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SPATIAL ANALYSIS USING CENSUS DATA
Urban/rural population and degree of urbanization
A case study

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Overview

- ❑ Definitions for 2010/2020 census rounds – UNECE
- ❑ Rationale of the spatial analysis urban/rural
- ❑ What is urban and what is rural in a country
- ❑ The new EU approach for urban/rural classification
- ❑ What is a grid
- ❑ Methodology of the spatial analysis
- ❑ A case study: Albania

Definitions urban/rural areas for 2010 census round – UNECE, geographic characteristics

- ***Locality:*** *"a distinct population cluster, that is, the area defined by population living in neighbouring or* ***contiguous buildings*** *where* ***contiguous buildings*** *are buildings that*
  a) *form a* ***continuous built-up area****; or*
  b) *comprise a* ***group of buildings*** *with a place name; or*
  c) *constitute a* ***group of buildings****, not separated from its nearest neighbour by more than* ***200 metres***

- *countries should tabulate statistics for localities containing a population of* ***at least 2,000 inhabitants****, or might wish to consider defining urban areas in other ways (for example in terms of* ***built-up areas****, … or in terms of* ***functional areas****)*

- ***No international definitions!***

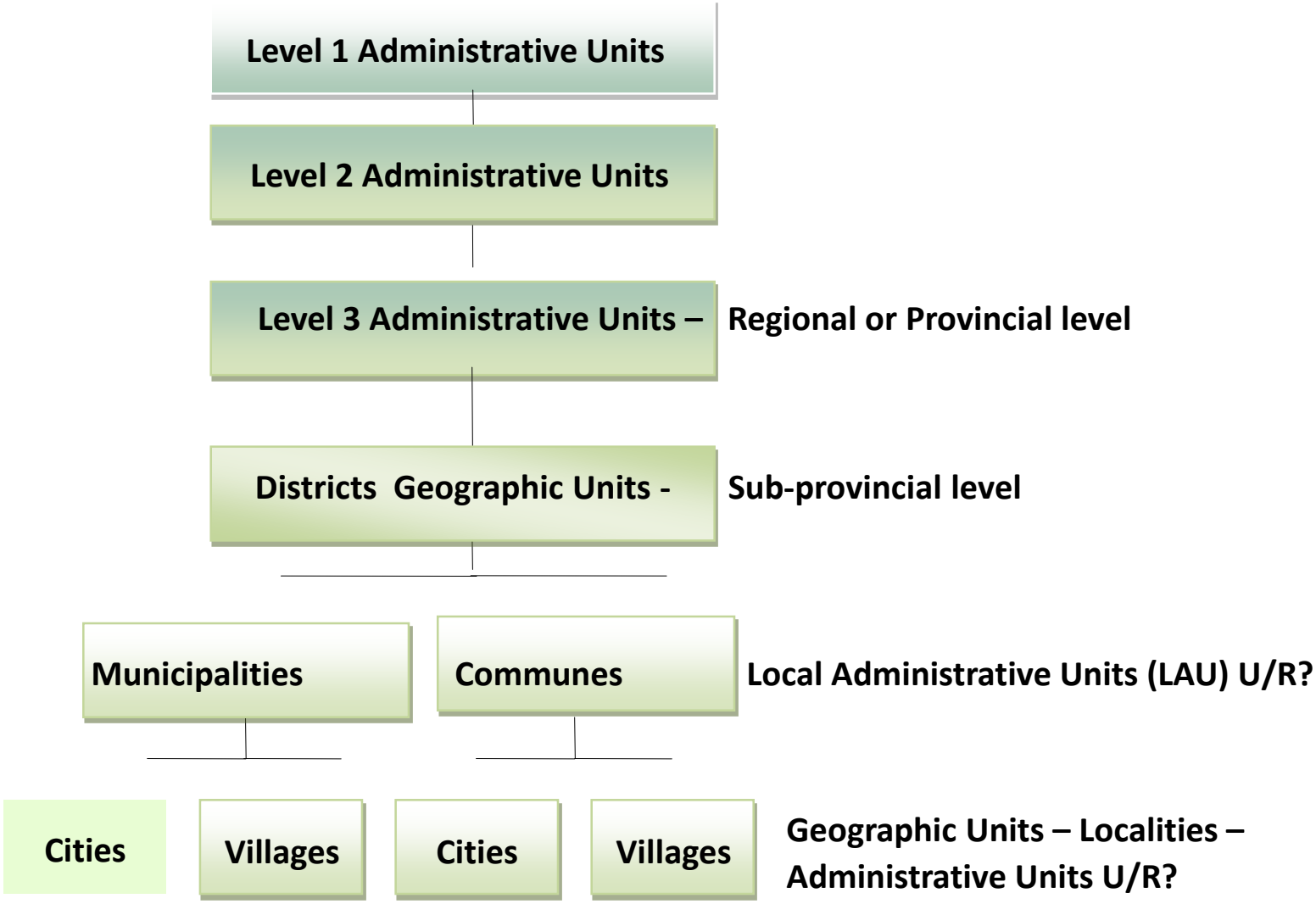
Proposed new recommendations 2020 census round - UNECE, geographic characteristics

- ***Location of place of residence*** as a core topic (georeferenced with coordinates, geocoded)
- ***Population grid*** *as* a separate topic (1 km² cells, independent from administrative units)
- ***Degree of urbanization*** as a separate topic and revised definition
- ***Location of place of work*** as a core topic and revised definition (georeferenced with coordinates, geocoded)
- ***Urban agglomeration*** introduced as a new concept
- ***Urban and rural areas*** with detailed classification and count of inhabitants
- ***No international definitions!***

Rationale of the analysis

- Urban and rural population amounts and areas are often defined according to **administrative criteria**
- Need to introduce **statistical criteria**, but difficult to have international standards
- Need to ensure **data comparability** between countries at regional and local levels but also within countries
- Need of **reliable data** for **development policies** at local level and for **allocation of funds**
- Need to improve the **sample frame** used for household surveys using statistical criteria instead of administrative criteria while defining urban and rural population

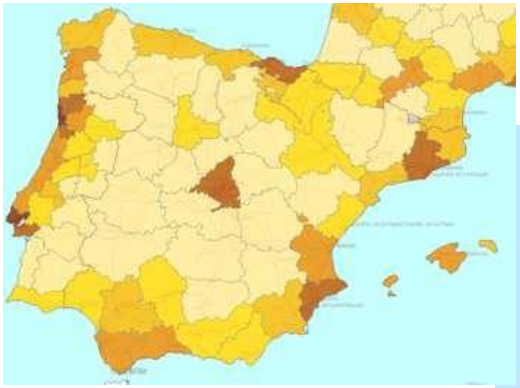
What is urban and what is rural in a country



The new EU approach for urban/rural classification

- Derived from the **OECD method** (Organisation for Economic Co-operation and Development), based on population density of administrative units
- New method based on **grid cells of 1 km²** to eliminate distortions of size variations in OECD method
- Since 2010, the EU classify level 3 regions with a 1 km² grid-based approach: "**predominantly rural**", "**Intermediate**" and "**predominantly urban**"
- Since 2011, EU classify local administrative units with a grid-based approach: "**Densely populated areas** (urban areas)" "**Intermediate density areas**", "**Thinly populated areas** (rural areas)"
- Since 2011, EU classify cities with a grid-based approach: 1 km² grouped **high-density** cells of at least **50,000 persons**, including neighboring local units densely populated

What is a grid

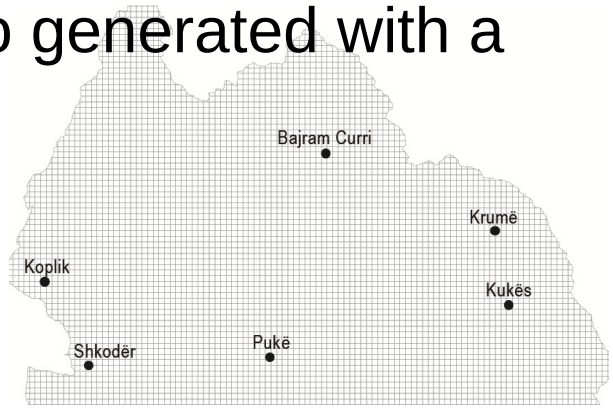


- Statistical **grid data** are statistics geographically **referenced** to a system of grid cells with Cartesian **coordinates**
- European Terrestrial Reference System 1989 (ETRS89) is the **coordinates reference frame** utilized for the European areas

Methodology of the spatial analysis

First phase

- **Generation of a grid** covering the entire territory of the country of 1 km²
- Tool developed by the European Forum for Geography and Statistics (EFGS) and Eurostat
- Compliance with **INSPIRE specifications** for European grids
- A table of attributes is also generated with a **unique ID for each cell**



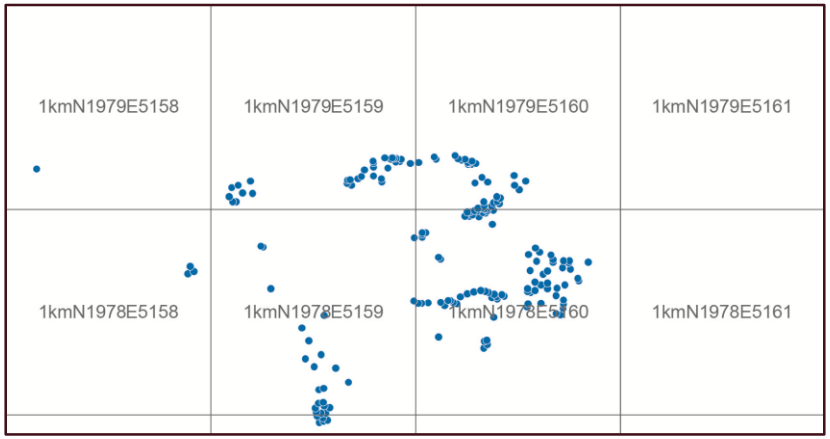
Example of a part of a country
1 km² grid

Methodology of the spatial analysis (cont.)

Second phase

- Generation of the **buildings centroids** from the GIS geodatabase
- Aggregating census **population into grid cells**, on the basis of the **place of residence**

Example of a generated 1 km² grid with centroids of buildings

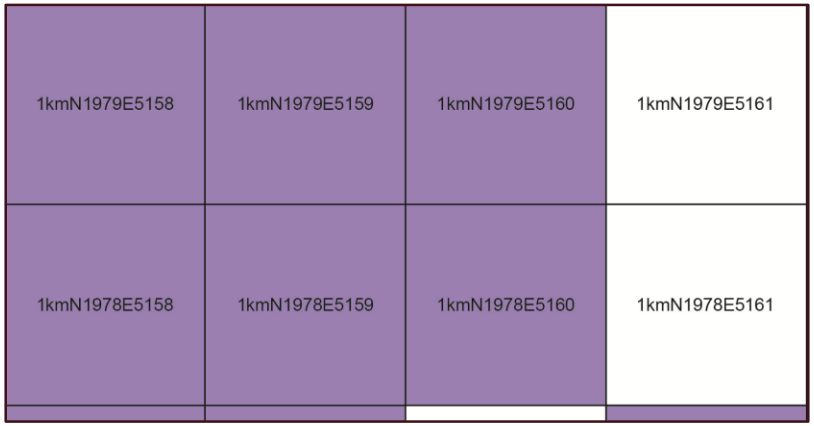


Methodology of the spatial analysis (cont.)

Third phase

- **Intersection** of the centroids of the buildings with the 1 km² grid
- **Creation of a new GIS layer** of population at grid level with attribute table

Example of a 1 km² grid GIS layer with census data (white cells are areas without population)



Methodology of the spatial analysis (cont.)

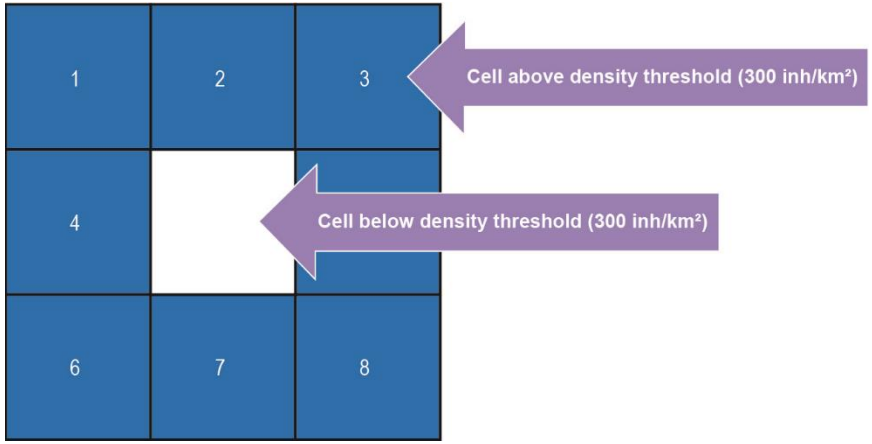
Fourth phase

- Classification of cells:

  –**Urban clusters**: contiguous urban grid cells with at least 300 inhabitantsand minimum population of 5 000

  – **High-density cluster** (or city centre): contiguous grid cells of 1 km² with a density of at least 1500 inhabitants per km² and a minimum population of 50 000

  – **Rural** grid cells: grid cells outside urban clusters

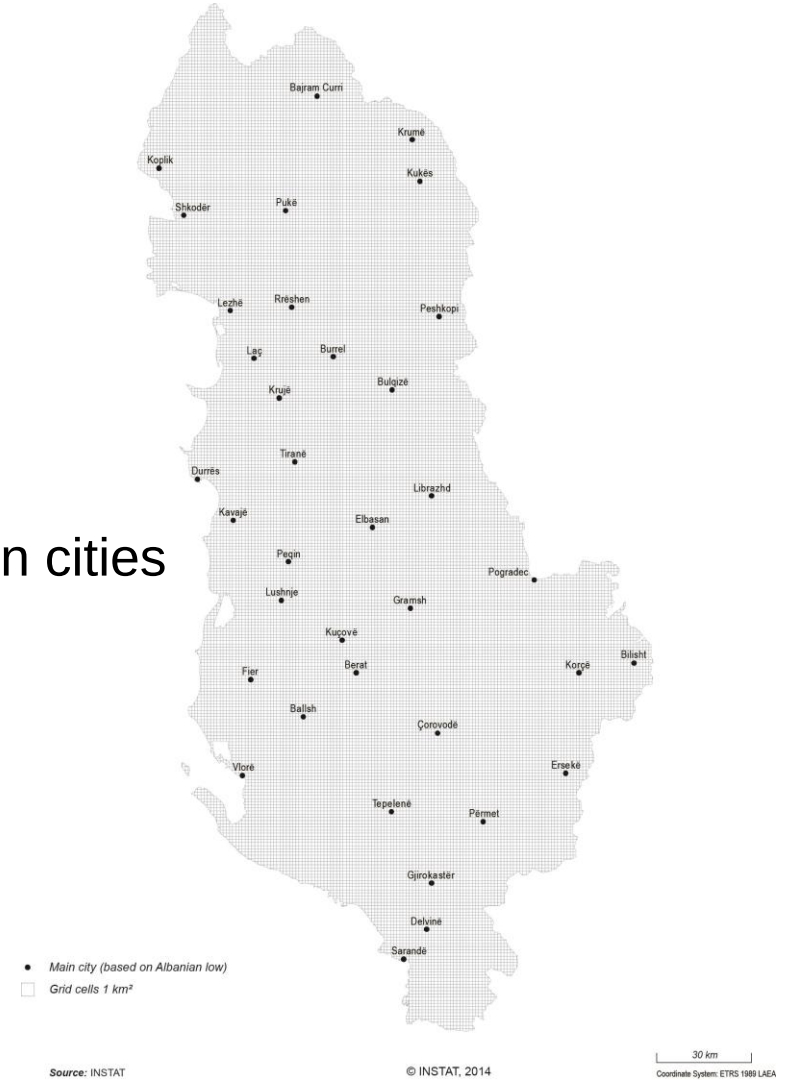


A case study: Albania
Rationale

- A number of LAUs and villeges classified as **rural** are actually **urban** (and vice versa)
- Statistical data for urban population often **underreported**
- **No comparability** with other countries and within the country
- The classification based on population densities of administrative units is **biased** by the variation of their size
- Boundaries of administrative units are **not** clearly defined

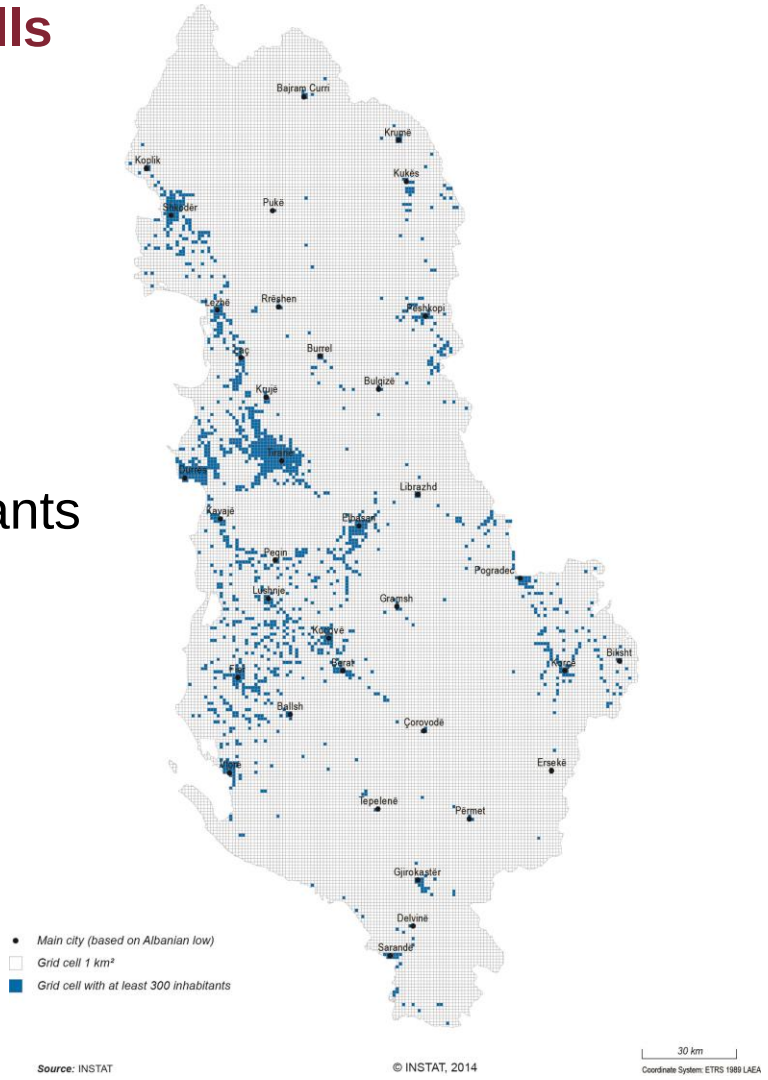
A case study: Albania
Grid generation

1 km² grid of Albania with main cities



A case study: Albania
Grid classification: urban cells

Cells with at least 300 inhabitants

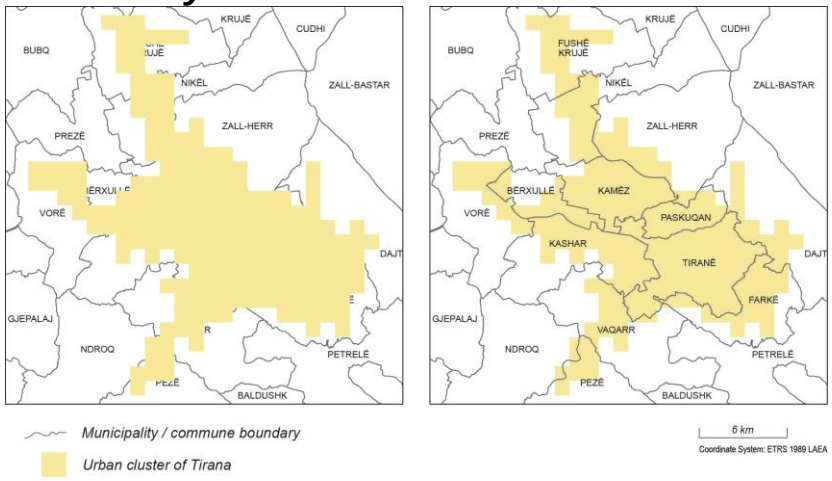


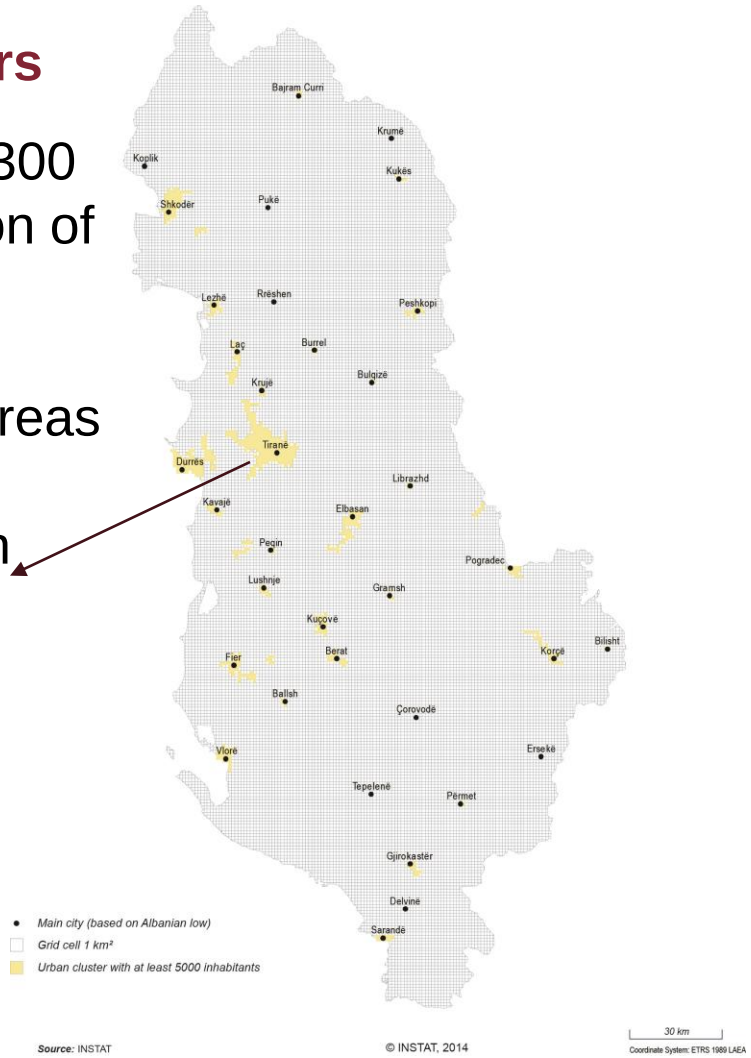
A case study: Albania
Grid classification: urban clusters

Contiguous grid cells with at least 300 inhabitants and minimum population of 5 000 (urban areas)

Cells outside urban areas = rural areas

Overlay with administrative division



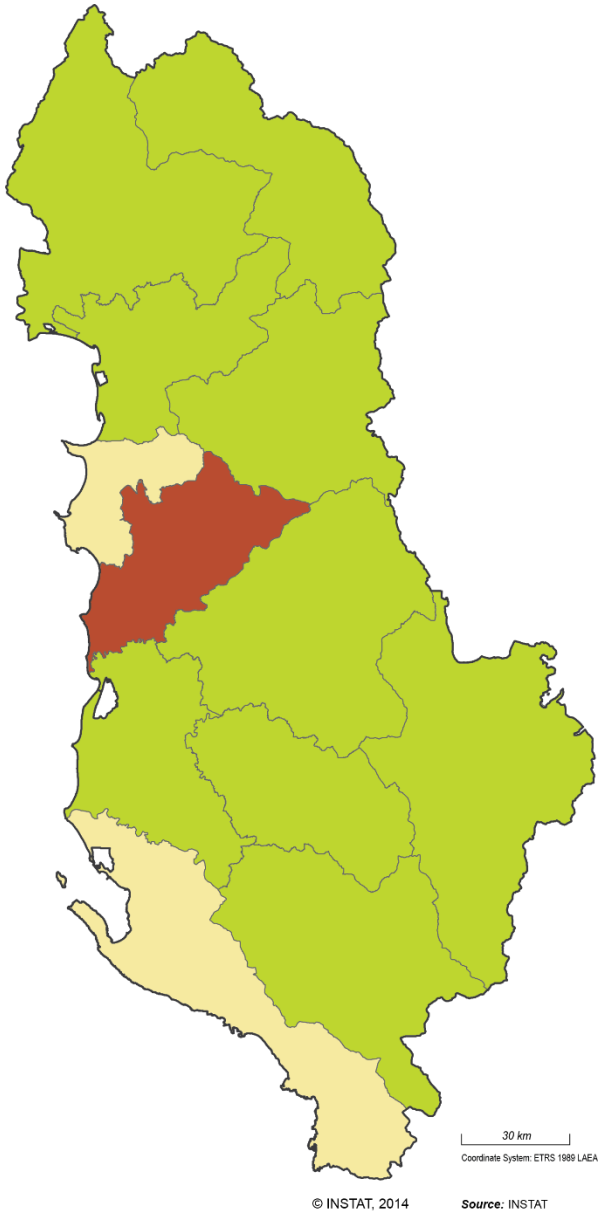


A case study: Albania
Classification at administrative level 3

Predominantly urban regions
(rural population is less than 20% of the total population)

Intermediate regions
(rural population is between 20% and 50% of total population)

Predominantly rural regions
(rural population is 50% or more of total population)



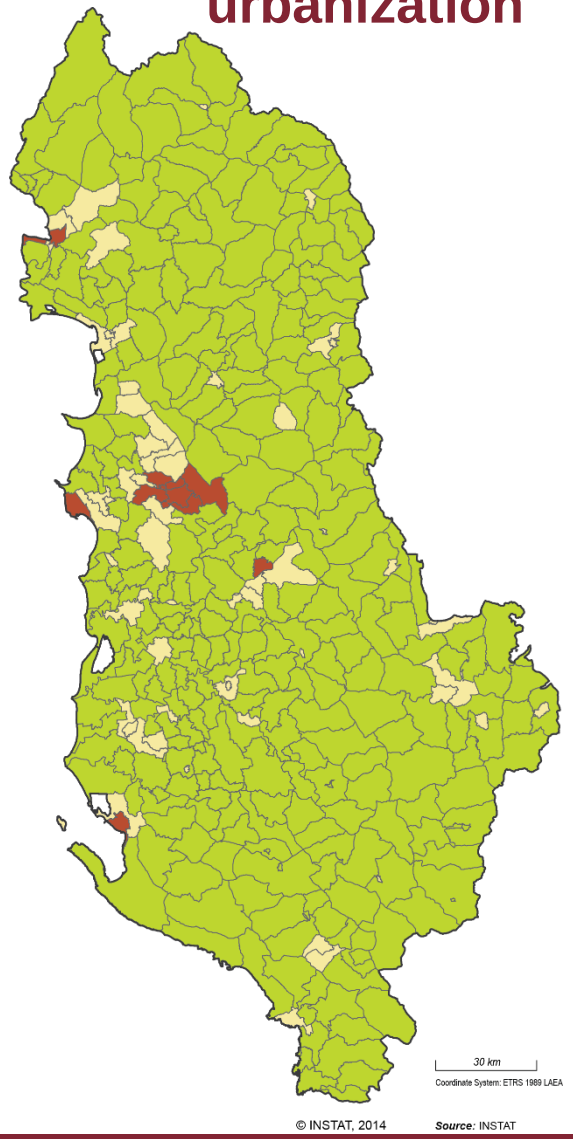
A case study: Albania
Classification of LAUs

Densely populated areas: ≥ 50% of the population in high-density clusters (urban clusters with at least 1 500 inhabitants)

Intermediate density areas: **<** 50% of the population lives in rural grid cells and **<** 50 % in high-density clusters

Thinly populated areas (rural areas): **>** 50 % of the population lives in rural grid

Degree of urbanization



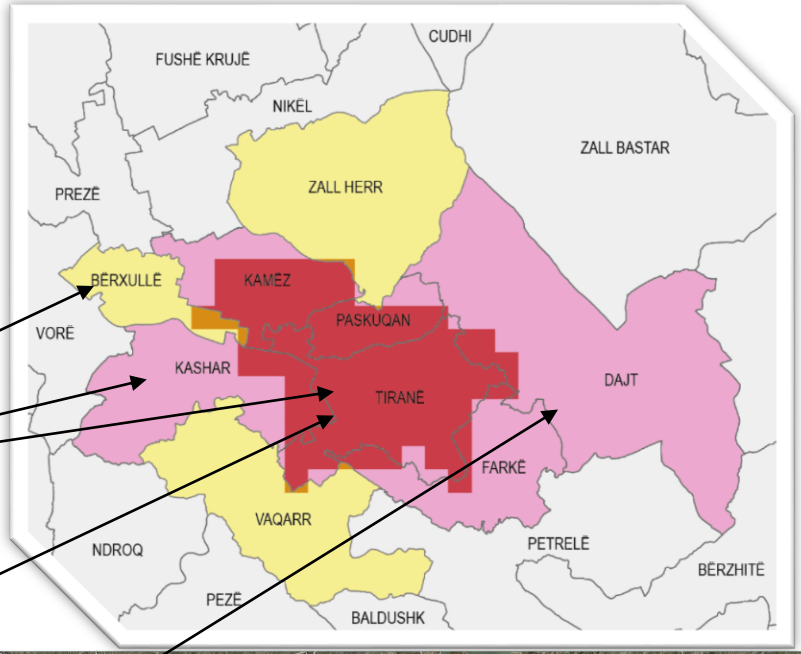
A case study: Albania
Identification of cities

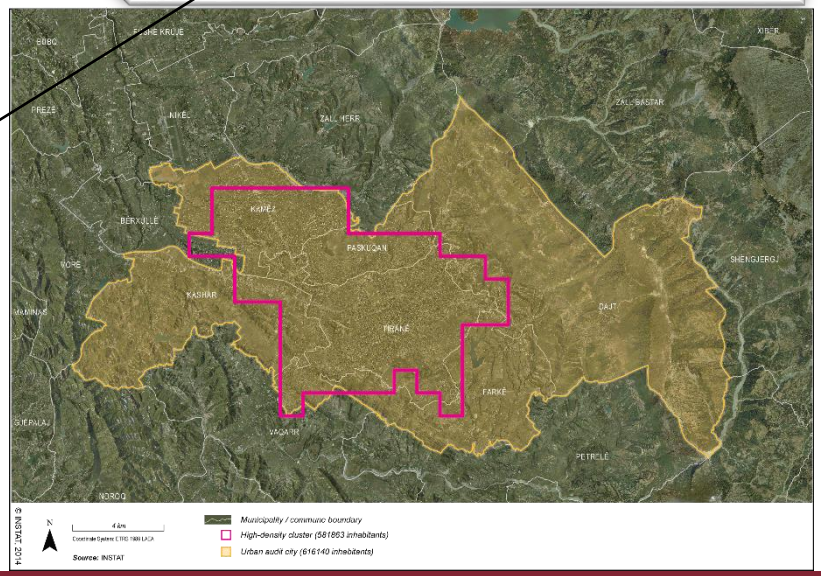
Criteria:

1) grid cells with a population density > 1,500 persons (**high-density cells**)

2) groups with a minimum population of **50,000 persons** (Urban Centres)

3) local administrative units with at least **half** of their population inside the urban centre





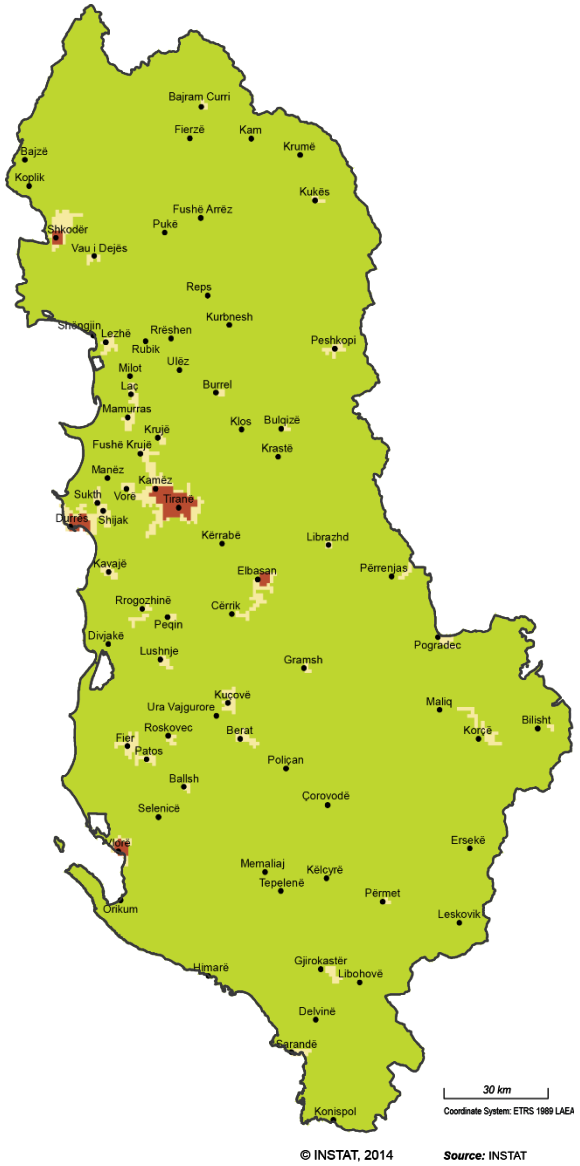
A case study: Albania
Findings

- According to the grid approach, the urban population of Albania on 1st October 2011 (census date) is **58.2%**. According to administrative criteria is **47.7%**.
- Urban areas of Albania: **37** grid approach, **65** administrative
- Cities in Albania: **5** grid approach, **74** administrative
- Degree of urbanisation: **10** local units densely-populated, **57** intermediate density areas, **306** rural local units
- Administrative level 3: **1** is "predominantly urban“, **2** are "intermediate“

A case study: Albania
International comparability

Population by urban-rural typology for EU-27, and Albania in %

	High-density clusters (city)	Urban clusters	Rural grid cells
EU-27 (2010)	35 %	32 %	33 %
Albania	32 %	26 %	42 %



Thank you!

Questions, comments?