Global Definition of Cities and Settlements
The goal of a Global City Definition is **NOT TO CHANGE EXISTING** administrative and statistical definitions in countries, but to adopt a functional unit for monitoring.
Our assessments have revealed that ....

- Countries use diverse parameters, concepts and thresholds to define city
  - Egs from some African Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Admin. function</th>
<th>Econ. function</th>
<th>Pop. size</th>
<th>Pop. density</th>
<th>Urban character</th>
<th>Pop. Thresholds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uganda</td>
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<td></td>
<td>x</td>
<td>Legal units</td>
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<td>x</td>
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<tr>
<td>Liberia</td>
<td>x</td>
<td>x</td>
<td>x</td>
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<td>x</td>
<td>&gt; 10,000</td>
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<tr>
<td>Gambia</td>
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<td>Senegal</td>
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</tbody>
</table>

- There are major variations in statistical and administrative delineation of urban and rural areas
Implication of different criteria on data, monitoring

- Non-comparability of data – how to set benchmarks amidst mixed definitions?
- Difficulties aggregating data from city/local scales to national levels
- Biased regional and global aggregation & reporting
- Over/under estimation affecting real decisions, local, regional and international guidelines
Forging a functional city definition

• Following review of hundreds of country level and regionally used approaches, experts narrowed down to **two candidate definitions**
  - City as Defined by its urban extent
  - City as Defined by its degree of urbanization
• Both use GI and EO data and methods

• **The common agreement**
  - Thresholds are a must
  - Better understanding of thresholds equals better definitions/methods
City as Defined by its urban extent

Concepts

- Built-up areas
- Walking distance radius - 1km² circle
- Urbanness of built up areas
  - Urban built up pixels/areas
  - Sub-urban built up pixels/areas
  - Rural pixels/areas
- Open space characterization
  - Fringe open spaces
  - Captured open space
  - Rural open space
1. Satellite imagery is classified to extract built-up pixels.

2. BU pixels are classified into urban, sub-urban and rural pixels based on density of surrounding cells within 1km² walking circle.

3. Open spaces are incorporated depending on size and location relative to built-up pixels.

4. Inclusion rule is applied and gaps are filled to create urban extent.
City as Defined by its degree of urbanization

Concepts

• 1 km² grid cells

• Urban clusters
  • High-density cluster/urban centre:
  • Urban cluster:
  • Rural grid cells:

• Lowest administrative unit characterization
  • Densely populated (cities)
  • Intermediate density area (towns and suburbs)
  • Thinly populated area (rural area)
City as Defined by DEGURBA workflow

1. Population distributed to 1km² grids based on built up area / landuses

2. Character of contigous grids determined based on population density

3. Settlement clusters determined by total population of contigous grids

4. Grids meeting total population thresholds determine urbanness of LAU2
Do the two methods produce similar boundaries?

- Areas where the two functional boundaries overlap
- Areas where urban extent boundaries extend beyond those of DEGURBA
- Areas where DEGURBA area is larger than urban extent coverage
### Some comparisons

<table>
<thead>
<tr>
<th>Country definitions</th>
<th>Urban extent</th>
<th>DEGURBA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Based on legal, political, administrative delineation,</td>
<td>Creates hard city boundary from core criteria</td>
<td>City boundary follows lowest data unit character of majority grids</td>
</tr>
<tr>
<td>Considers multiple criteria, thresholds</td>
<td>Considers built up areas and open spaces as main criteria</td>
<td>Considers population density + size at 1km2 grids</td>
</tr>
<tr>
<td>Follows municipal boundaries/policy and action units</td>
<td>Does not consider municipal boundaries</td>
<td>Does not consider municipal boundaries</td>
</tr>
</tbody>
</table>
What we are doing and next steps

- Together with EC, introducing and piloting DEGURBA to countries outside Europe (Sep 2018 – Aug 2019)

- Comparing results from both methods to official boundaries

- Piloting indicator computations using resultant boundaries

- Sharing technical details of methods to countries, capacity building them to pilot and provide feedback

- Still work in progress – submission to StatCom in 2020
Some feedback from countries

• The methods are realistic to urban character but create variations in country level statistics
  • How do we monitor at different level to policy/decision making level?

• Acceptability of methods to political/decision making class – subjective to context

• Methods ignore other key determinants of urban settlements e.g. economic function, provision of services

• Criteria for both methods is unclear
  • Why selected built up area densities?
  • Why population density and size thresholds?

• We need capacity to do it ourselves so we can choose what works for us
THANK YOU

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