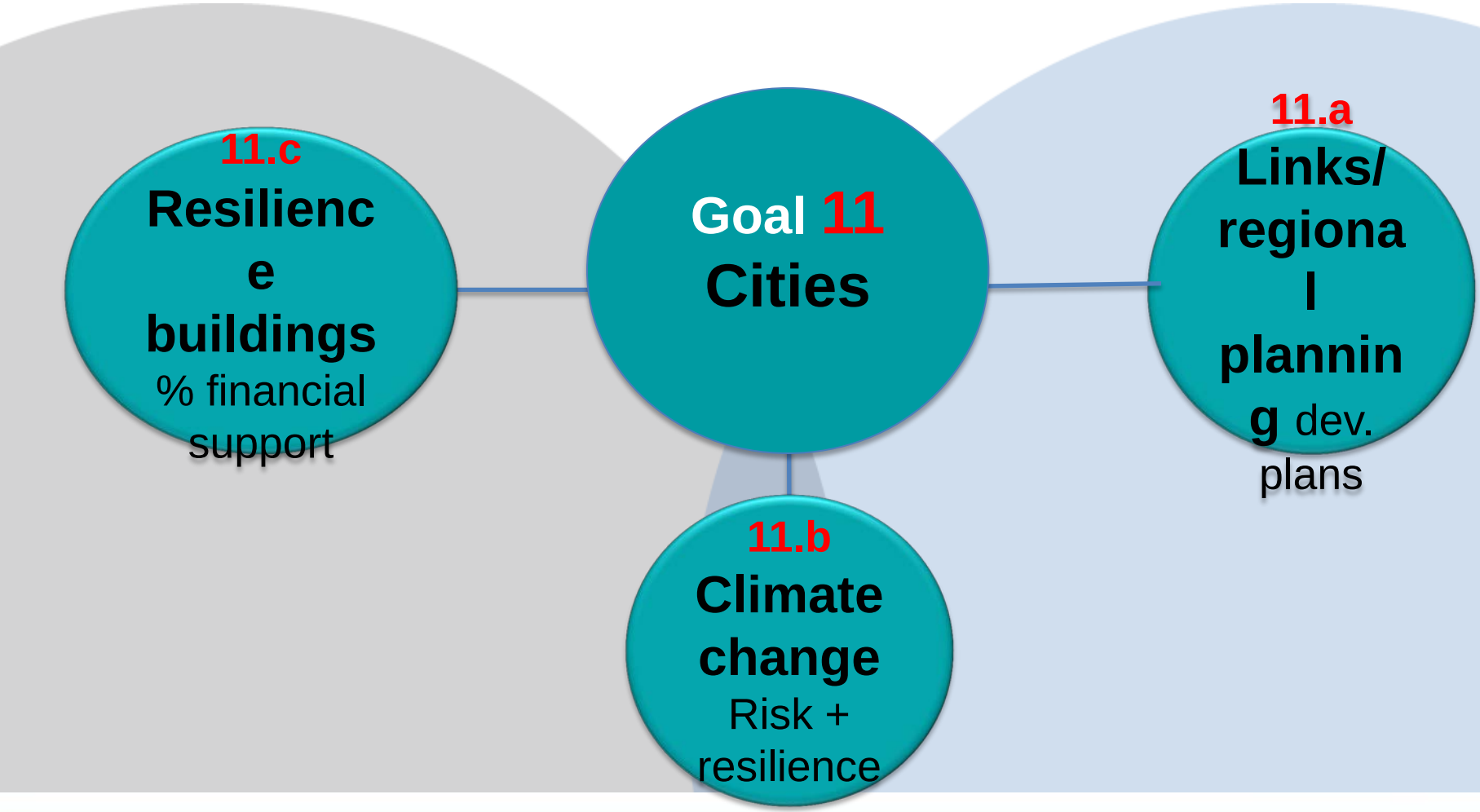
- Rapid assessment
- Land uses
- Vulnerability reduction and disaster preparedness
- Simulation models

Post disaster intervent

SDGs – Goal 11, Targets and Indicators (7 impact)



SDGs – Goal 11, Targets and Indicators (3 process)



City Prosperity Initiative

Use of Spatial Indicators

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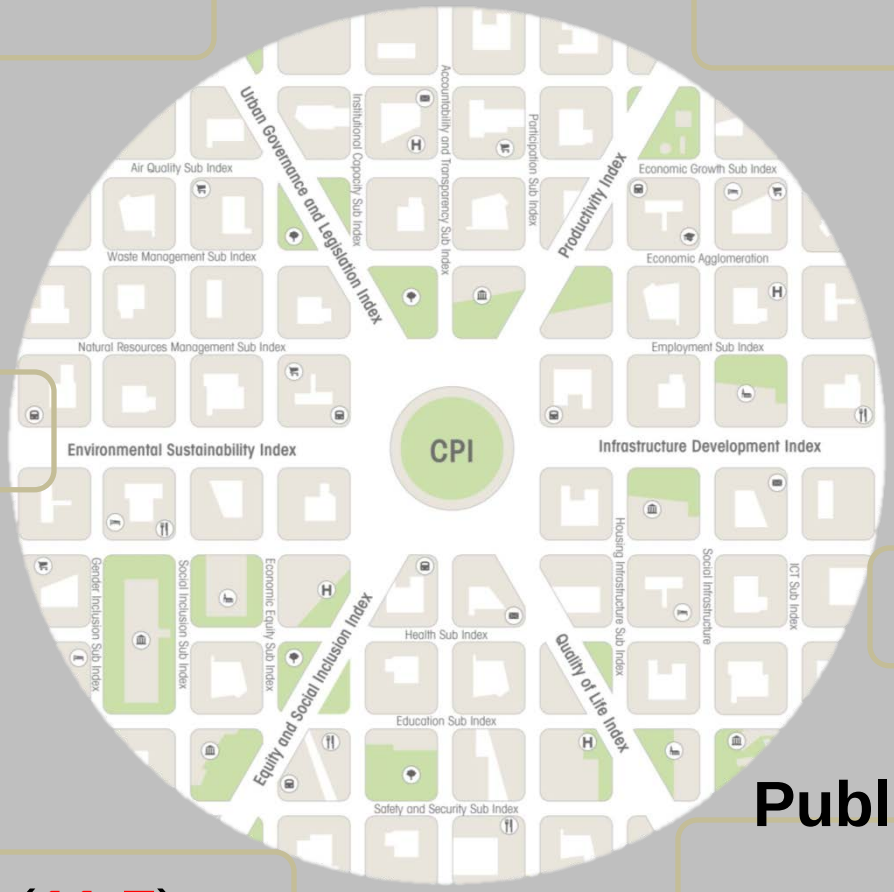
Urban Sprawl (11.3)

Slum areas (11.1)



Public space (11.7)

Economic agglomeration

Land-use diversity

Street connectivity(11.7)

Public transport (11.2)

CITY PROSPERITY INITIATIVE

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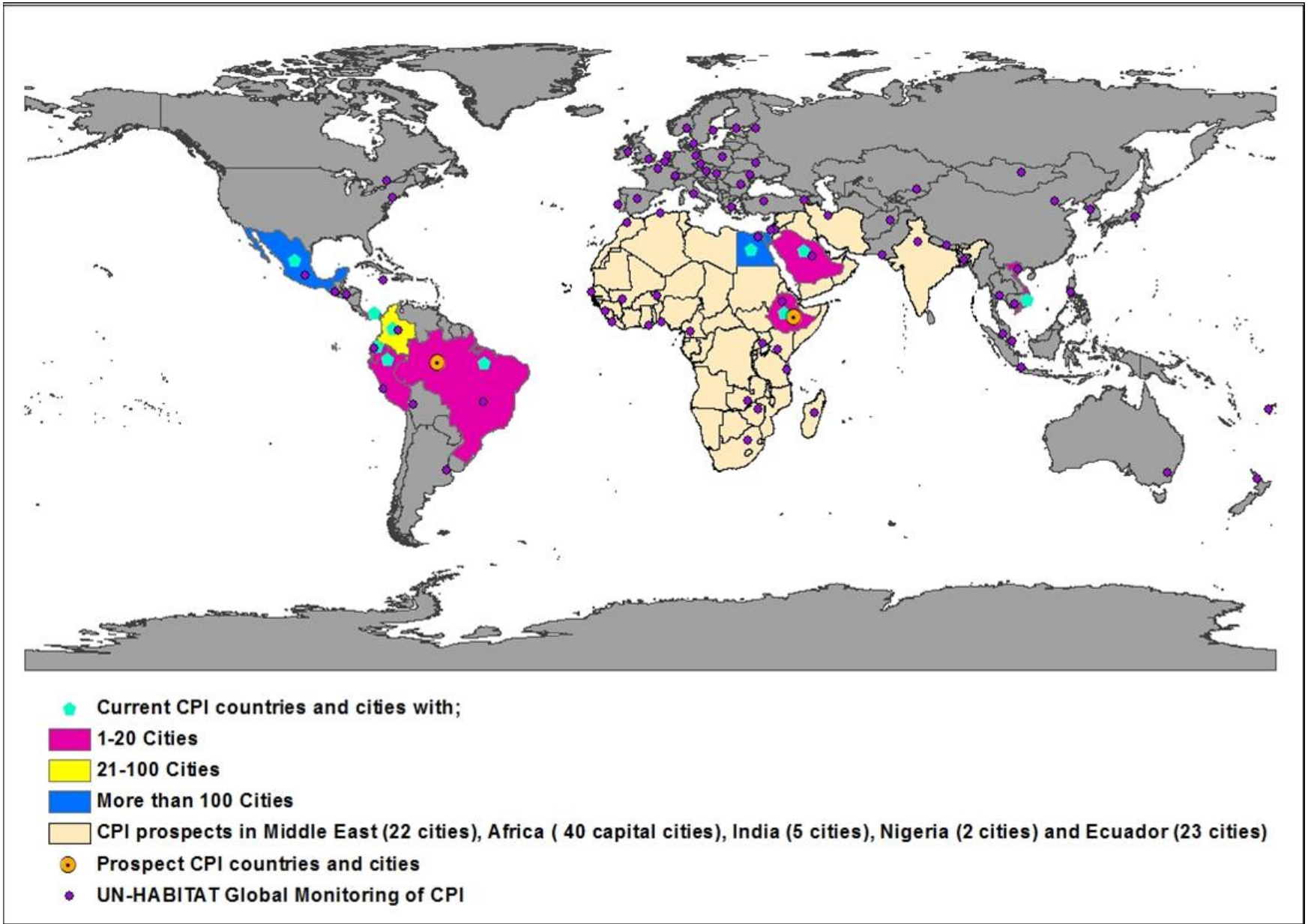
FOR A BETTER URBAN FUTURE

CURRENT STATUS



GOAL 11: INDICATORS CURRENTLY MONITORED

USE OF SPATIAL INDICATORS

Slum areas (11.1)

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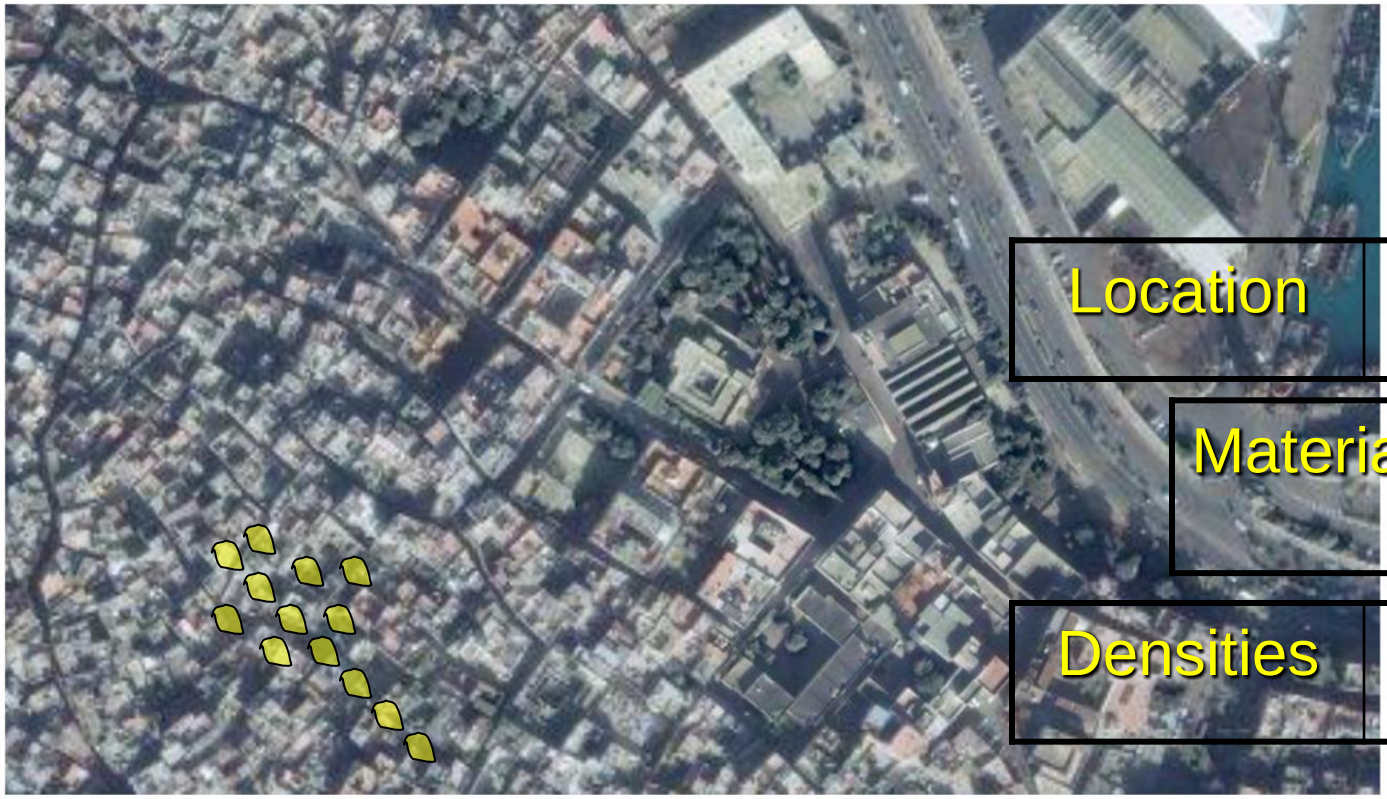


Type 1

Type 2

Type 3

Location	Size	Features
Materials	Number of units	
Densities	Age	Evolution

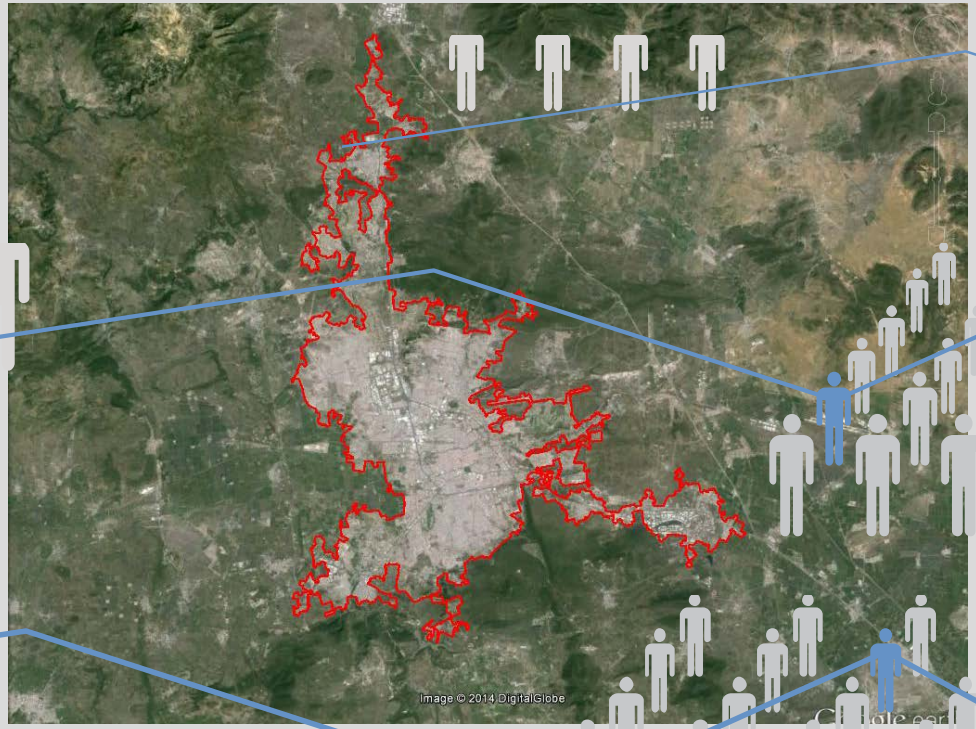
GEOCONSEIL

Goal 11: Indicators Currently Monitored

Use of Spatial Indicators

Efficient land use (11.3)

Ratio of land consumption rate to population growth rate at comparable scale



Efficient land use (11.3)

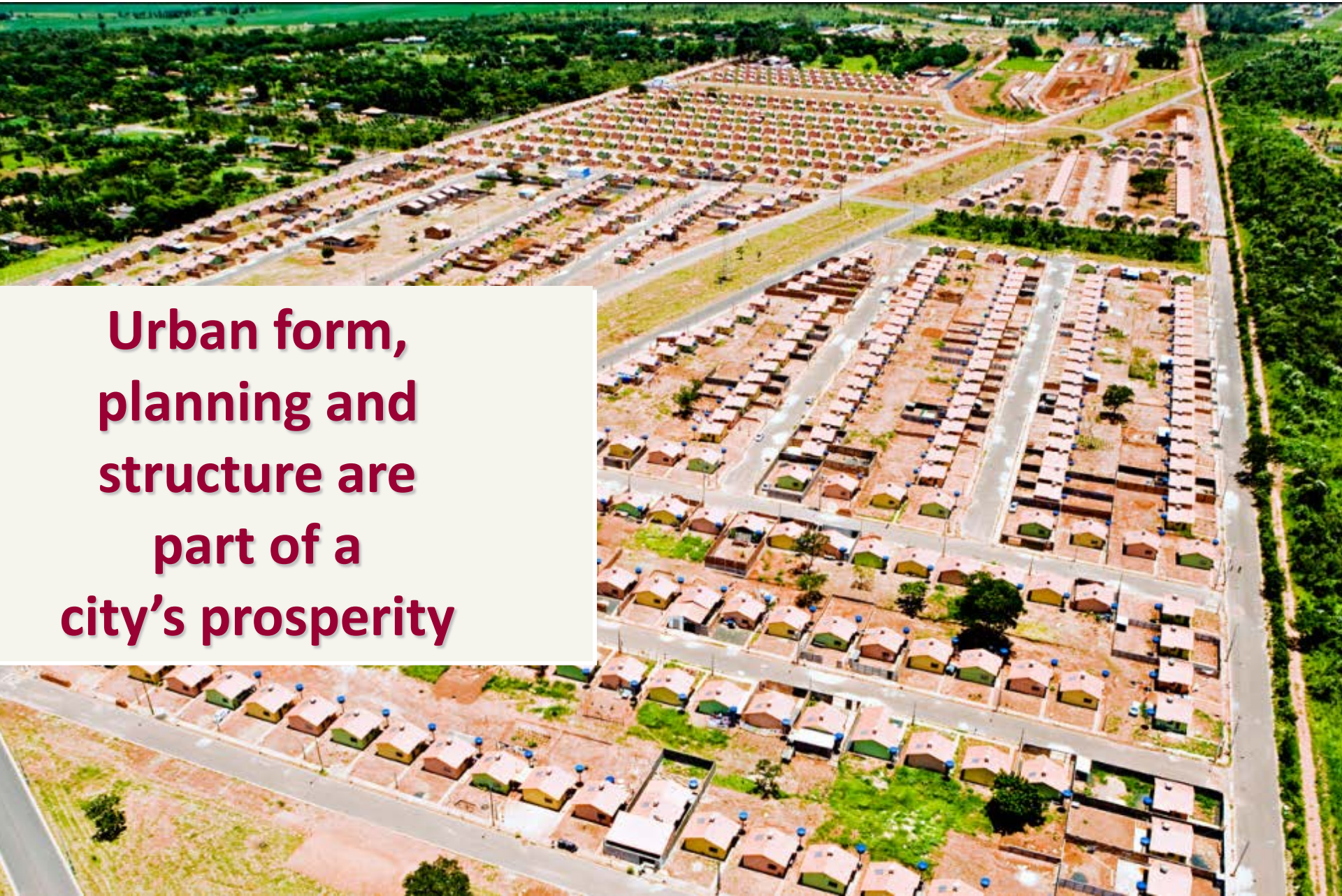
	Population growth (thousands)				
City	**1980**	**2000**	**2005**	**2010**	**% growth**
Cancun	37	431	586	677	18.2

	Surface or Area growth (Ha)				
City	**1980**	**2000**	**2005**	**2010**	**% expansion rate**
Cancun	438	4,341	5,835	12,340	25.82

The sprawl index (SI) measures the growth in built-up area adjusted for the growth in city population
(years of reference)

Rate sprawl	**1.81**
Normalization	**0.90**

Street connectivity and the CPI



Urban form, planning and structure are part of a city's prosperity

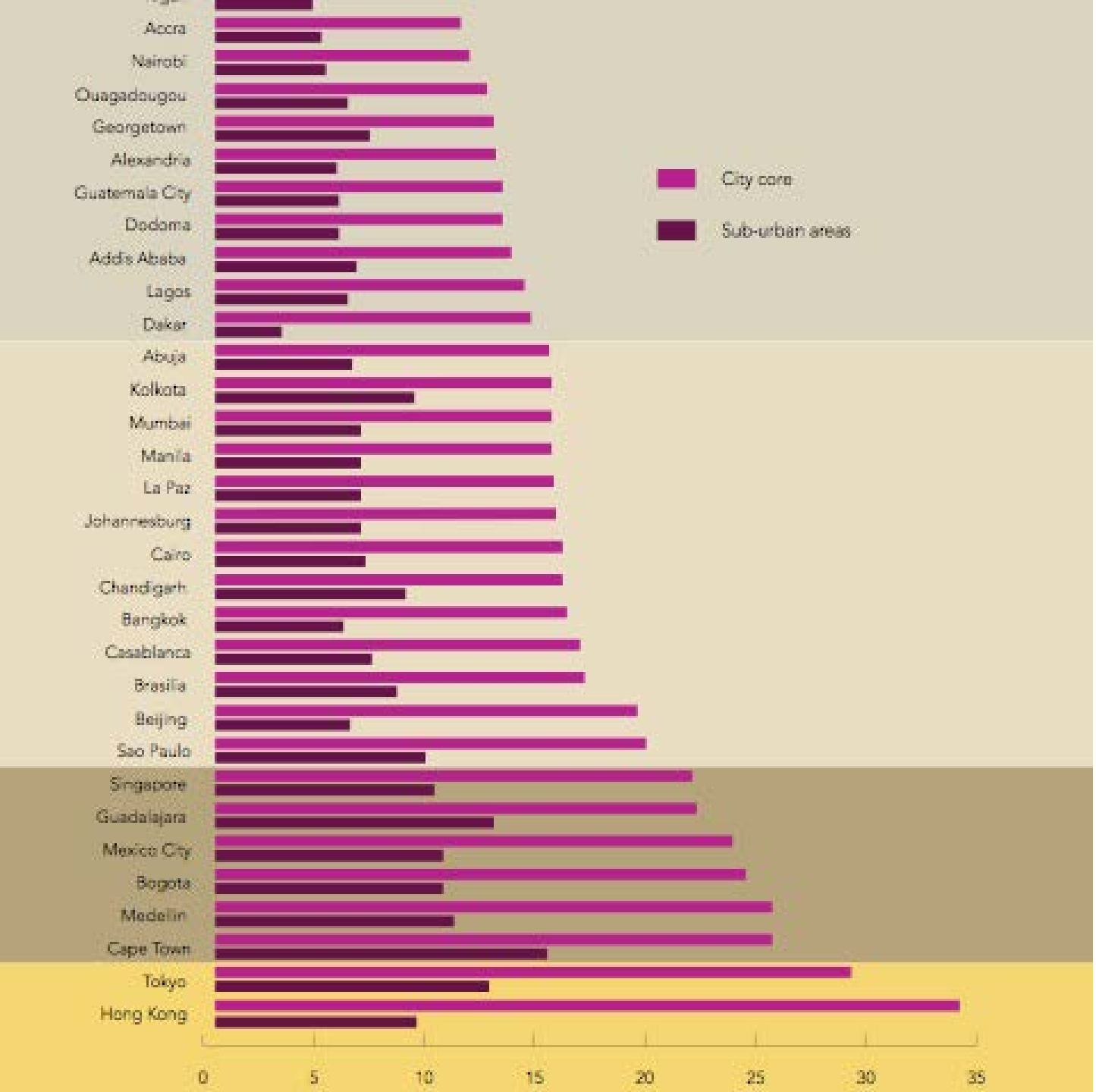
CPI

STREET CONNECTIVITY AND SPATIAL INDICATORS

Land Allocated to Streets

Intersection Density

Street Density



CORE vs

Suburban

The form of the city and prosperity
(street connectivity index – Example Colombia)

City	Land allocated to streets	Street density	Intersection densities
Neiva	22.5	24.8	**243.8**
Bogotá	**18.3**	**15.9**	153.2
Santa Marta	20.0	18.6	160.9
Medellín	22.1	18.1	105.0
	20.5	**18.3**	**150.8**
Recommended range	**30**	**20**	**100**

Form of the City – Example: Medellin

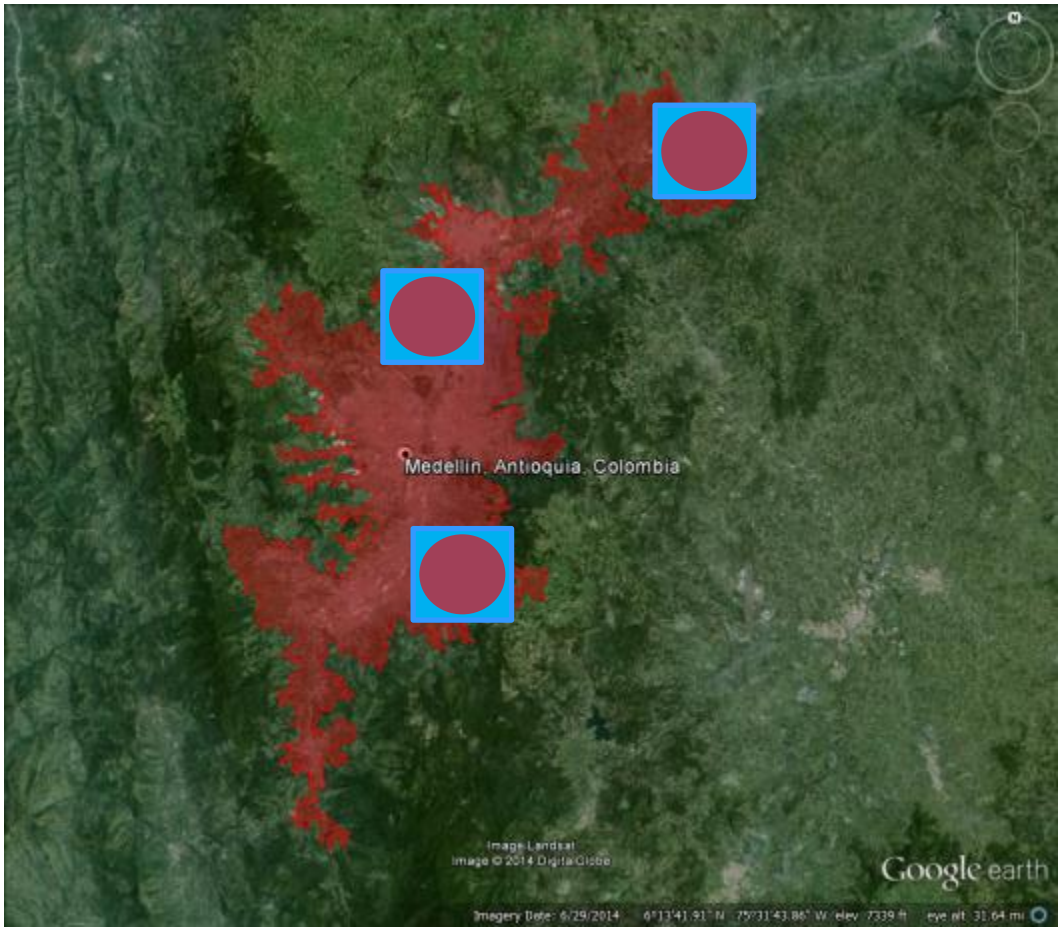
(Patterns at intra-city level)

Consolidated areas	
Land to streets	25.99
Land density	19.79
Density intersections	130

Residential areas	
Land to streets	30.74
Land density	22.69
Density intersections	140

Informal areas	
Land to streets	12.04
Land density	16.17
Density intersections	250

Form of the City – Example: Medellin
(connectivity at intra-city level)

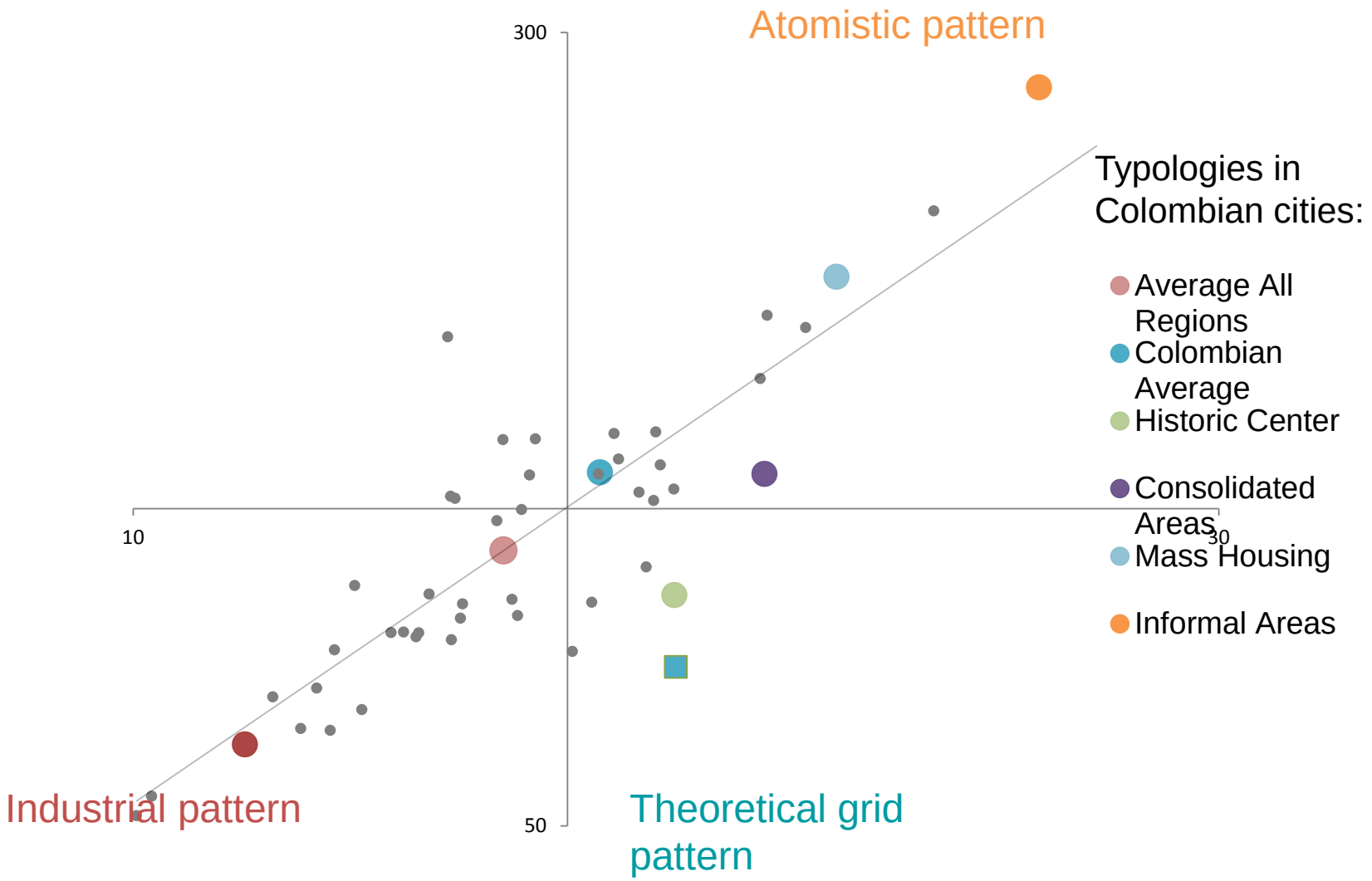


- Connectivity of the city
- Economic density

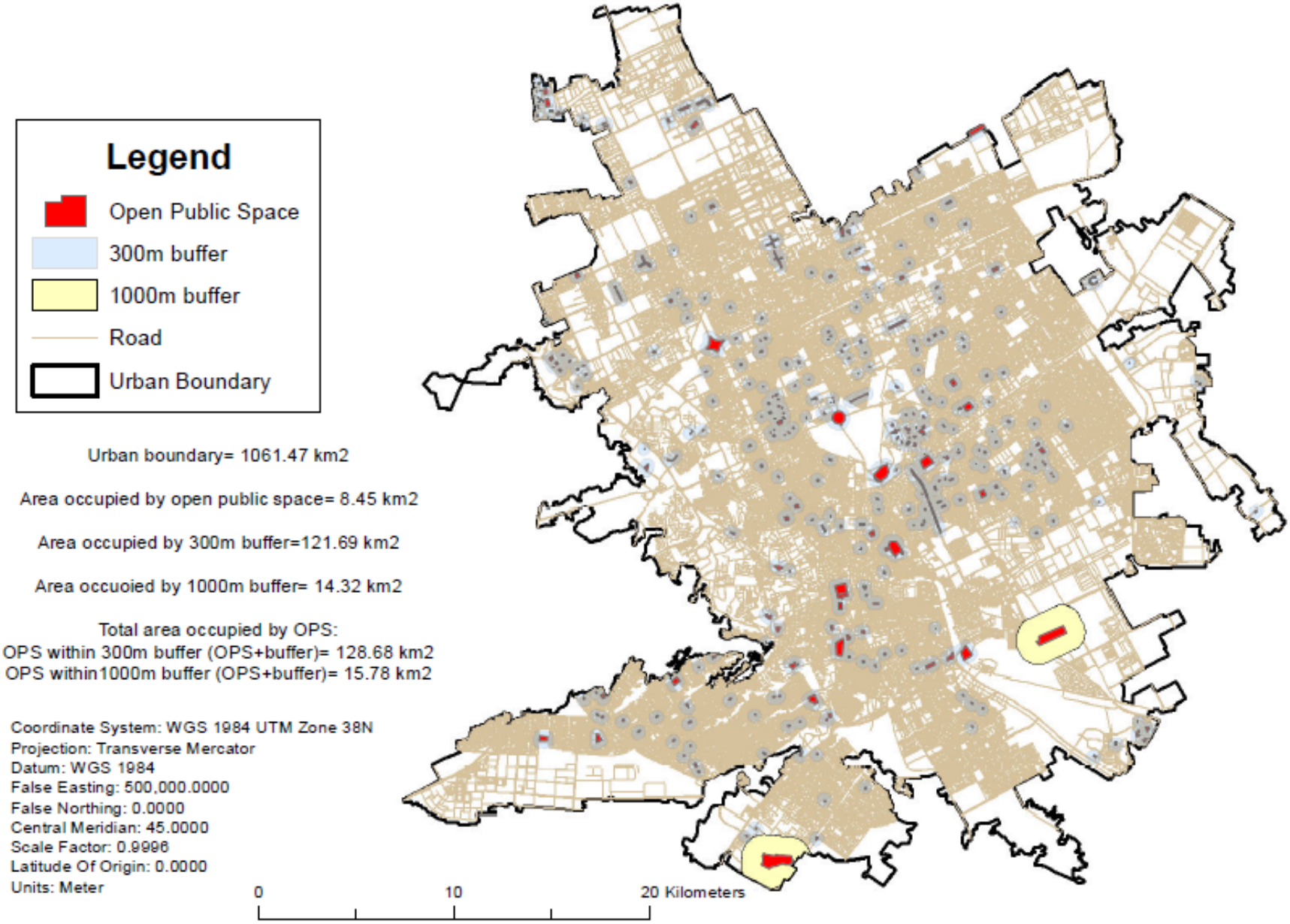
Need to connect agglomeration economies, residential densities and infrastructure densities

SD:ID ratio

Urban Pattern Quadrants

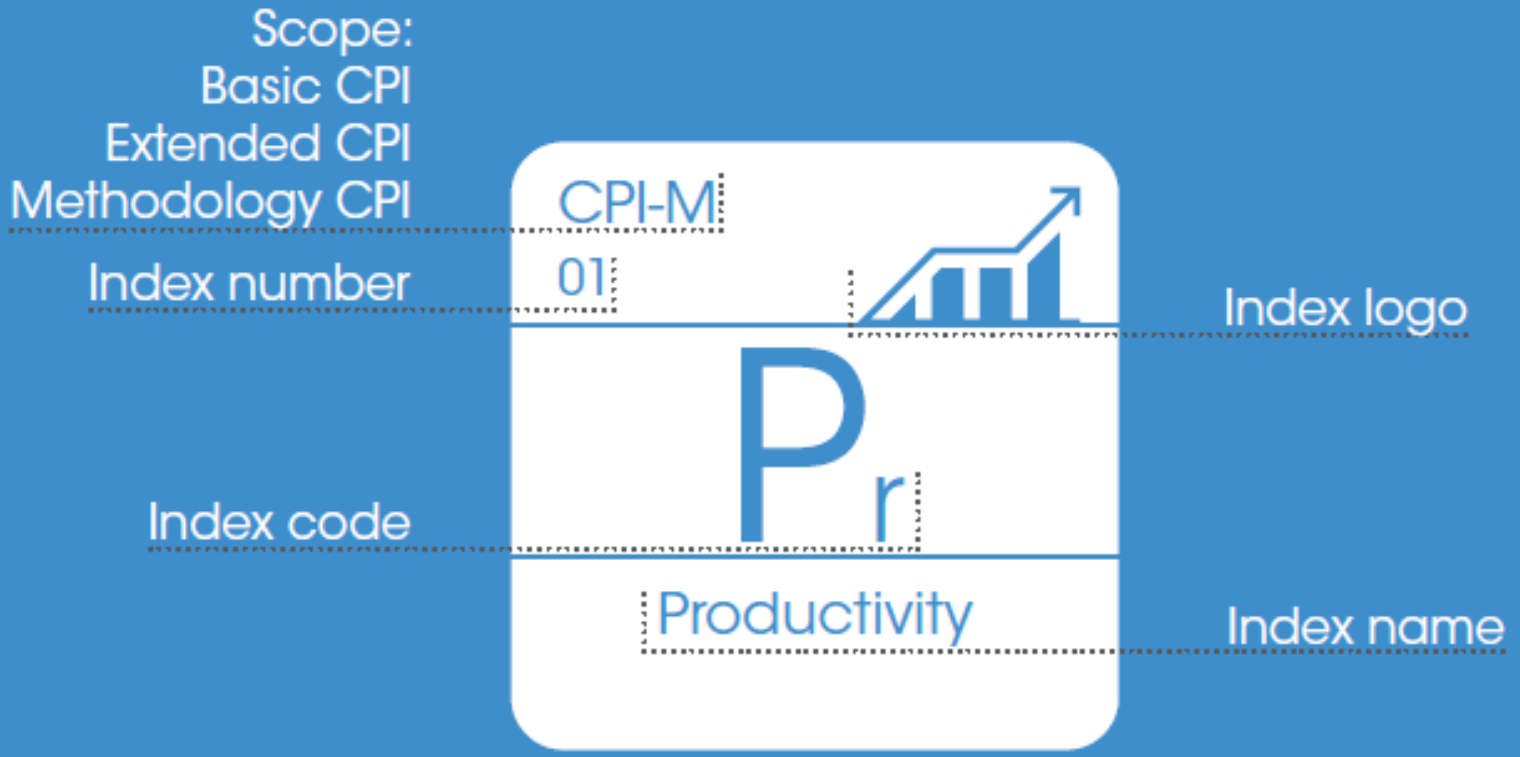


OPEN PUBLIC SPACE in RIYADH, SAUDI ARABIA



3. METADATA

ICONS DESCRIPTION



Qi. Ss
03.04.02

Aop

Accessibility of Open Public Areas - Metadata

Indicator	Accessibility of Open Public Areas
Scope	Extended CPI
Rationale	This indicator provides information about the open public areas in a city has and whether this amount is sufficient for its population. Additionally, this indicator considers the accessibility of open public areas and the distribution of the total area across the city. In most countries, the concept of an open public area is related to green areas (where green areas are defined as public and private areas that have flora such as plants, trees and grass). Nevertheless, the two principal roles of an open public area are to provide a space for healthy social interaction space and improve air quality (WHO, 2012). Individuals residing in towns and cities should have access to natural green spaces or open public spaces less than 300 meters from home (Natural England; see also The Wildlife Trust & Natural England, 2009; Harrison et al., 1995; Barker, 1997; Handley et al., 2003; Wray et al., 2005; [1]) A prosperous city has enough open public area for its residents, which is properly distributed and easy to access.
Definition	The percentage of the urban area located less than 300 meters away from an open public space.

Definition	An open area is concept is rel dellin (2013), Sandalack & Ala [2], open public spaces includ - Parks: open spaces inside a and contact with nature. Their portion of green area. - Civic parks: open spaces c open area, which was later tr They are characterised by cor are good place for cultural eve - Squares: open spaces create area. Its main characteristics a elements and interaction amor usually public spaces that are torial development, or cultural i - Recreational green areas: pu mental preservation. All recreat ity and must be linked to urban and passive recreation. - Facility public areas: open m are part of city facilities (define i.e., public libraries, stadium, p the following characteristics: p both active and passive recrea
Unit [ ]	%
Methodology	Methodology A: *Accessibility of open public ar*

Thank You
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