A short walk to the park… and beyond?

Experiences in EU-wide SDG 11.7.1 calculation and follow-up test cases

Hugo Poelman

Independent expert – UN:GGIM Europe Line of Work on SDG indicators - hugo.poelman@proximus.be

Former Senior Assistant – European Commission DG Regional and Urban Policy (retired)

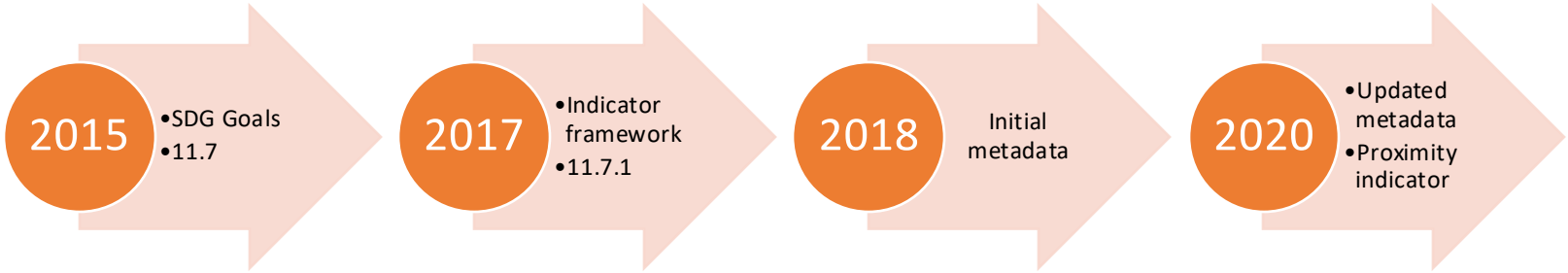
11 SUSTAINABLE CITIES AND COMMUNITIES

UN-GGIM: Europe webinar 04/06/2025

Outline

- SDG indicator 11.7.1 development timeline
- Determining access to green urban areas in Europe
- Extending the scope to all public areas?
- Alternative data and alternative methods
- Suggestions for further work

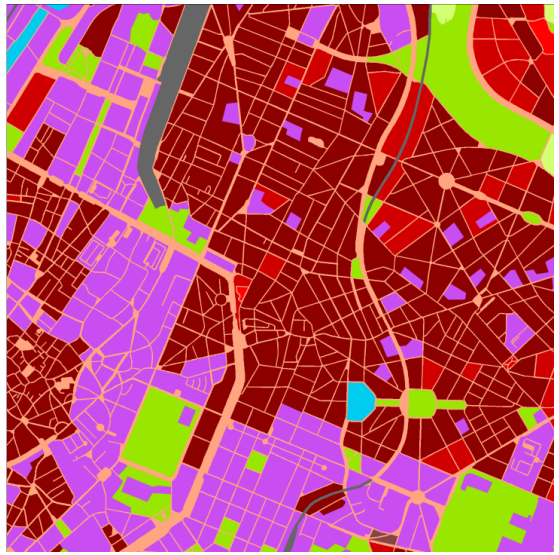
Defining 11.7.1 : global milestones

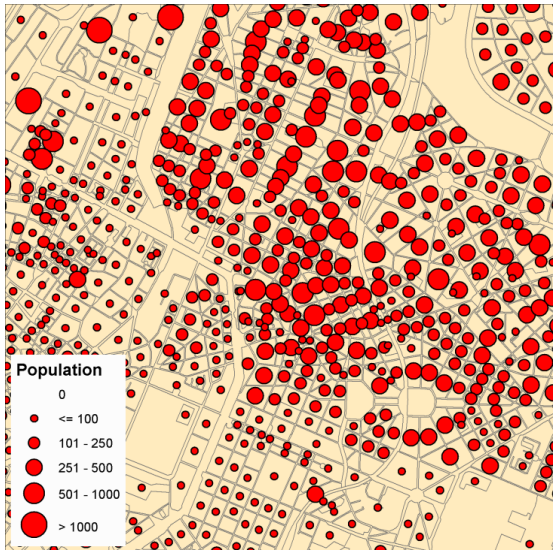


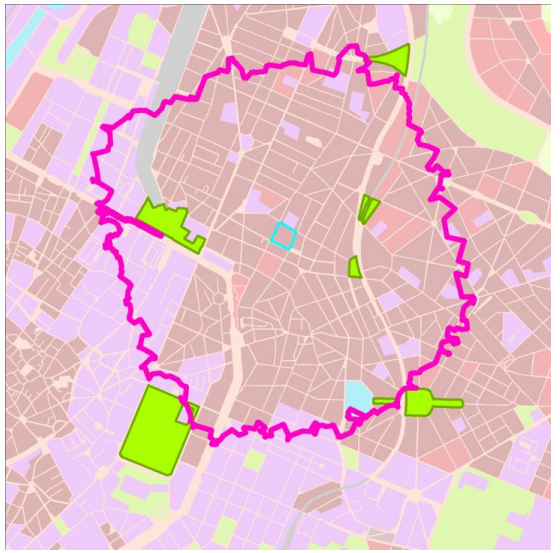
EU-wide indicator development milestones

Access to green urban areas in Europe: first steps

- DG REGIO analysis and working paper in 2016
  - Copernicus Urban Atlas 2012 land use/land cover framework
    - Green urban areas (and forests)
    - Population estimates: downscaled by Urban Atlas polygon (building block)
    - Service areas starting from building block centroids
    - Green areas at least partly covered by the service areas considered as accessible

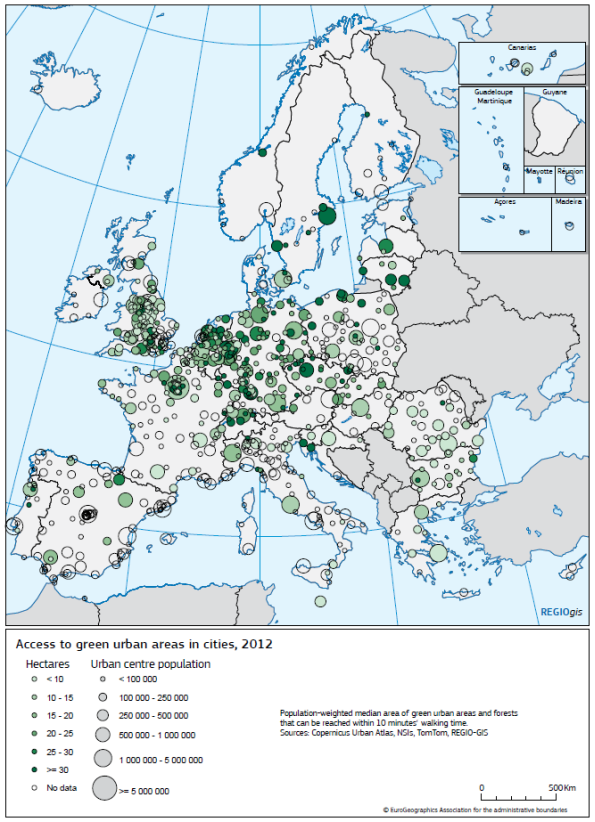




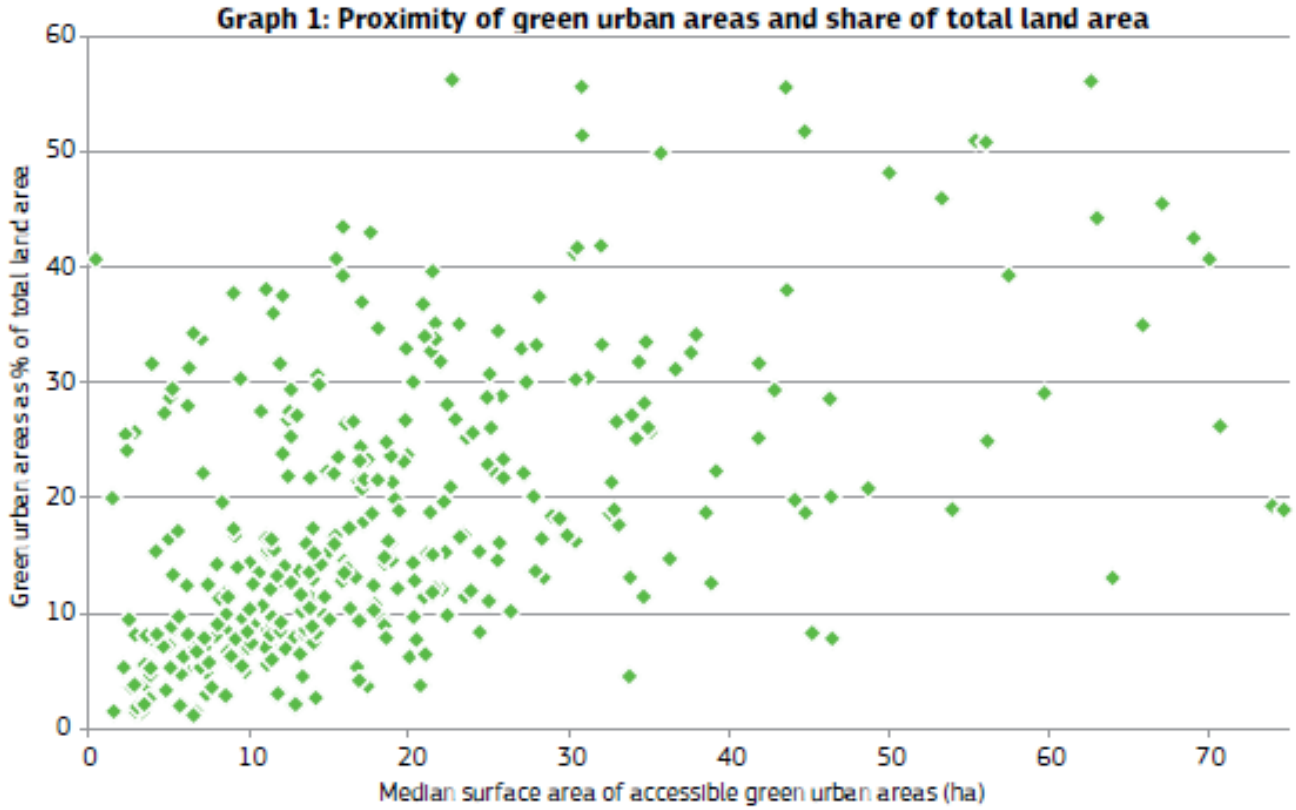


Access to green urban areas in Europe: first steps

- Indicator: population-weighted median surface of green urban areas within 10 minutes walking
  - Complementary to the share of green urban areas within cities' surface



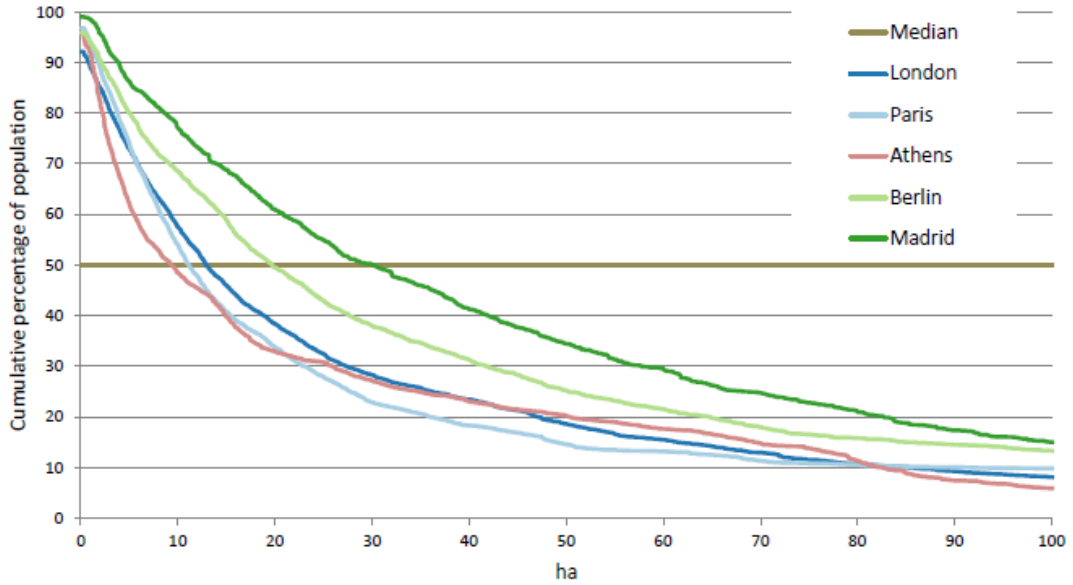
Map 1: Access to green urban areas in cities and greater cities

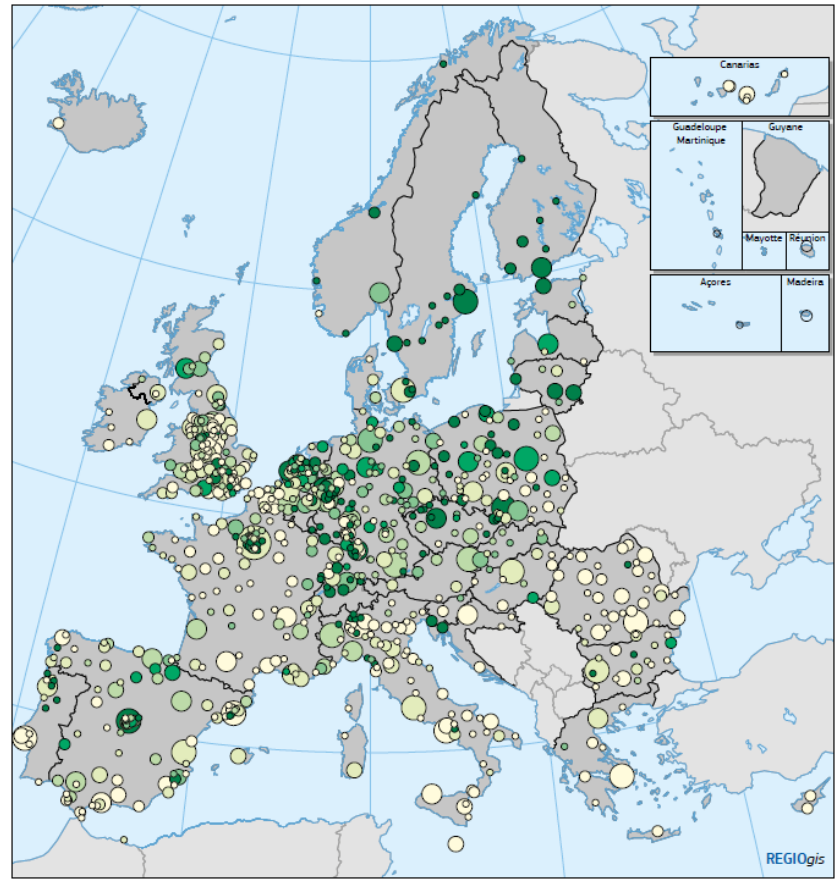


Using harmonised definitions

- DG REGIO extended analysis in 2018
  - Copernicus Urban Atlas 2012 completed
  - Reporting units: **urban centres** in the degree of urbanisation (DEGURBA) typology: enhanced comparability between cities
- Population distribution according to the surface of green areas available within walking distance

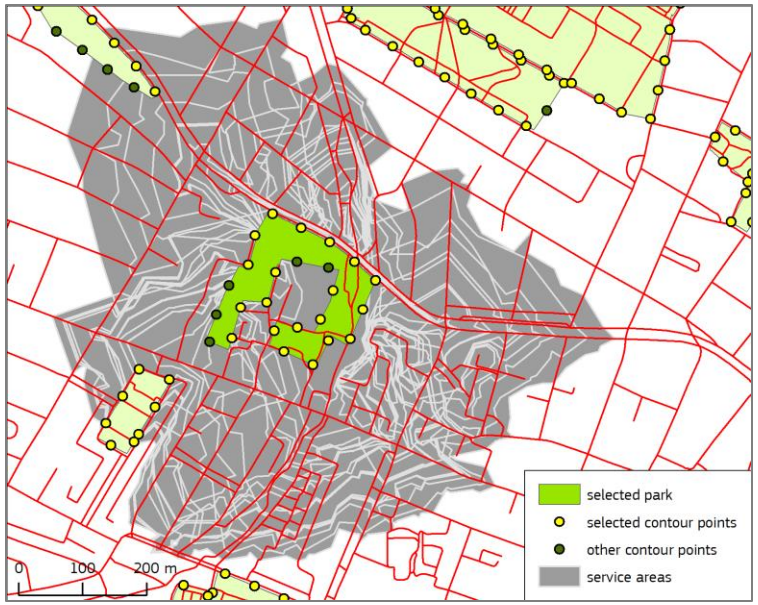
Graph 4: Distribution of population according to the surface area of nearby green areas in very large capital cities (urban centre with more than 3 million inhabitants)

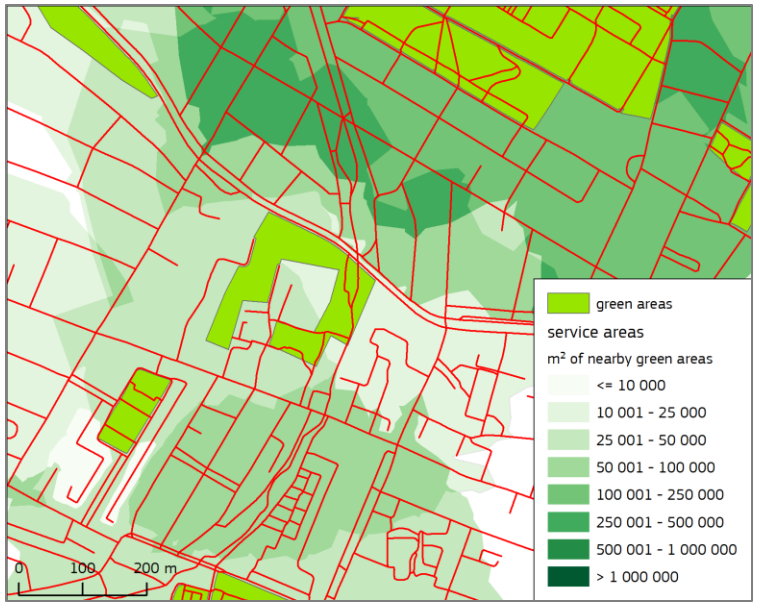




Aligning the methodology to global metadata

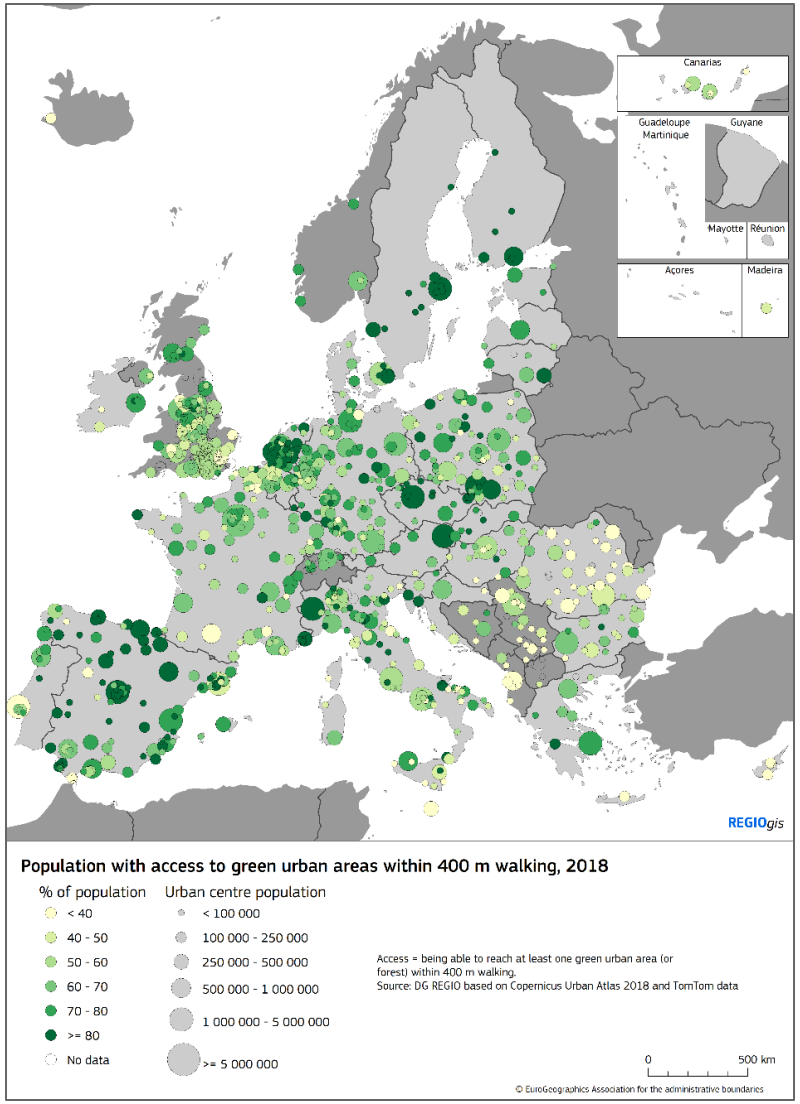
- Proximity defined as walking distance of maximum 400 meters
  - Copernicus Urban Atlas 2018 land use/land cover framework
    - Green urban areas and forests
    - Population estimates: downscaled by Urban Atlas polygon (building block)
    - Service areas starting from selected contour points of green urban areas
    - Part of populated building blocks within the service areas are considered within walking distance

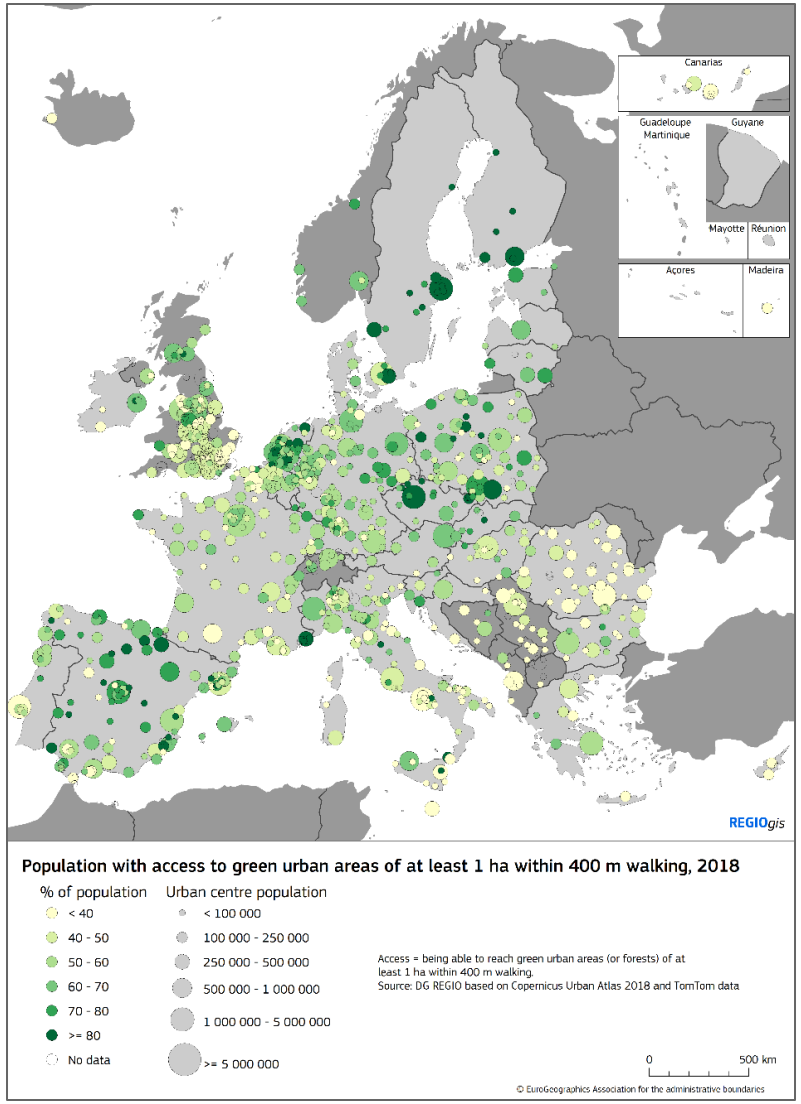




Aligning the methodology to global metadata

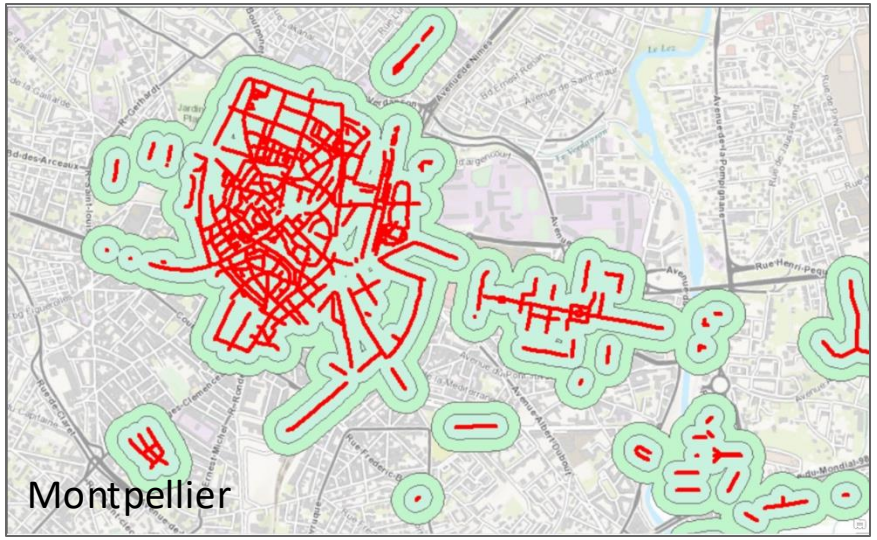
- Indicator: share of population having access to green urban areas within 400 m walking
- Additional indicator: share of population having access to green urban areas of at least 1 ha *(or any other minimum size)*





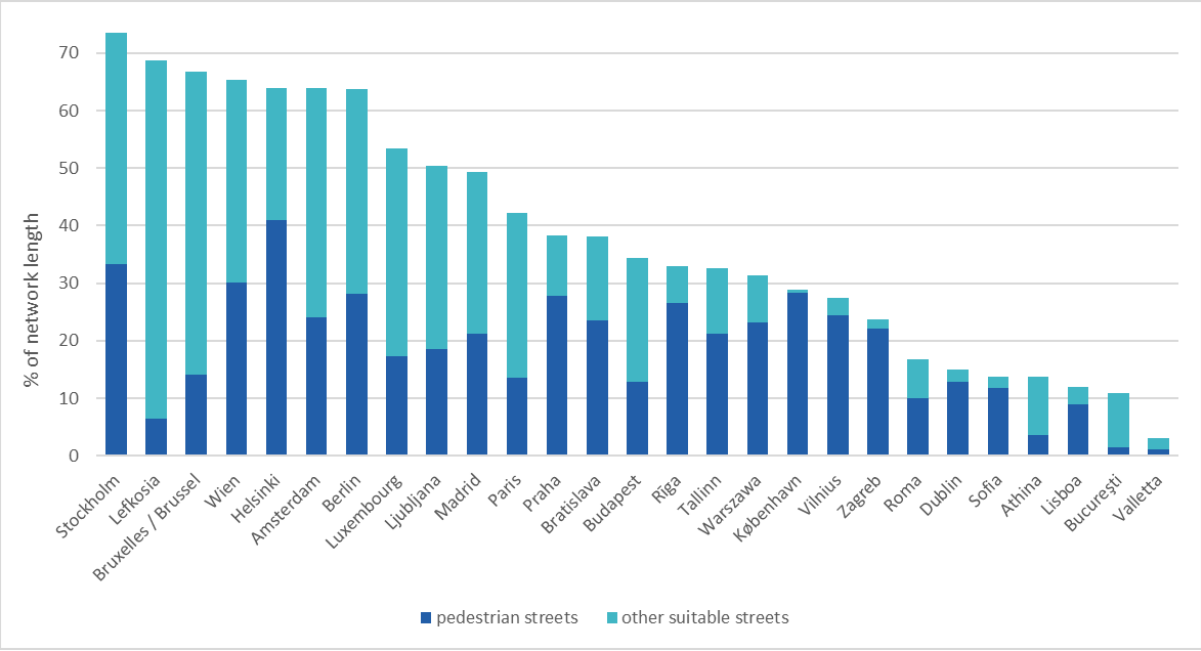
Including non-green public areas?

- Challenge: defining non-green public areas
  - Pedestrian streets, pedestrian areas, walkways outside parks,…
  - Using OSM street network?
    - Promising results on selected cities
    - Difficult to extend to all cities due to uncertainties of data coverage and completeness of tags



Including non-green public areas?

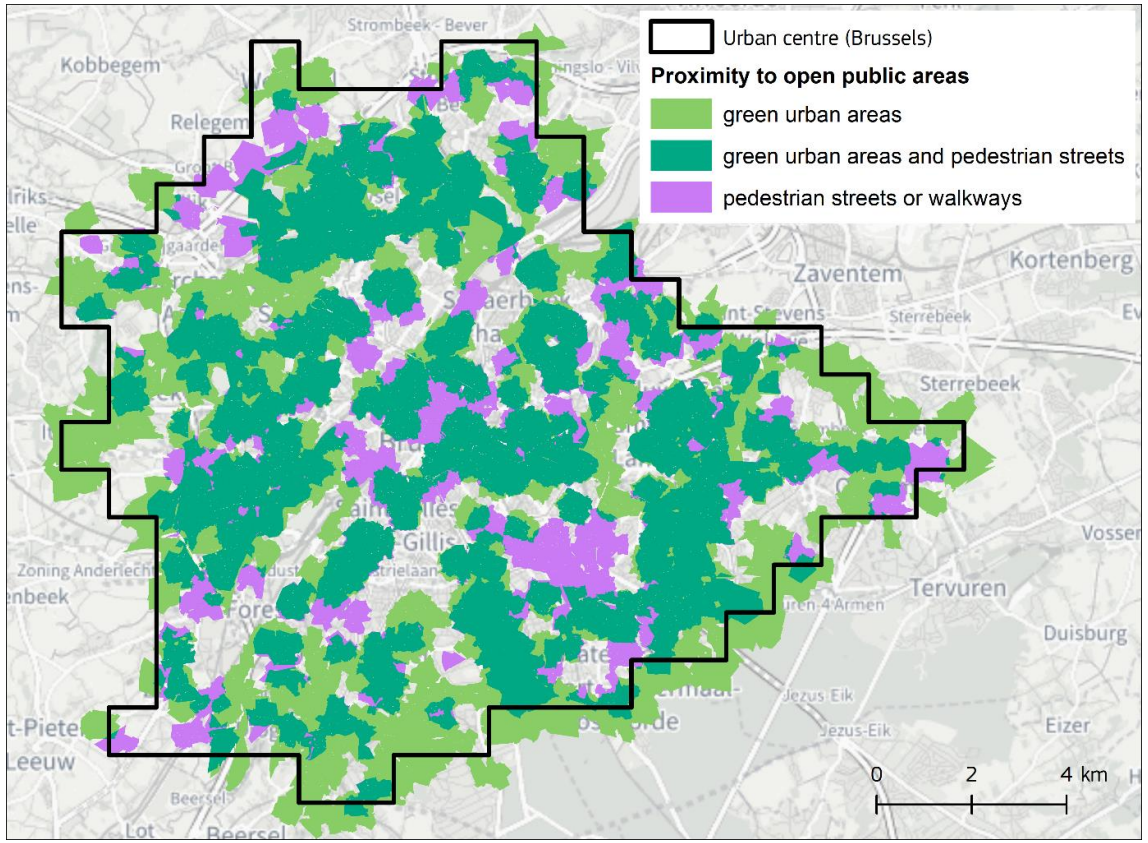
- Looking for a representation of main pedestrian areas by means of a combination of street segment attributes of the TomTom network
    - Some uncertainty regarding completeness of part of the network that is only accessible by pedestrians
    - Service areas of 400 m walking created around sets of points representing main pedestrian areas



Graph: Share of pedestrian streets and of other streets suitable for pedestrian use (speed limit <= 30 km/h) in EU capital urban centres, 2021

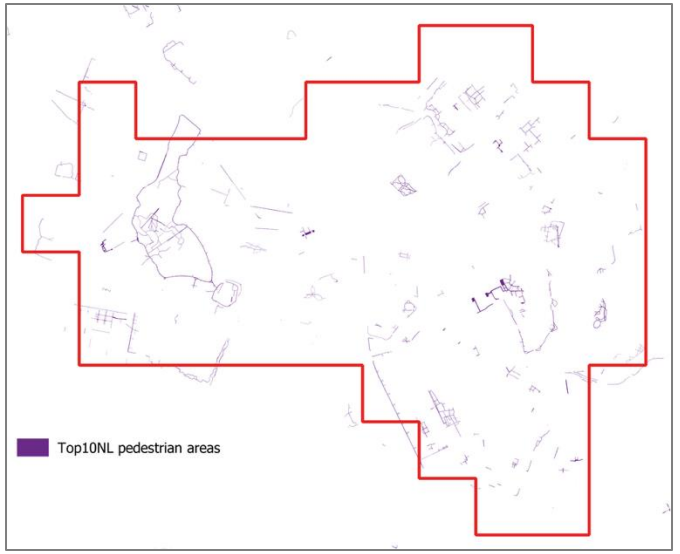
Towards a typology of access to public areas

- Share of population having access (within 400 m walking) to green urban areas and/or to non-green public areas (i.e. pedestrian areas)



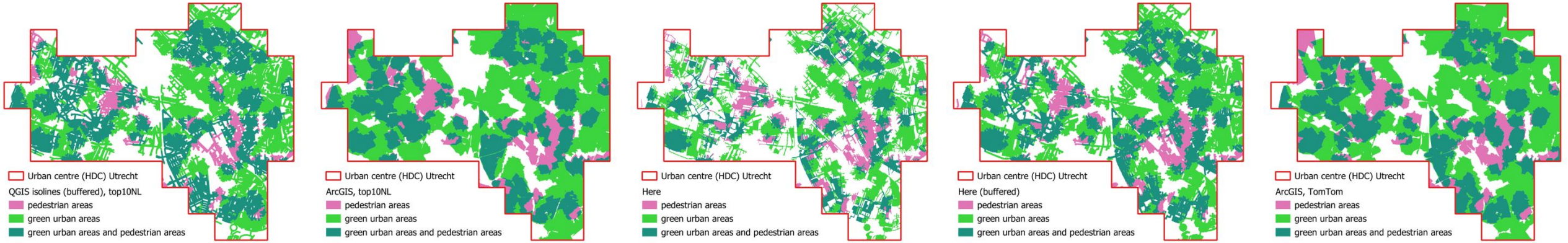
Alternative data and tools: Utrecht (NL) test case

- Area of interest: Utrecht urban centre (grid-based high-density cluster)
- Green urban areas: Copernicus Urban Atlas 2021
  - For purpose of (future) comparisons with analysis of other cities
- Non-green public areas
  - National topographic database (Top10NL): selection of parts of the street network earmarked as mainly for pedestrian use
  - Paths within green urban areas are excluded
- All target areas (green and non-green) represented by contour points as starting points for service areas creation



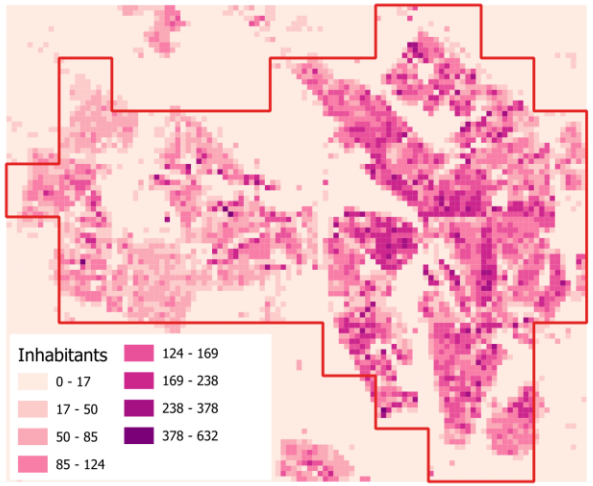
Alternative data and tools: Utrecht (NL) test case

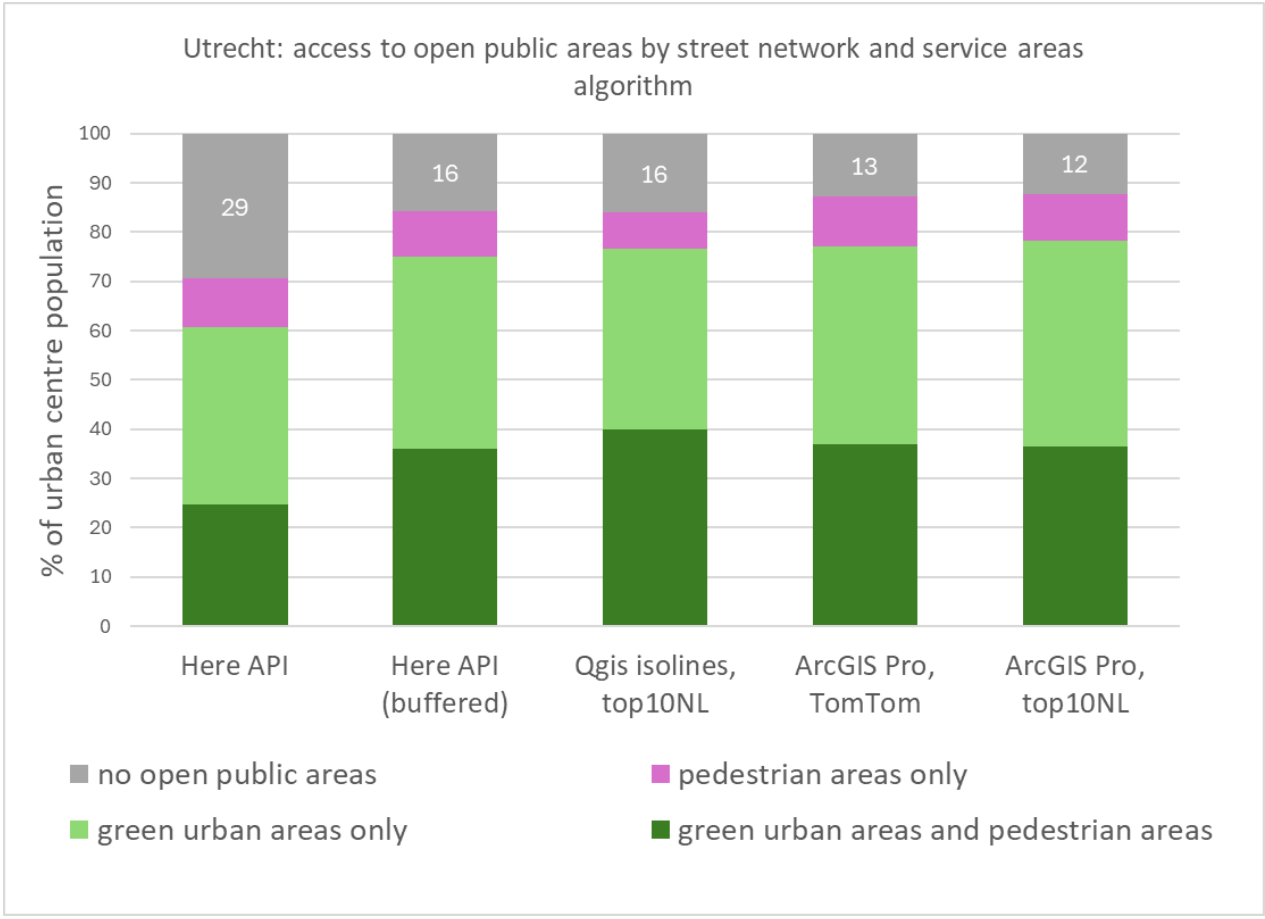
- Street network and service areas tools
  - Top10NL network: excluding segments earmarked as high-speed traffic segments
    - QGIS isolines tool (buffered and gap filled to create polygons)
    - ArcGIS service areas
  - Here network + Here API isochrones
  - TomTom network (excl. motorways) + ArcGIS service areas



Alternative data and tools: Utrecht (NL) test case

- Population distribution: JRC-CENSUS population grid 2021 (100 m)
  - Downscaled from official 1 km² census 2021 grid (Eurostat)
  - *Alternatives: national high-resolution grids or point-based population data*
- Choice of service areas algorithm + network determines the indicator results
  - Finding an adequate balance between spatial detailing and plausible coverage of inhabited built-up areas





Alternative data, alternative tools?

- National / regional authoritative data may provide adequate detail
  - Presence of public areas such as pedestrian areas
  - Street network appropriate for pedestrian use
  - Green urban areas (e.g. including pocket parks that are currently not represented in Copernicus Urban Atlas data)
- Challenges of data availability, openness, (harmonised) definitions, language barriers regarding feature attributes, time stamp,…
- Different combinations of data and tools yield different results
  - Document which data and tools have been used
  - Release geodata created by the analysis (e.g. extent of the service areas)

Suggestions for future work

- Use Europe-wide data sources as basic framework as far as possible
  - Copernicus Urban Atlas (green urban areas)
  - Population grid (JRC)
- Consider use of (national) authoritative data if comparable concepts of open public areas are included
- Enhance Copernicus data by adding info from other sources
  - Public character of green areas, smaller green areas
- Develop integrated routable and attribute-rich authoritative street network data
  - Including info on pedestrian areas' characteristics
- Investigate quality characteristics of (green) public areas
  - Safety, user satisfaction
  - Ecological characteristics
  - Accessibility for people with mobility constraints

References

Batista, F., Freire, S., & Pigaiani, C. (2024). *JRC-CENSUS population grid 2021* [Dataset]. European Commission, Joint Research Centre (JRC). https://doi.org/10.2905/98336641-FD1C-4992-8C7B-C470DD5EB81E

Batista, F., & Poelman, H. (2016). *Mapping population density in Functional Urban Areas. A method to downscale population statistics to Urban Atlas polygons* [JRC Technical Report]. https://publications.jrc.ec.europa.eu/repository/handle/JRC103756?mode=full

Poelman, H. (2018). *A walk to the park? Assessing access to green areas in Europe's cities. Update using completed Copernicus Urban Atlas data.* (Working Paper No. 01/2018). European Commission, DG Regional and Urban Policy. https://ec.europa.eu/regional_policy/sources/work/2018_01_green_urban_area.pdf

Poelman, H. (2021). *A short walk to the park? Describing the updated methodology. An SDG-compatible method to assess people's access to nearby green urban areas in Europe's cities.* [Technical Ppaper]. European Commission, DG Regional and Urban Policy. https://ec.europa.eu/regional_policy/sources/work/2018_01_methodology_data_2021.zip

UN Habitat. (2021). *Metadata on SDG indicator 11.7.1*. https://data.unhabitat.org/documents/GUO-UN-Habitat::metadata-on-sdg-indicator-11-7-1/explore