Urban SDG and GeoSpatial Information Needs and Challenges

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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

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.

<table>
<thead>
<tr>
<th>Outcome-oriented</th>
<th>Process-Oriented</th>
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<tbody>
<tr>
<td>11.1: Housing and Slums</td>
<td>11.a: Urban-rural linkages</td>
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<tr>
<td>11.2: Sustainable transport</td>
<td>11.b: Risk reduction</td>
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<td>11.3: Participatory planning</td>
<td>11.c: Sustainable buildings</td>
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<td>11.4: Cultural heritage</td>
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<td>11.5: Disaster Reduction</td>
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<td>11.6: Air Quality and Waste Management</td>
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<td>11.7: Public spaces</td>
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THE NEW URBAN AGENDA

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

Adopted in October 2016 in Quito, Ecuador
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 SDG 11 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....

- 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:

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Spatial Needs</th>
</tr>
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<tbody>
<tr>
<td>11.2</td>
<td>Public Transport</td>
</tr>
<tr>
<td>11.3</td>
<td>Land Consumption</td>
</tr>
<tr>
<td>11.4</td>
<td>Cultural heritage</td>
</tr>
<tr>
<td>11.6</td>
<td>Solid waste and air quality</td>
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<td>11.7</td>
<td>Public Space</td>
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Challenge 1: How to manage geospatial data needs/demands?

Selected Spatial Indicators

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

\[ PGR = \frac{\ln(P_{t+n}/P_{t})}{y} \]

Where:
- \( P_{t} \) Total population within the city in the past/initi9al year
- \( P_{t+n} \) 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

\[ LCR = \frac{\ln(U_{t+n}/U_{t})}{y} \]

Where:
- \( U_{t} \) Total areal extent of the urban agglomeration in km\(^2\) for past/initi9al year
- \( U_{t+n} \) Total areal extent of the urban agglomeration in km\(^2\) for current year
- \( y \) The number of years between the two measurement periods

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

\[ LCR_{PGR} = \frac{\text{Land Consumption rate}}{\text{Annual Population growth rate}} \]
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”

**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 %

\[
\text{Share} = \left( \frac{\text{Total surface of open public space} + \text{Total surface of land allocated to streets}}{\text{Total surface of built up area of the urban agglomeration}} \right) \times 100
\]
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/UNH).
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

\[
\frac{\text{Total surface of open public space}}{\text{Total surface of land allocated to residents}} \times 100
\]

\[
\frac{1.608 \times 10^4 \text{ m}^2}{296.44 \text{ m}^2} \times 100 = 26.93\%
\]

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.

**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

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.
Thank You