Developing a global, people-based definition of cities and settlements

Cooperation between:
Directorate General for Regional and Urban Policy, Joint Research Centre, EUROSTAT (European Commission, European Union)
OECD, The World Bank, and Food Agricultural Organization

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Why?

- To make meaningful comparisons of city indicators possible
- To answer questions such as:
  - How many cities are there in the World?
  - Is Istanbul bigger than Paris or Beijing?
- To improve SDG’s monitoring strategies (i.e. Goal 11)
Where does the city stop?

Urban SDG indicators are very sensitive to the city boundaries

Goal 11

- 11.1.1. Informal settlements in urban areas
- 11.2.1. Population with convenient access to public transport
- 11.3.1. Ratio of land consumption rate to population growth rate
- 11.6.2. Fine particulate matter (PM10 and PM 2.5)
- 11.7.1. Open space for public use
Who committed to develop this?

- The European Union together with the OECD and the World Bank launched this commitment to develop a global people based definition of cities and settlements during Habitat III in Quito in 2016
- FAO has joined this commitment
- **Goal**: present a definition to UN Statistical Commission in 2019
- Approach test two definitions:
  - Degree of urbanisation
  - EU-OECD functional urban area
- Interim results at World Urban Forum 2018

What has been done so far?

- The degree of urbanisation has been applied to the globe using a new free population grid created by the Joint Research Centre using the Global Human Settlement Layer and CIESIN population data [http://ghsl.jrc.eu.europa.eu](http://ghsl.jrc.eu.europa.eu)
- Results have been presented in the Atlas of the Human Planet and the State of European Cities Report [http://ec.europa.eu/cities-report](http://ec.europa.eu/cities-report)
Regional & Urban Policy

Global Human Settlement Layer

Degree of urbanisation

- *Is based on the 1 km² population grid*
- *Has three grid concepts*
  - Urban centre
  - Urban cluster
  - Rural grid cell
- *Translates these into three types of municipalities*
  - City
  - Towns & suburbs
  - Rural areas
Creating a global built-up grid

Satellite imagery is processed to extract buildings

Share of area covered by buildings based on satellite imagery

Share of area covered by buildings aggregated to 1 km grid cells

Creating a global population grid

Share of area covered by buildings based on satellite imagery

Census data on population

Total population by 1km grid cell

Source: JRC GHSL

Source: CIRESIN, Columbia University

Source: JRC GHS Pop
### Three types of grid cells

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urban centres</td>
<td>Contiguous cells with at least <strong>1,500 inhabitants per km²</strong> and at least <strong>50,000 inhabitants in the centre</strong></td>
</tr>
<tr>
<td>Urban Clusters</td>
<td>Contiguous cells with at least <strong>300 inhabitants per km²</strong> and at least <strong>5,000 inhabitants in the cluster</strong></td>
</tr>
<tr>
<td>Rural grid cells</td>
<td>All cells outside urban clusters</td>
</tr>
</tbody>
</table>
Three types of municipalities

<table>
<thead>
<tr>
<th>Type</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cities</td>
<td>&gt; 50% pop. in urban centres</td>
</tr>
<tr>
<td>Towns and suburbs</td>
<td>&gt; 50% pop. in urban clusters and not classified as city</td>
</tr>
<tr>
<td>Rural area</td>
<td>&gt; 50% pop. in rural grid cells</td>
</tr>
</tbody>
</table>

Urban areas = Cities + Towns and Suburbs

http://ghalsys.jrc.ec.europa.eu/
Why are the results so different?

- National definitions vary substantially: minimum population threshold ranges from 200 to 50,000
- Unclear how often definitions are updated
- Some countries do not report a definition or use a list of places with city status
- The global grid used can contain flaws if:
  - Population is not reported accurately
  - Building detection over or underestimates presence of buildings
  - Combining the data generated distortions

Source: JRC 2015, GHSL Pop Grid V1
What is planned during 2017?

- A global consultation by Eurostat and UN asking about the validity, utility and feasibility of using the degree of urbanisation
- Pilot projects with individual national statistical institutes to apply the degree of urbanisation to local administrative units (and use national data)
  - South Africa, Brazil, Morocco
  - Vietnam, Colombia
- We are still looking for more volunteers!!
Ongoing work

- Testing of methods to create a commuting zone in absence of commuting data?
- Improvements to the global population grid by using higher resolution EU satellites (*Sentinel 1 and 2*). Results will be published in 2018
- More outreach activities: World Statistical Congress in Marrakech, July 2017
- State of affair survey: countries of the world

Conclusions

- The results from the global application of the degree of urbanisation and the first pilots are promising
- We are still looking for more national statistical institutes to join a pilot project, especially from Asia, Central Africa and Asia.
More information

**Global Human Settlement Layer:**
http://ghsl.jrc.ec.europa.eu

**Degree of urbanisation**
http://ec.europa.eu/regional_policy/sources/docgener/work/2014_01_new_urban.pdf and
http://ec.europa.eu/eurostat/web/degree-of-urbanisation/overview

**EU-OECD City definition**
http://ec.europa.eu/regional_policy/sources/docgener/focus/2012_01_city.pdf and
http://ec.europa.eu/eurostat/web/cities/overview

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