Urban SDG and GeoSpatial Information Needs and Challenges

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Research and Capacity
Development Branch
UN-HABITAT

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Urbanization is an unstoppable phenomenon

► **The world is rapidly urbanising**

The world's population living in cities or urban centres has risen steadily over the years

Since 2007 over **50%**

By 2030 about **60%**

By 2050 approximately **66%**
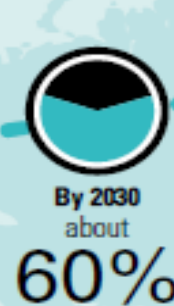
From 2010 to 2050
2.5 to 3 billion people
will be added to the urban population worldwide

Cities are at the Centre of Sustainable Development

Urban areas:

- **Are home to 56% of human settlements**

- **Consume 75% of the earth's natural resources**

- **Produce 60% of global GHG emissions**

- **Produce 50% of global waste**

- **Produce 80% of Global GDP**

Cities and Sustainable Development

Goal 11, the **Stand-alone goal** on cities and human settlements affirms their importance for attainment of sustainable development

Make cities and Human Settlements inclusive, safe, resilient and sustainable

**11 SUSTAINABLE CITIES AND COMMUNITIES**

Recognition that cities are a string that connects all other goals

Success in achieving the targets under SDG 11 sets stage for achieving targets in many other SDG goals.

Acknowledges importance of implementation at local levels and the role of local governments

SDG 11 and its Role in City Planning

Cities require **monitoring systems** to: support **urban visioning** and long-term plans; track progress for **informed policy making** and sustainable development.

11 SUSTAINABLE CITIES AND COMMUNITIES
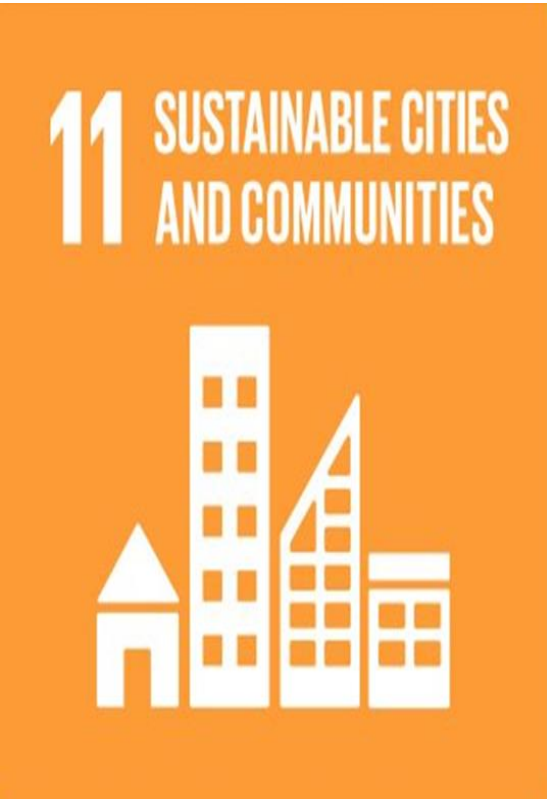
| Outcome-oriented	Process-Oriented
11.1: Housing and Slums	11.a: Urban-rural linkages
11.2: Sustainable transport	11.b: Risk reduction
11.3: Participatory planning	11.c: Sustainable buildings
11.4: Cultural heritage	
11.5: Disaster Reduction	
11.6: Air Quality and Waste Management	
11.7: Public spaces	

THE NEW URBAN AGENDA

THE NEW URBAN AGENDA

Adopted in **October 2016 in Quito, Ecuador**

Focuses on **interventions** required to ensure that cities and human settlements are **planned, developed and managed in sustainable ways** in supporting the implementation of the 2030 Agenda

First internationally agreed document detailing implementation of the urban dimension of the SDGs

NEW
URBAN
AGENDA

with subject index

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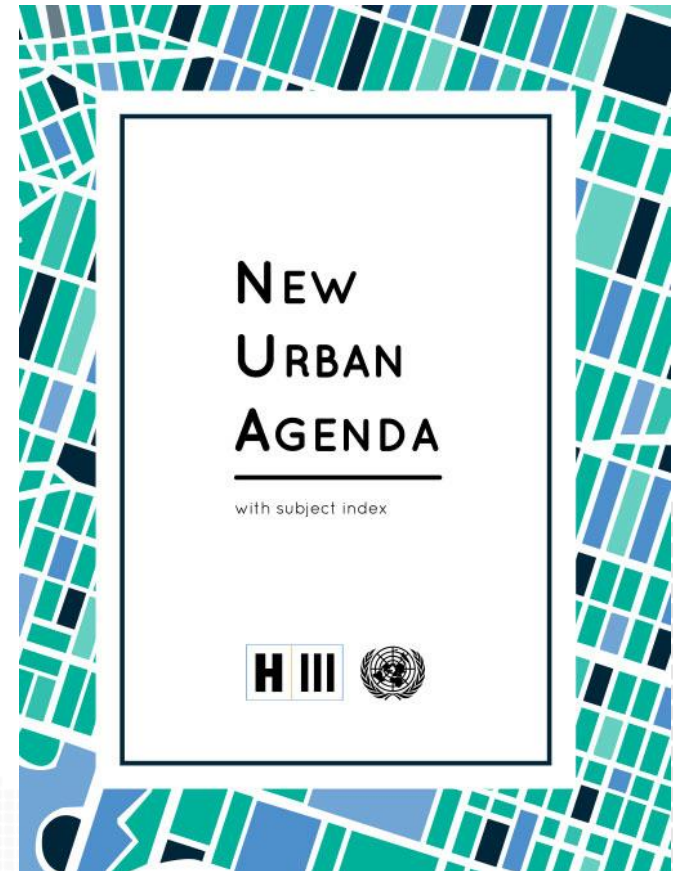
The New Urban Agenda

- **Extension of the 2030 Agenda for Sustainable Development (**complements SDGs processes)

- **Builds on SDG 11,** but **addresses a wider range of urbanization and human settlements issues**

- Enables **implementation of SDG11 in a more expansive and integrated way**
  - by addressing essential strategic spatial and governance frameworks
  - National urban policies, legislation, spatial planning and local finance frameworks.

- **Provides spatial framework for the delivery of SDGs** within urban areas by **focusing on local level implementation**.

- **Places emphasis on the need to develop capacity of local authorities** and other local actors for NUA and SDG implementation at the urban local level.

Global challenges for applying geospatial analytics at urban level are many….

GU

- How to manage geospatial data needs/demands ?

- Defining what a city or urban area or human settlements is?

- How to deal with countries with many cities/urban centers?

- Variations in understanding definitional issues of indicators at various levels

- Technological needs for monitoring

- Defining what a city or urban area or human settlements is?

- Partnerships arrangements

- Different reporting levels

Several indicators require to be collected locally & spatially:

11.2	11.3	11.4
Public Transport	Land Consumption	Cultural heritage

11.6	11.7
Solid waste and air quality	Public Space

Challenge 1: How to manage geospatial data needs/demands ?

11.3.1: Ratio of land consumption rate to population growth rate

Main features:

- City population
- Built-up area

The method to estimate land use efficiency is based on two stages:

1. Estimate the population growth rate

$$PGR = \frac{LN(Pop_{t+n}/Pop_t)}{(y)}$$

Where

Pop_t Total population within the city in the past/initial year

Pop_{t+n} Total population within the city in the current/final year

y   The number of years between the two measurement periods

2. Estimate the land use consumption rate

$$LCR = \frac{LN(Urb_{t+n}/Urb_t)}{(y)}$$

Where

Urb_t Total areal extent of the urban agglomeration in km² for past/initial year

Urb_{t+n} Total areal extent of the urban agglomeration in km² for current year

y   The number of years between the two measurement periods

Ratio of land consumption rate to population growth rate (LCRPGR) is estimated as follows:

$$LCRPGR = \left(\frac{Land\ Consumption\ rate}{Annual\ Population\ growth\ rate}\right)$$

Indicator 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"

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Method of Computation

Indicator 11.7.1 is composed of four parts:

1. Spatial analysis to delimit the **built-up area of the urban agglomeration**
2. Computation of **total area of open public space.**
3. Estimation of **land allocated to streets.**
4. Estimation of share of population with **access to open public spaces**

Share of the built up area of the city that is open space in public use %

$$\left(\frac{\text{Total surface of open public space} + \text{Total surface of land allocated to streets}}{\text{Total surface of built up area of the urban } agglomeration}\right) \text{X } 100$$

Defining the City: Rate of Land Consumption (SDG 11.3.1)

- EGMs were organized that brought together leading experts on the detection of built-up area and on the identification and classification of what is urban and what is rural.

- To ensure comparability of reported results, **a harmonized global definition** is needed. This will facilitate data exchange and comparison within and across nations.
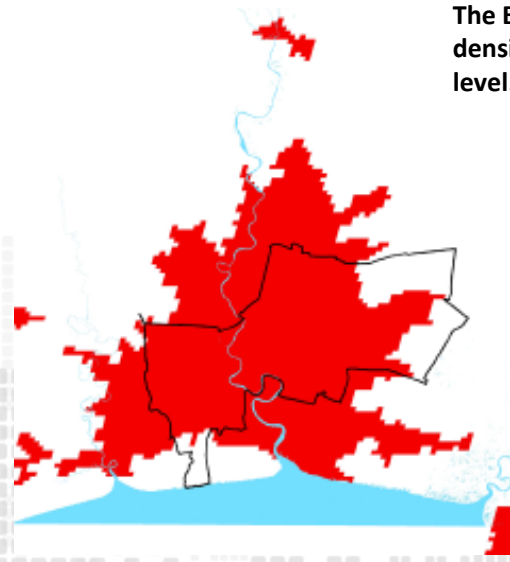
Two methods have been proposed for defining what is rural and what is urban, and for identifying the area of the city.

The NYU method relies primarily on an assessment of the density of built-up area, and applies various rules to create a unified urban boundary for cities.
(NYU/UNH).
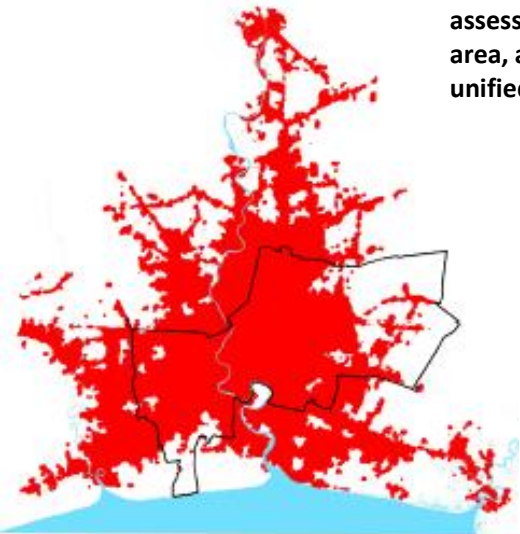
The EC method relies on population density and city size at a 1km grid level.
(EC/UN-H).

Share of Land that is Public Space (SDG 11.7.1): Addis Ababa Snapshot

Calculation of land allocated to open space for public use within the urban extent

$$\left(\frac{\text{Total surface of open public space}+\text{Total surface of land allocated to streets}}{\text{Total surface of built up area of the urban }agglomeration}\right)\text{X }100$$

$$\left(\frac{14.63\text{km2}+65.22km2}{296.46km2}\right)\text{X }100 = 26.93\%$$
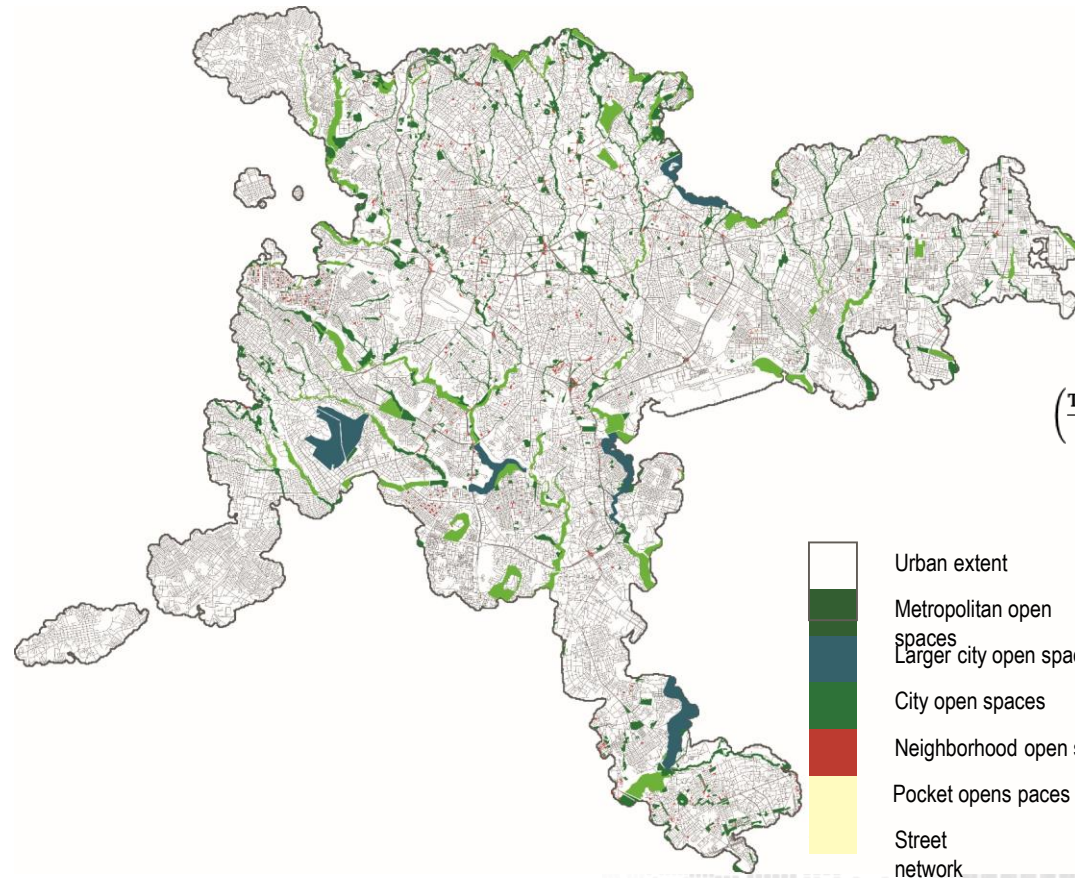
Legend:
- Urban extent
- Metropolitan open spaces
- Larger city open spaces
- City open spaces
- Neighborhood open spaces
- Pocket opens paces
- Street network

Challenge 3: Dealing with the countries that have so many cities/urban centers

Using the National Sample of Cities approach

Modelled after the Global Sample of Cities, the National Sample of Cities can be used to harmonize urban data and indicators using an agreed number of cities that are statistically representative of the country's urban human settlements

CRITERIA

- ❑ Number of cities
- ❑ Population
- ❑ Size of the city
- ❑ Geographic location
- ❑ City functionality
- ❑ Economic and political importance

Global Sample of Cities
Based on 200 cities, it represents 5% of the Universe of 4,231 cities of over 100,000 inhabitants in 2010 and 70% of the world urban population

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Using the National Sample of Cities approach

ADVANTAGES

- Integrated and systematic approach of the city

- Integrate cities of all sizes, functions and types as part of a national system of cities

- Assist in the aggregation of locally produced city indicators

- Platform for a unified methodology for SDGs reporting

- Calculate national averages

- Facilitate a systematic disaggregation of information at national, sub-national and city levels

- Create baseline data and information for selected cities of the national sample

- Establish benchmarks and national targets to enable for comparisons

The urban spatial challenges are many and require Partnerships at all levels
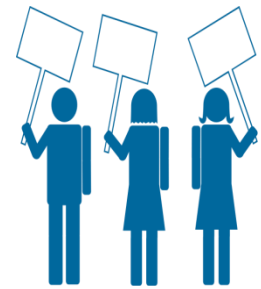
All partners have a role
- Let us identify, connect and play our roles

Governments   Private sector   Civil society   People like us

Conclusion

Policy Implication
UN-Habitat recommends a more *unified approach for producing the geospatial data* that ensures that base references such as space, populations and applications of definitions is all uniform for all these databases. This makes the data comparable

But with data there is even a greater need for policy and strategic intervention

Towards Big Data
Can help on enhancing some geospatial data related to e.g housing stocks, slums, gender, refugees, transport, urban expansions, etc.

Need for Urban Geospatial Data Centers
These will help provide better coordination on layers and quality control.

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Thank You