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Population distribution grid uses in the context of regional and urban analysis in Europe

An update (2010-2011)

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Some areas of work 2010-2011

- Development of typologies and spatial definitions
- Thematic work in preparation of the 5th Cohesion Report
- Accessibility and proximity analysis, using new data sources

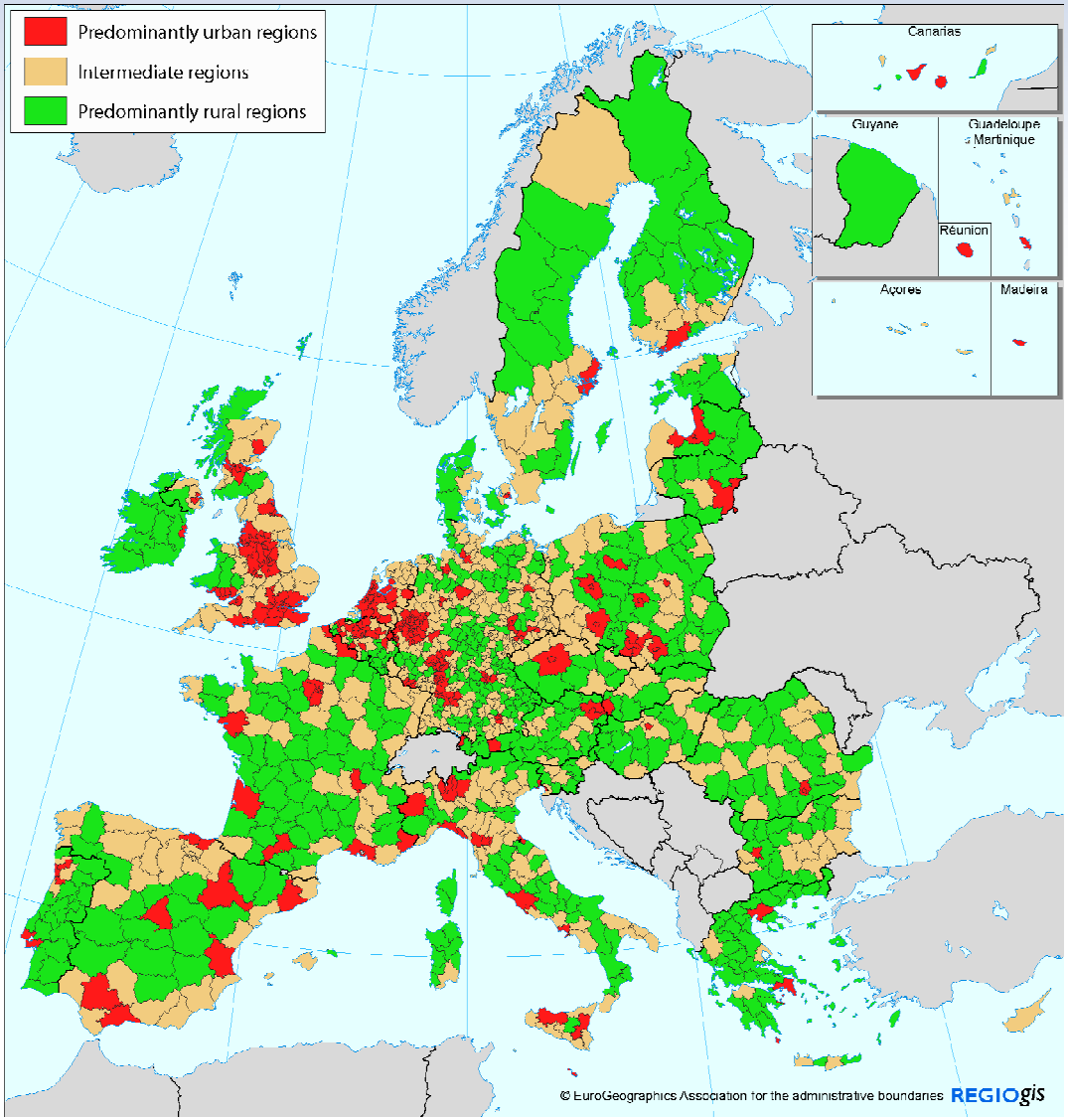
Typologies and spatial definitions

- Regional urban/rural typology
- Local urban/rural typology
- Definition of cities and agglomerations

Regional urban/rural typology

- Classifying EU NUTS3 regions
- Based on analysis of population and density at the level of 1 km² grid cells
- Providing a consistent basis for describing urban, intermediate and rural regions in various Commission reports and publications
- Publication: *http://epp.eurostat.ec.europa.eu/cache/ITY_OFFPUB/KS-HA-10-001-15/EN/KS-HA-10-001-15-EN.PDF*

Urban-rural typology of NUTS3 regions

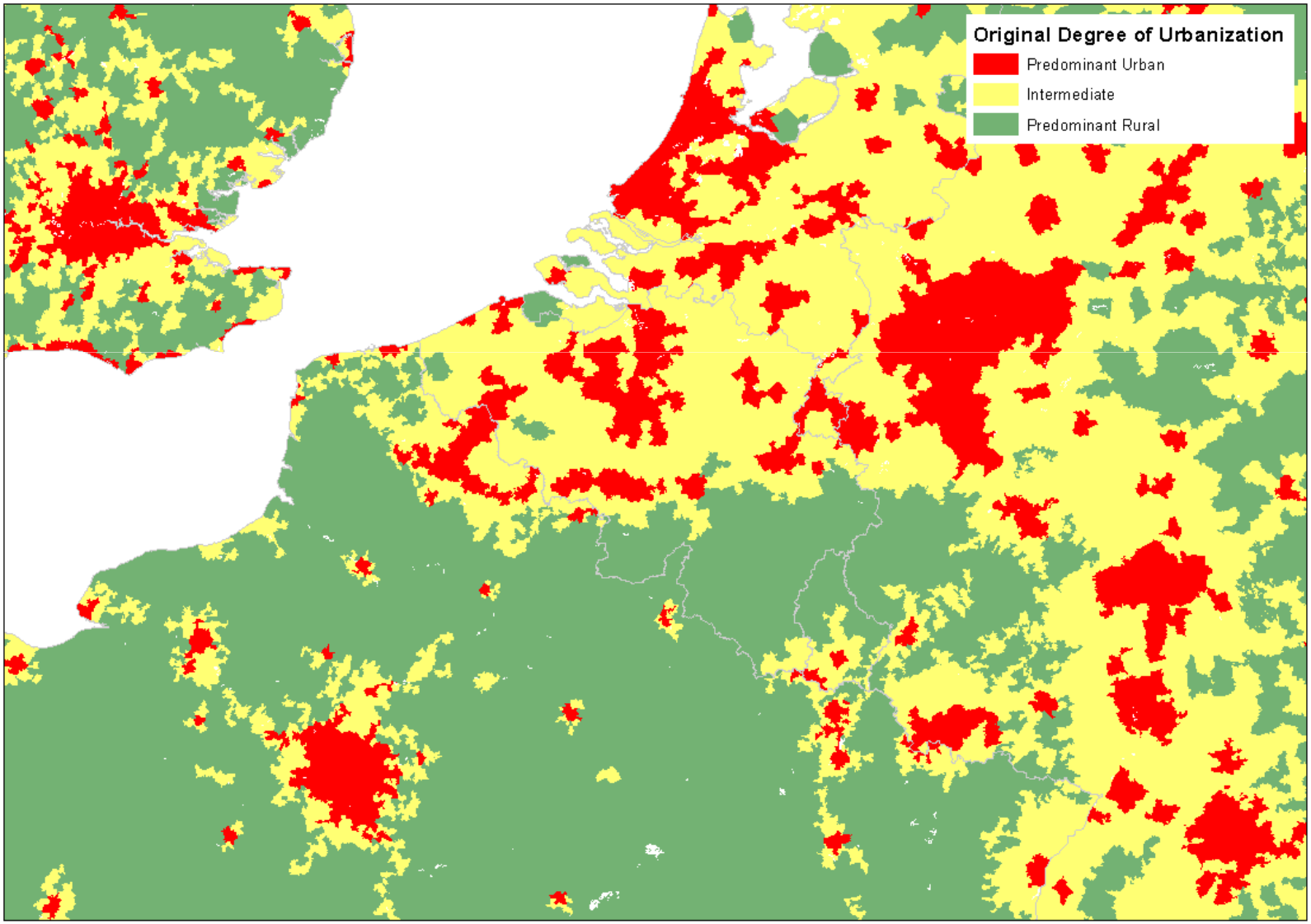


Local urban/rural typology

- Classification of LAU2 units based on similar principles as the regional urban/rural classification
- Need for harmonisation of local urban/rural concepts
  - OECD rural municipalities
  - Eurostat “degree of urbanisation”
  - Definitions of Urban Audit cities (Eurostat and DG REGIO)

What is degree of urbanisation?

- Classification of all LAU2s into three categories:
  - Thinly populated
  - Intermediate density
  - Densely populated
- It is used primarily in the Labour Force Survey (LFS), but also in other surveys such as Survey on Income and Living Conditions (SILC) and IT
- It is based on LAU2 density and contiguity

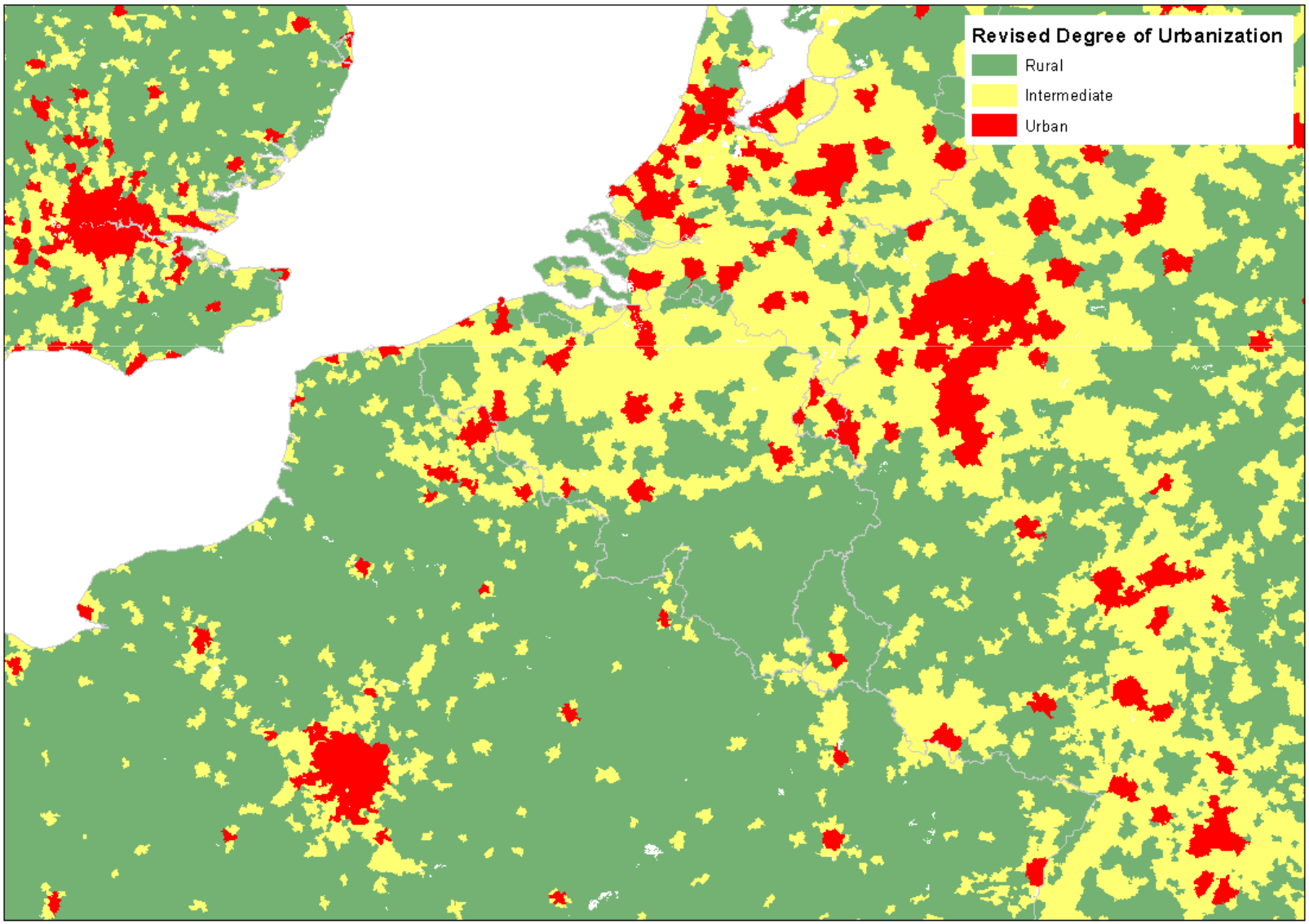

Original Degree of Urbanization
Predominant Urban
Intermediate
Predominant Rural

New classification: 3 classes

Type of Area	Criteria
Thinly populated	> 50% population in rural grid cells
Intermediate density	<50% population in rural grid cells and <50% population in high-density grid cells
Densely populated	> 50% population in high-density grid cells

Definitions

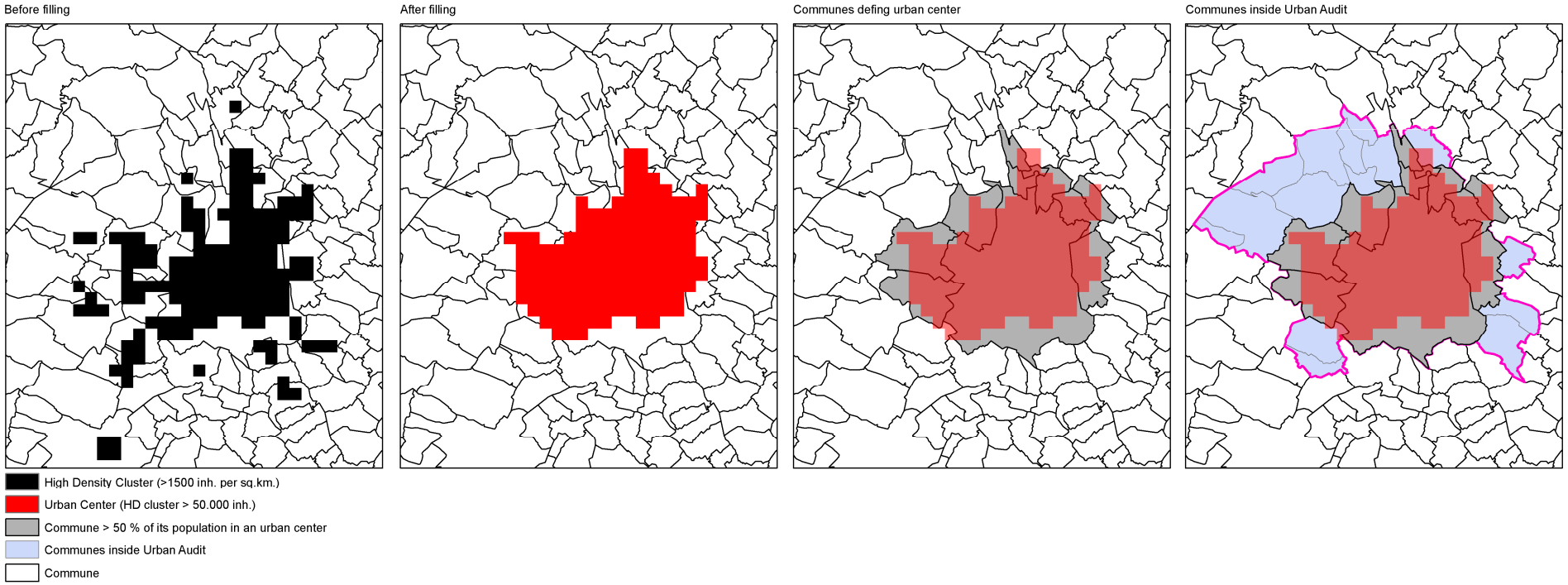
- Rural grid cells = cells outside urban clusters
- Urban clusters = contiguous (including diagonals) 1 km² cells with a density of at least **300 inh./km²** and a minimum of **5000 inhabitants**
- High-density clusters = contiguous (without diagonals and with gap filling) cells with a density of at least **1500 inh./km²** and a minimum of **50000 inhabitants**


Revised Degree of Urbanization
Rural
Intermediate
Urban

Results of typology

- Urban LAU2 units compared to current definitions of Urban Audit cities
  - Opportunity for revision of the urban audit city limits and city list
  - Aim: create coherence between degree of urbanisation definition (LAU2) and Urban Audit city definitions
- LAU2 coding presented in Eurostat thematic working parties and sent to statistical institutes for comments

High Density Cluster and densely populated area (Toulouse)



Findings

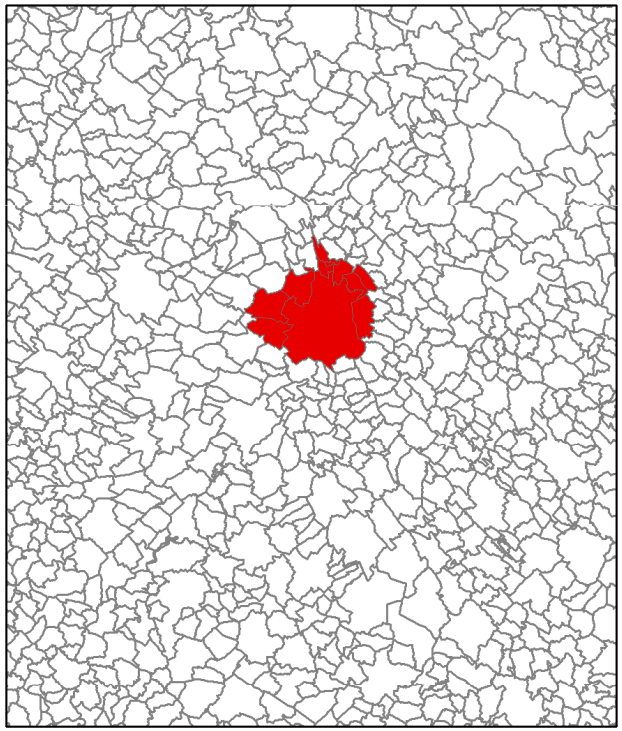
- Reasonable match between densely populated LAU2 and Urban Audit city definitions
- Results tend to be better in countries where the analysis is based on bottom-up grid
- Top-down grid (based on CORINE Land Cover) has some difficulties to capture smaller cities: potential for improved methods, especially in urbanised areas

Definition of metro areas

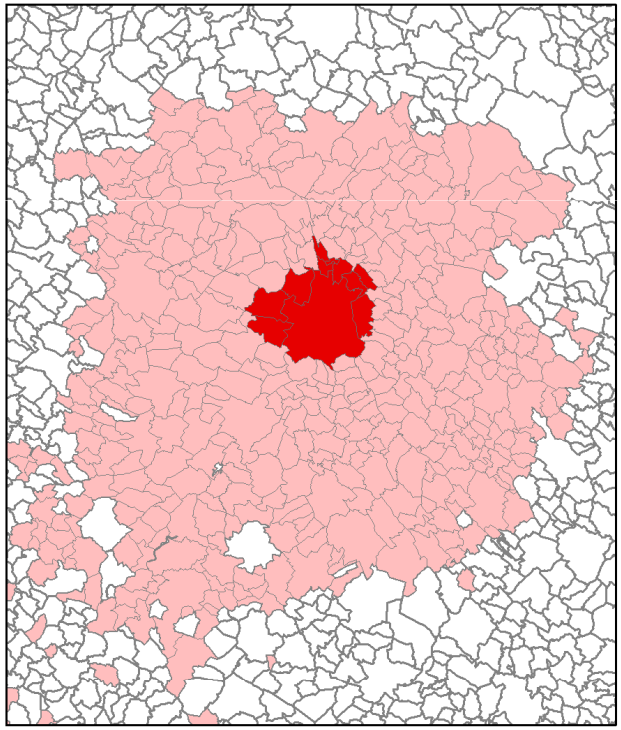
- Joint DG REGIO – OECD – Eurostat effort
- Examining the extent of “metro areas”, i.e. major cities with their surroundings
- Wider agglomerations based on the analysis of commuting intensities from the periphery to the core city
- Results compared to the existing definitions of the Urban Audit Larger Urban Zones

City and its commuting zone (Toulouse)

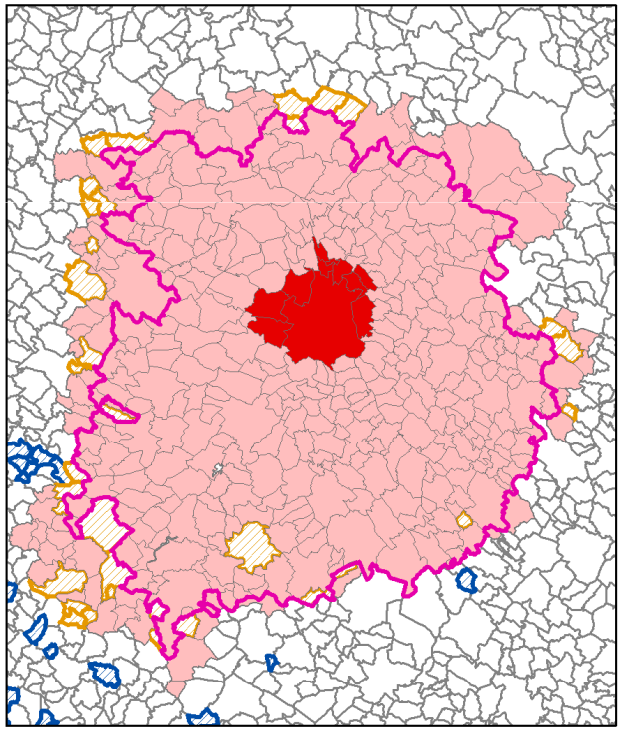
Urban center



Commuting area



Commuting area compared to Larger Urban Zone (LUZ)



City
Commune with > 15 % of its population commuting to urban center
Larger Urban Zone
Added enclave + enclave with 50% of its borders shared with commuting area
Dropped enclave
Commune

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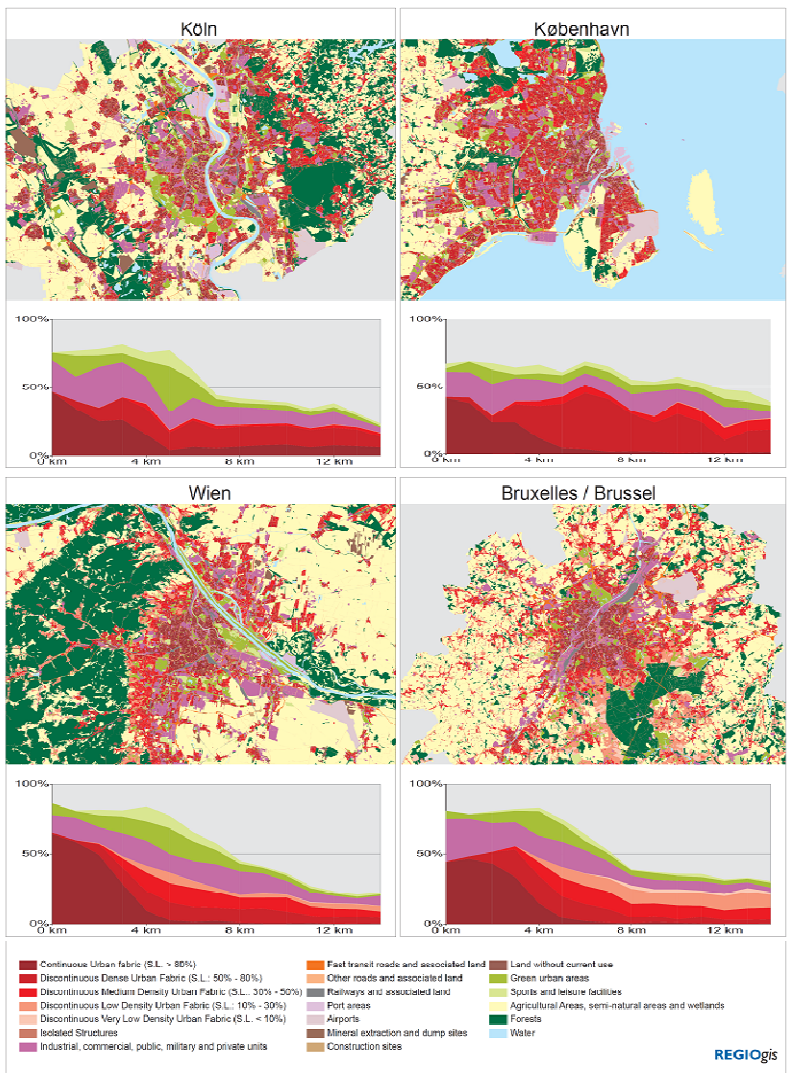
GMES Urban Atlas

- Detailed land use / land cover layers for 300 major agglomerations in the EU, reference year 2006
- Data available at: *http://www.eea.europa.eu/data-and-maps/data/urban-atlas*



Population distribution and green urban areas

- Ongoing analysis on proximity and accessibility of green urban areas
- Combination of Urban Atlas data, population distribution and urban street network

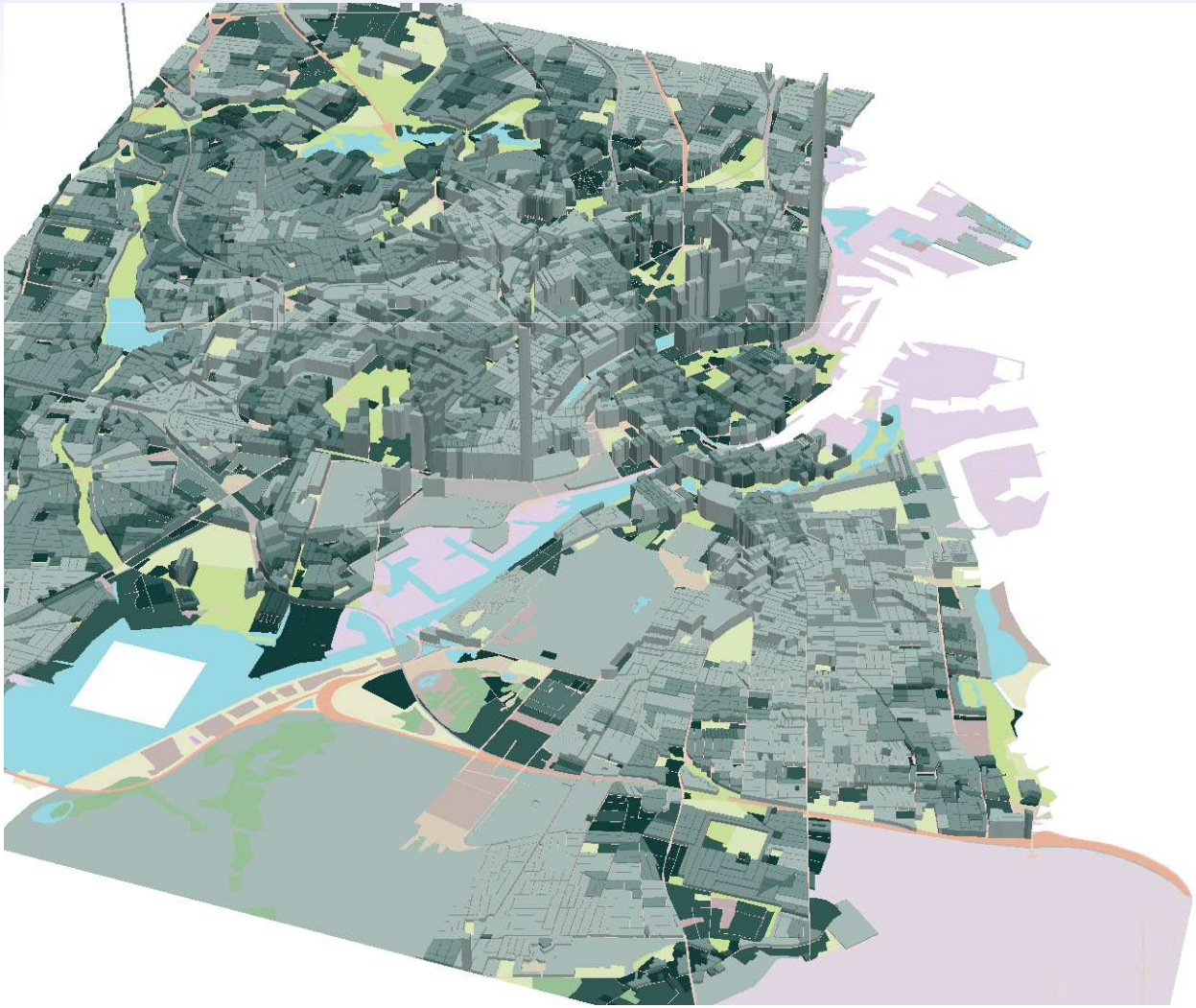
Population estimates for Urban Atlas polygons

- Grid population mapped to urban atlas polygons
  - using weighted surface of polygons
  - residential urban fabric: weight proportional with degree of soil sealing
  - very low weight for selected non-residential categories

Proximity of green urban areas

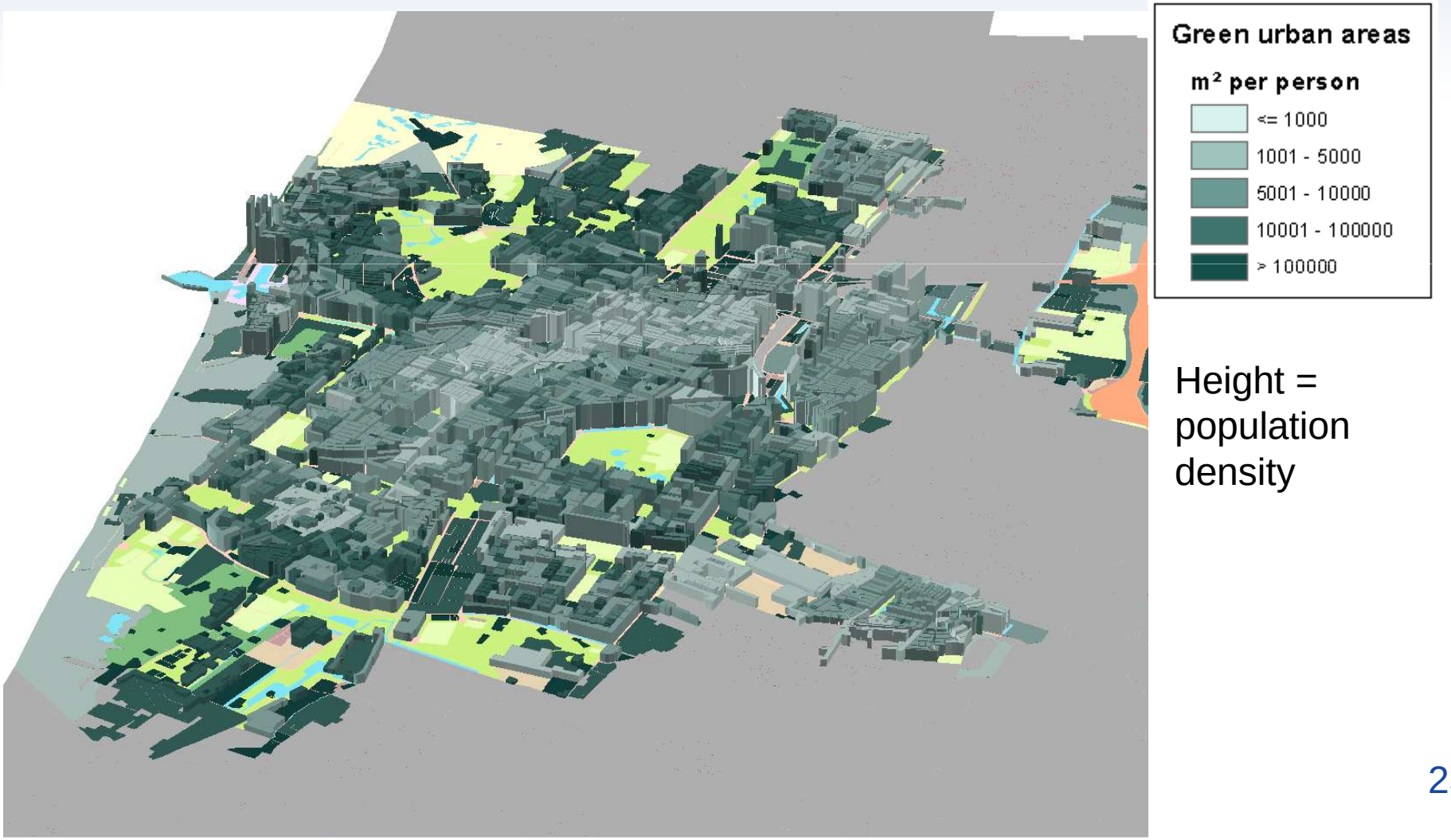
- Creation of accessibility areas around urban atlas polygons, based on 15 minutes of walking distance
- Determine the surface of the green areas which can be reached within the walking distance
- Calculate the accessible green surface per inhabitant, at the level of the urban atlas polygon
- Possible aggregation at city level (population weighted average accessible surface)

Copenhagen



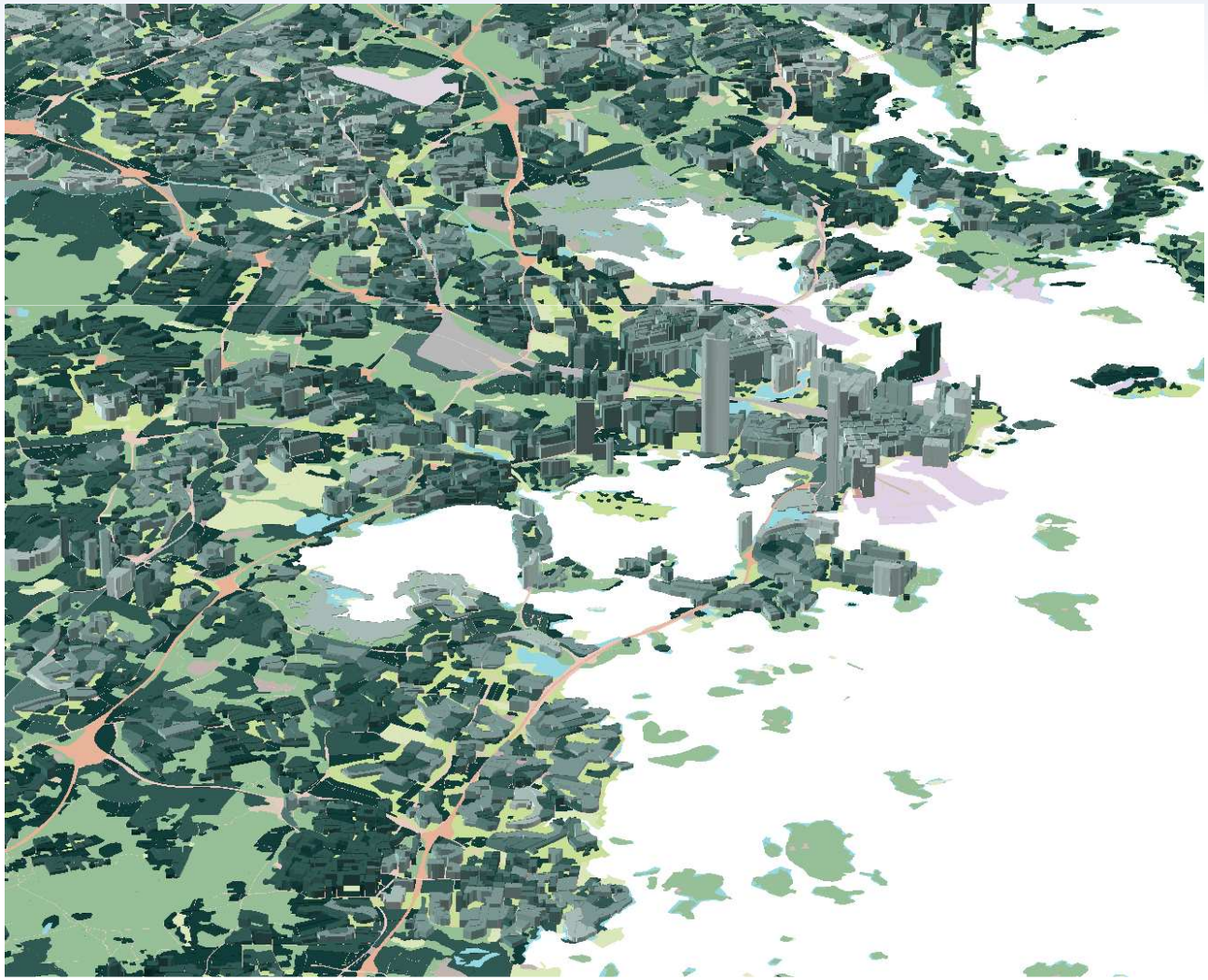
Height = population density

The Hague



Height = population density

Helsinki



Height = population density

Preliminary results

- Good mapping of grid population data onto urban atlas polygons is crucial
- Fine-tuning needed regarding weights of non-residential areas
- Green urban areas: include other urban atlas classes, like sports facilities, forests?
- More cities to be tested…

Thank you for your attention