



Working Papers

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A harmonised definition of cities and rural areas: the new degree of urbanisation

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Regional and
Urban Policy

> Executive Summary

This paper describes the new degree of urbanisation (DEGURBA) classification. This classification distinguishes three types of areas: densely, intermediate and thinly populated areas. This new approach was developed to harmonise several similar but not identical spatial concepts. The new classification is based on a new source of information: the population grid. This paper shows the benefits of this approach in terms of greater comparability and data availability. It describes the method and how it was developed. The annex contains the original and the new guidance notes on the degree of urbanisation and a section on how to update the degree of urbanisation. It also contains the United Nations (UN) recommendations on localities and urban/rural areas and the definitions of urban areas used in Europe in a recent United Nations Population Division (UNPD) report.

Disclaimer: This Working Paper has been written by Lewis Dijkstra and Hugo Poelman, European Commission Directorate-General for Regional and Urban Policy (DG REGIO) and is intended to increase awareness of the technical work being done by the staff of the Directorate-General, as well as by experts working in association with them, and to seek comments and suggestions for further analysis. The views expressed are the authors' alone and do not necessarily correspond to those of the European Commission.

> Contents

1. Introduction	2
2. Why a new degree of urbanisation?	2
3. What is the new definition? (Short version)	5
4. What are the benefits?	7
5. How does it work? (Definition long version)	7
6. What are the changes between the old and the new degree of urbanisation?	11
7. Conclusion	14
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Annexes	16
1. Original degree of urbanisation	16
2. New degree of urbanisation	17
3. How to update the new degree of urbanisation	18
4. UN principles and recommendations	21
5. Definitions used of urban areas in UNPD report (2009)	23

1 INTRODUCTION

Urban and rural areas are two central concepts used by a wide range of policymakers, researchers, national administrations and international organisations such as the Organisation for Economic Cooperation and Development (OECD), the UN and the EU. These two terms are readily understood by the general public, but a clear definition at the international level has remained elusive. For example, the UN publishes data on cities, urban areas and rural areas, but relies almost entirely on national definitions of these areas. The UN principles and recommendations state that due to different characteristics of urban and rural areas across the globe, a global definition is not possible. These recommendations also draw attention to the difficulty of finding data for these areas.

The new degree of urbanisation provides a solution for this double problem of data availability and lack of a shared definition. In the European Union and the European Free Trade Association (EFTA) countries (Iceland, Liechtenstein, Norway and Switzerland), the new degree of urbanisation provides access to data from a wide range of surveys, including the labour force survey and the survey on income and living conditions.

This new degree of urbanisation also introduces a new harmonised city definition, which was developed in close cooperation with the OECD. Most international data collections had to rely on national definitions. This new harmonised definition captures large cities in a new and comparable way.

2 WHY A NEW DEGREE OF URBANISATION?

The original degree of urbanisation was introduced in 1991 to indicate the character of the area where the respondent lives. It distinguished three types of areas: densely populated, intermediate and thinly populated areas. This definition was based on the population size, density and contiguity of local administrative units level 2 (LAU2, see annex 1 for the official names of this level in each country in the original language). As this method is based on LAU2s which vary considerably in area size, the results are distorted and reduce the comparability between countries with large LAU2s and small LAU2s.

To ensure that cities in LAU2s with a large area are still above the density threshold of the densely populated category, the original degree of urbanisation had to use a relatively low threshold (500 inhabitants per km²). This low threshold meant that for countries with large LAU2s, the cities were still identified as densely populated, but in other countries it meant that too many LAU2s were included in the densely populated category.

To avoid this distortion, the method had to find a way of looking at the population distribution inside LAU2s and using smaller units with the same size. The population grid with a resolution of 1 km² solved this problem.

2.1 Using a new tool: the population grid

A small but growing number of countries in the EU have created population grids based on population registers or other detailed sources of where people live (the so-called bottom-up method). This provides much more detailed and accurate information about the population distribution within a country and within LAU2s.

To have a population grid that covered all EU countries, including those which do not have a bottom-up grid, a disaggregation grid (top-down method) was created for the countries without a bottom-up grid. The top-down method usually disaggregates LAU2 population data according to land use or land cover information.

When this method was first developed, the Joint Research Centre's (JRC) disaggregation grid for 2006 was used for the countries without a bottom-up population grid.

More recently, a grid combining bottom-up and top-down grids has been published for free download:

http://epp.eurostat.ec.europa.eu/portal/page/portal/gisco_Geographical_information_maps/publications/geostat_population_grid_report

2.2 Harmonising spatial concepts

The revision of the degree of urbanisation also created the opportunity to streamline and harmonise a number of similar but not identical spatial concepts for which data was being collected.

2.2.1 Spatial concepts used by the European Commission

Four urban-rural spatial concepts were being used:

- 1 rural areas as defined by the OECD methodology;
- 2 thinly populated area (original degree of urbanisation);
- 3 densely populated area (original degree of urbanisation);
- 4 Urban Audit city.

As part of the OECD method to identify predominantly urban, intermediate and predominantly rural regions, all LAU2 with a population density below 150 inhabitants per km² were classified as rural.

The original degree of urbanisation method used a lower density threshold (100 inhabitants per km²) for thinly populated areas but in combination with population size and contiguity. For example, a single LAU2 with a density above 100 inhabitants per km² but with less than 50 000 inhabitants would still be classified as thinly populated.

Both the OECD method and the original degree of urbanisation led to several large cities (although not always the same ones) being classified as thinly populated or rural.

The densely populated areas had to have a density of 500 inhabitants per km² and a minimum population of 50 000 inhabitants.

This method identified the vast majority of cities, but it also included LAU2s which were more suburban than urban or included several smaller towns but no single centre of at least 50 000 inhabitants.

The Urban Audit covered a large sample of cities with at least 50 000 inhabitants. These cities were not selected in a harmonised manner. The Urban Audit was not identical to the densely populated areas identified by the original degree of urbanisation.

Figure 1: Four conflicting spatial concepts

Urban-Rural Typology	Degree of urbanisation	Urban Audit
Rural LAU2	Thinly populated	
	Intermediate density	
	Densely populated	Cities

In 2010, the European Commission published a new definition of urban and rural regions, which was similar in approach to the OECD method but relied on population grids instead of LAU2s (for more information see Eurostat Regional Yearbook 2010). This definition introduced the concept of rural grid cells. They are used to define rural regions and rural LAU2s. This ensures that rural areas and rural regions are defined based on the same concept (rural grid cells). It also meant that rural areas and thinly populated areas were now identical⁽¹⁾.

The new degree of urbanisation uses urban centres to identify all cities with a centre with at least 50 000 inhabitants. All these cities were subsequently included in the Urban Audit and Urban Audit cities without a centre of this size were dropped. As a result, densely populated areas are now identical to the cities used in the Urban Audit data collections.

Figure 2: Harmonised spatial concepts

Revised degree of urbanisation
Thinly populated = Rural LAU2
Intermediate density
Densely populated = Cities

2.2.2 UNPD publications on urban and rural areas

The new degree of urbanisation can also be used to supply data to the UN on urban and rural areas. In this case, the degree of urbanisation does not replace another EU-wide definition, but a myriad of different national definitions. For an example of the variety of definitions of urban areas used in UNPD reports see annex 5.

The UNPD only publishes figures using a two-way split in urban and rural. Therefore, the degree of urbanisation needs to be simplified to a two-way split. Urban areas would equal densely populated and intermediate density areas. Rural areas would equal thinly populated areas. The alternative names as defined in the new degree of urbanisation anticipate this two-way split. Intermediate or small urban areas and densely populated or large urban areas are clearly intended to be combined into 'urban areas'.

Despite the variety of definitions used, the population in rural areas in the EU has hovered around 29% for the past decade. The differences for individual countries, however, are sometimes quite substantial.

Figure 3: Harmonising with UNPD data

UNPD reports	Degree of urbanisation	
	Name	Alternative name
rural areas	Thinly populated	Rural areas
Urban Areas	Intermediate density	Town and Suburbs
	Densely populated	Cities

2.2.3 Urban Morphological Zones, Urban Clusters and Centres

A last spatial concept which could be harmonised is the urban morphological zone (UMZ) as used by the European Environmental Agency⁽²⁾. It is defined as 'a set of urban areas laying less than 200m apart'. This concept only looks at a number of CORINE⁽³⁾ land cover classes and does not consider population distribution.

Core Classes:

- 111 – Continuous urban fabric
- 112 – Discontinuous urban fabric
- 121 – Industrial or commercial units
- 141 – Green urban areas

Enlarged core classes: 123 (Port areas), 124 (Airports) and 142 (Sport and leisure facilities), are also included in the UMZ if they are neighbours to the core classes or if they are next to another enlarged core class which is a neighbour to the core classes.

122 (Road and rail networks) and 511 (Water courses), when neighbours to the enlarged core classes, cut by 300m buffer.

Forests and scrub (311, 312, 313, 322, 323, 324), when they are completely within the core classes.

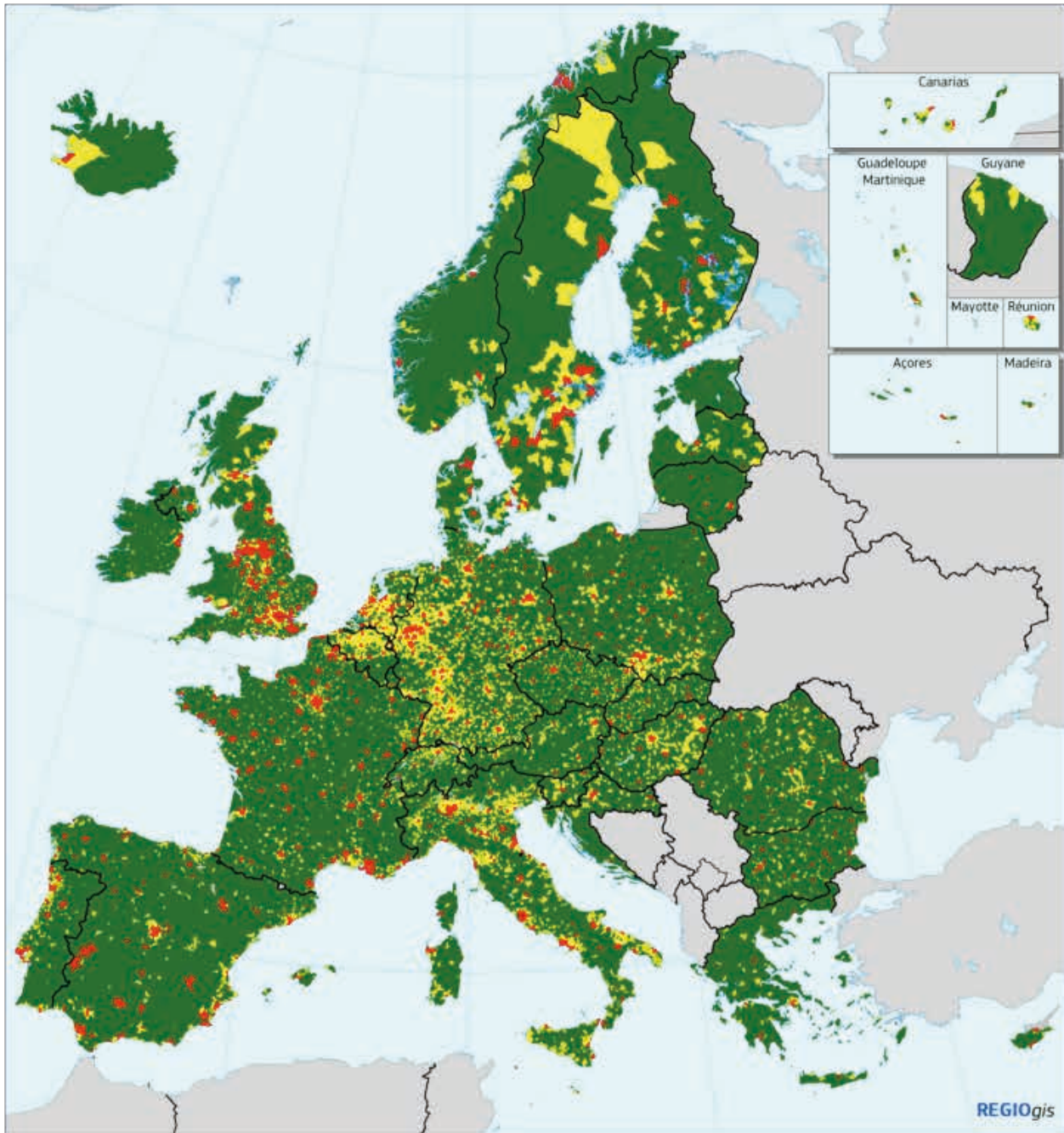
The UMZs are constructed using a higher resolution (100 m x 100 m) data as compared to the 1 km² grid. However, the presence of strip

1 For more information on the link between the degree of urbanisation and the urban-rural regional typology follow this link: http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Territorial_typologies

2 <http://www.eea.europa.eu/data-and-maps/data/urban-morphological-zones-2006-umz2006-f3v0>

3 CORINE stands for 'coordination of information on the environment' see <http://www.eea.europa.eu/publications/CORO-landcover>

Map 1: New degree of urbanisation



Degree of urbanisation

Classification of LAU2 units

- Densely populated areas (cities)
- Intermediate density areas (towns and suburbs)
- Thinly populated areas (rural areas)
- No Data

Sources: DG REGIO, Eurostat



© EuroGeographics Association for the administrative boundaries

or linear development along certain roads leads to UMZs with the shape of a spider web linking separate urban centres with very few economic links.

Although the UMZ concept is clear to experts, the general public may be confused by the references to urban areas and urban functions. The UMZ method does not check for population densities or population size as the other urban area definitions do. Although the UMZ talks of urban areas, it primarily refers to 'built-up areas'. Also the references to urban functions should not be interpreted as referring to a functional urban area or a functional economic area. The UMZ method does not analyse functional economic links or commuting flows.

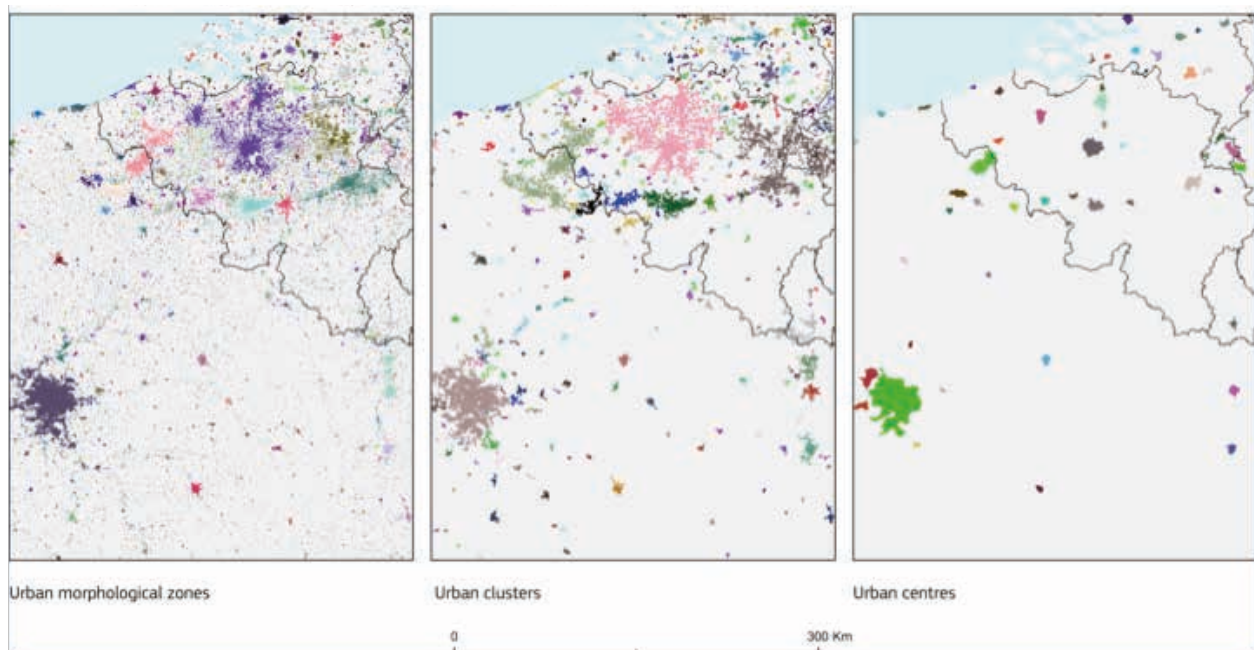
As the UMZs are not used to collected data, but only to aggregate existing information, replacing the UMZs with urban centres does not increase data availability. The main benefit of using urban centres instead of UMZs would be the closer link with data collected following the degree of urbanisation.

3 WHAT IS THE NEW DEFINITION? (SHORT VERSION)

The new degree of urbanisation creates a three-way classification of LAU2s as follows:

- 1 Densely populated area: (alternative name: cities)
 - At least 50% living in high-density clusters⁽⁴⁾ (alternative name: urban centre).
- 2 Intermediate density area (alternative name: towns and suburbs)
 - Less than 50% of the population living in rural grid cells; and
 - Less than 50% living in a high-density cluster.
- 3 Thinly populated area (alternative name: rural area)
 - More than 50% of the population living in rural grid cells.

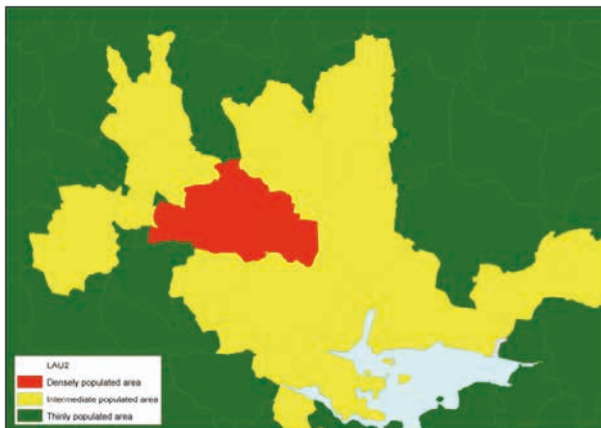
Map 2: Urban morphological zones, Urban clusters and Urban centres



⁴ To ensure that the population of each high-density cluster is appropriately represented (min. 75%) by densely populated LAU2s, 25 LAU2s were added to this category. This also ensures that 20 high-density clusters are included, which otherwise would be dropped.

The set of two images below gives an example of Cork in Ireland.

Figure 4: Cork, Ireland: Type of cluster and degree of urbanisation



3.1 Definitions

- High-density cluster (or urban centre):
Contiguous⁽⁵⁾ grid cells of 1 km² with a density of at least 1 500 inhabitants per km² and a minimum population of 50 000.
- Urban clusters:
Clusters of contiguous⁽⁶⁾ grid cells of 1 km² with a density of at least 300 inhabitants per km² and a minimum population of 5 000.
- Rural grid cells:
Grid cells outside urban clusters.
- Density:
Population divided by land area.

3.2 Adjustments and validation by national statistical institutes

The application of this methodology was sent to the national statistical institutes (NSI) for adjustments and validation. The NSIs could make two types of adjustments: adjusting city boundaries and adjusting LAU2 classifications.

3.2.1 Adjusting city boundaries

The guidance note highlights that due to the variation of the area size of LAU2s, the match between the high-density cluster and the densely populated LAU2s could be adjusted within certain constraints. In this context, several NSIs have requested changes to the densely populated areas to ensure a better match between the appropriate political level and/or a level for which annual data is collected.

3.2.2 Other adjustments

Due to the sources of the population grid and the fairly coarse resolution of the population grid, the classification of a limited number of LAU2s may not correspond to this approach. As a result, National Statistical Institutes (NSI) were invited to critically review this classification and to make, where necessary, adjustments to the classification.

3.3 Updates

The current classification has been based on population data for 2006 and the LAU2 boundaries of 2011. There are two types of updates that will be needed: updates because the LAU2 boundaries have changed; and updates because the population distribution has changed.

3.3.1 Annual updates due to changes in the LAU2 boundary

The first changes will have to be made annually and can be implemented in two ways: applying the methodology as described here to the new layer of LAU2s; or estimating the degree of urbanisation based on the changes. The first approach is more labour intensive.

The second approach is particularly suitable if the changes are minor or consist mainly of mergers. In such cases, the degree of urbanisation of the new LAU2s could be based on the codes of the previous ones. For example, a merge of LAU2s with the same degree of urbanisation would still have the same degree. Merging two LAU2s with different degrees of urbanisation could be resolved by given precedence to the highest degree of urbanisation: densely + intermediate = densely; or intermediate + thinly = intermediate. Taking into account the relative population size of these two LAU2s could further refine the process.

5 Contiguity does not include the diagonal (i.e. cells with only the corners touching) and gaps in the cluster are filled (i.e. cells surrounded by a majority of high-density cells applied iteratively). For more detail see section 4.5.

6 Contiguity includes the diagonal. For more detail see section 4.5.

3.3.2 Updates due to changes in the distribution of population

As this classification is expected to be relatively stable, there is no need to update it annually. In addition, an update can only be done based on a 1 km² population grid, which not all countries have or update annually. For the disaggregation grid, updated land cover data and census tract or LAU2 population data is needed. This is typically only available every five years. As a result, this classification will only be updated to reflect changes in the population distribution every five years.

The next update will be for the population of the reference year 2011, which should be available in 2015, allowing the modification to be used to start in January 2016.

4 WHAT ARE THE BENEFITS?

The new degree of urbanisation offers several benefits. It improves the comparability and increases data availability. Lastly, the degree of urbanisation is also linked to two regional classifications, which increases the coherence of spatial analysis.

4.1 Better comparability

The problem with the original degree of urbanisation is that it relied on the population size of LAU2s as one of the main criteria. If a LAU2 was large enough, even the presence of a large city would lead to it being classified as thinly populated. For example, the original degree of urbanisation classified the LAU2 of Uppsala (SE), Aalborg (DK) and Badajoz (ES) as thinly populated despite the presence of cities with more than 100 000 inhabitants. As a result, the degree of urbanisation of countries with large LAU2s underestimated the population in cities compared to countries with small LAU2s.

This new approach also uses the criterion of population density but applied to units of analysis of the same size: 1 km² grid cells. As a result, it can look inside the large LAU2s and detect the presence of towns or cities within a LAU2. Therefore, the results are less distorted and more comparable between countries.

4.2 More data

Instead of having separate data collections for the different spatial concepts, the harmonisation of spatial concepts ensures that more data is available for the new degree of urbanisation.

For example, in the past the Urban Audit cities did not equal the densely populated areas. As a result, the weighted average of

unemployment rates in Urban Audit cities within a country was not necessarily the same as the unemployment rate in densely populated areas in that country based on the Labour Force Survey (LFS). Therefore, the Urban Audit had to estimate unemployment rates based on sources other than the LFS. Now the unemployment rate of the densely populated area will be identical to the unemployment rate of the Urban Audit cities. In countries with only one Urban Audit city, such as Luxembourg and Malta, LFS will provide a direct estimate of the unemployment rate of the city, sample size permitting.

4.3 Linked to regional classification

In 2010, a new urban-rural regional typology was published in the Eurostat regional yearbook⁽⁷⁾ to be used by all Commission services. This typology was derived from the OECD method. The OECD method defines rural regions based on the share of population in rural LAU2s defined by population density, while the new method is based on grid cells of 1 km². As the grid cells are identical in size, this new method eliminates the distortions of using LAU2s that vary in size.

5 HOW DOES IT WORK? (DEFINITION LONG VERSION)

This section describes the methodology in full detail. This methodology has been jointly developed by the Directorate-General for Agriculture and Rural Development and the Directorate-General for Regional and Urban Policy with support of the Joint Research Centre and Eurostat.

5.1 Population grid

This new classification is based on a 1 km² population grid. A grid based on geo-coding address locations and population register data is available for Croatia, Denmark, Sweden, Finland, Austria, the Netherlands, Slovenia, Switzerland and Norway and the classification is based on the 'bottom-up' grids in these Member States.

For the remaining countries, the classification relies on the population disaggregation grid created by the JRC based on LAU2 population and CORINE land cover⁽⁸⁾. The disaggregation grid has a resolution of 100 m x 100 m, but has been aggregated to a cell size of 1 km² for this analysis.

Because the CORINE land cover map does not cover the four French overseas regions, Madeira and Açores in Portugal, the population disaggregation grid does not cover these regions.

7 http://epp.eurostat.ec.europa.eu/statistics_explained/index.php/Urban-rural_typology

8 A provisional version, disaggregating the LAU2 population of 2006 has been used. More information about the disaggregation method can be found at: <http://www.eea.europa.eu/data-and-maps/data/population-density-disaggregated-with-corine-land-cover-2000-2>

Therefore, the classification for these regions has been done based on other sources (LandScan⁽⁹⁾ data) which DG for Regional and Urban Policy has acquired.

5.2 Rural grid cells and urban clusters

A rural LAU2 has 50% of its population living in rural grid cells.

- Rural grid cells:

Grid cells outside urban clusters.

- Urban clusters:

Clusters of contiguous⁽¹⁰⁾ grid cells of 1 km² with a density of at least 300 inhabitants per km² and a minimum population of 5 000.

The calculation is done in two steps:

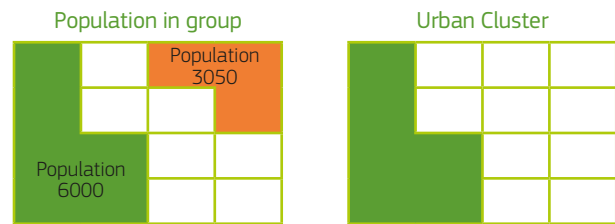
First, all cells with a population density of 300 inhabitants per km² are selected. Secondly contiguous cells are plotted (see figure below):

Contiguous groups

400		550	2100
500			400
1500	350		
2000	1250		

G1		G2	G2
G1			G2
G1	G1		
G1	G1		

The groups of contiguous cells with a density above the threshold with a total population of 5 000 or more are selected. These are urban clusters.



The resulting raster of urban clusters is available here:

https://circabc.europa.eu/sd/a/a932d937-82fe-48b6-9c14-1d549ac494f3/URB_CLST_2006.zip

The urban clusters can be overlaid on LAU2s, which allows us to calculate the share of population of each LAU2 living in an urban cluster. If less than 50% live in an urban cluster, the LAU2 is classified as rural.

5.3 High-density clusters (city centres)

To make a distinction between densely (large urban) and intermediate (small urban) we classify as densely those LAU2s where 50% or more of the population lives in a high-density cluster.

- High-density cluster:

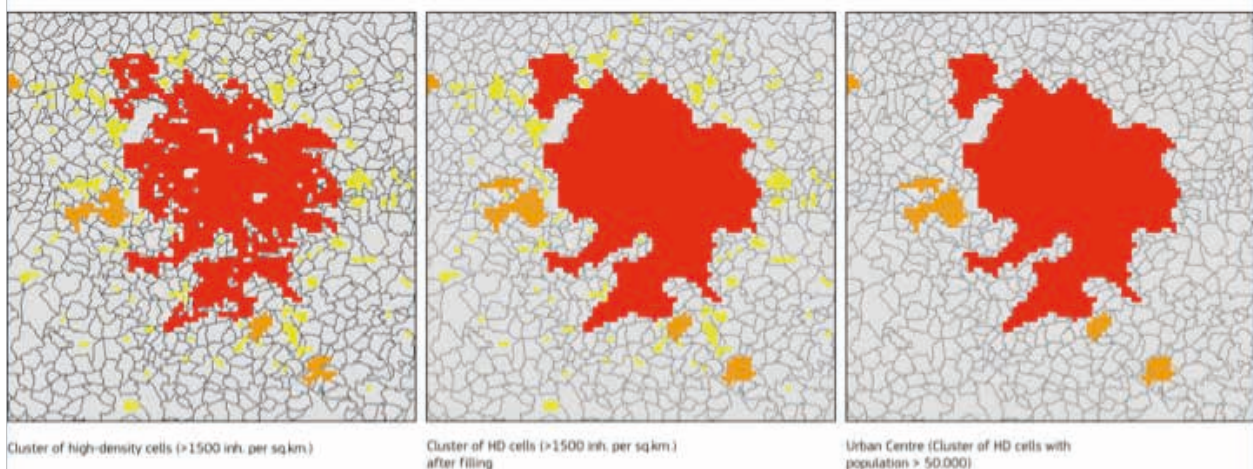
Contiguous⁽¹¹⁾ grid cells of 1 km² with a density of at least 1 500 inhabitants per km² and a minimum population of 50 000.

The raster of high-density clusters is available here:

https://circabc.europa.eu/sd/a/d4ded292-c66b-4927-ae8e-2c6f2b606b46/HDENS_CLST_2006.zip

The method to identify high-density clusters is similar to the method of the urban clusters. First, all cells with a population density of more than 1 500 inhabitants per km² are selected. Secondly, contiguous high-density cells are grouped. In contrast

Map 3: Step in the creation of Urban Centres (the case of Paris)



9 <http://www.ornl.gov/sci/landscan>

10 Contiguity includes the diagonal.

11 Contiguity does not include the diagonal (i.e. cells with only the corners touching) and gaps in the cluster are filled (i.e. cells surrounded by a majority of high-density cells applied iteratively).

to the urban clusters, diagonal contiguity is not included. The last steps fill gaps and smooth sharp borders (see figure below). This is done by applying the majority rule iteratively. This means that if five or more of the cells surrounding a cell belong to a single high-density cluster, it is added to that high-density cluster. This is repeated until no more cells are added.

The high-density clusters can be overlaid with LAU2s, which allows us to calculate the share of the population of each LAU2 living in a high-density cluster. If more than 50% live in a high-density cluster, the LAU2 is classified as densely populated.

As a last step, a number of LAU2s are included in the densely populated class to ensure that all high-density clusters have at least 75% of their population in this class.

5.4 Three contiguity rules

This section illustrates the three contiguity rules mentioned above:

- 1 Contiguous including diagonals (urban clusters)
If the central square in Figure 1 is above the density threshold, it will be grouped with each of the other surrounding eight cells that exceed the density threshold.
- 2 Contiguous excluding diagonals (high-density clusters)
If the central square in Figure 1 is above the density threshold, it will be grouped with each of the four cells directly above, below or next to the central square that exceed the density threshold. This means that cell numbers 2, 4, 5 and 7 can be included. Cell numbers 1, 3, 6 and 8 cannot as they have a diagonal connection.
- 3 The majority rule (gap filling in high-density clusters)
The goal for the high-density clusters was to identify urban centres without any gaps. Therefore enclaves needed to be filled. If the central square in Figure 1 is not part of a high-density cluster, it will be added to a high-density cluster if five or more of the eight surrounding cells belong to a single high-density cluster. This rule is applied iteratively until no more cells can be added.

5.5 Completing and correcting the classifications

To classify LAU2s based on a population grid, the LAU2s have to be transformed into a raster as well, which can lead to some situations which require an ad-hoc solution.

Contiguous grid cells

1	2	3
4		5
6	7	8

5.5.1 LAU2 without a raster equivalent

Some small LAU2s do not have a raster equivalent. These have been classified according to the share of area in rural grid cells and high-density clusters.

5.5.2 Border effects

Thinly populated LAU2s classified as intermediate density or densely populated may be classified incorrectly if rural grid cells cover most of the territory. The LAU2s with a population below 5 000 inhabitants and with 90% or more of its area in rural grid cells were reclassified as thinly populated.

Small LAU2s classified as 'rural areas' may be classified incorrectly due to the coarse resolution of the population grid compared to the small size of the LAU2s. LAU2s with an area less than 5 km² but with a share of surface outside rural grid cells higher than 30% were reclassified as intermediate density or densely populated according to the share of the corresponding cluster.

5.5.3 LAU2 with no population in the raster equivalent

A few LAU2s do not have a population in their raster equivalent, although according to the census they do have a density higher than 150 inh./km². These have been classified according to the surrounding LAU2s and the census data.

5.5.4 LAU2s outside the current population grid

The CORINE land cover map does not cover the four French overseas regions, the Azores and Madeira of Portugal. DG Regional and Urban Policy has acquired the LandScan population grid for these regions and used that grid to classify the LAU2s of these regions.

5.6 Adjusting the cities

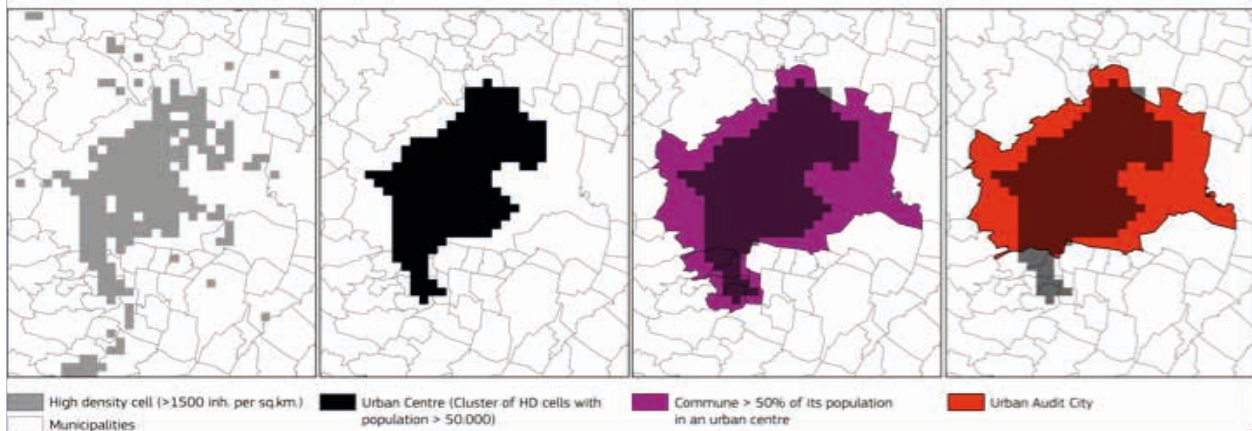
The definition of the degree of urbanisation specifies that:

As LAU2s vary considerably in area, this methodology will lead to a closer match between a high-density cluster and densely populated LAU2s in countries with small LAU2s than in those with large LAU2s. To take this difference into account, the classification can be adjusted as following:

- A densely populated LAU2 can be classified intermediate as long as 75% of its high-density cluster population remains in densely populated LAU2s.
- A thinly populated or intermediate density LAU2 can be classified as densely populated if it belongs to a group of LAU2s with a political function and if the majority of the population of this group of LAU2s lives in a high-density cluster.

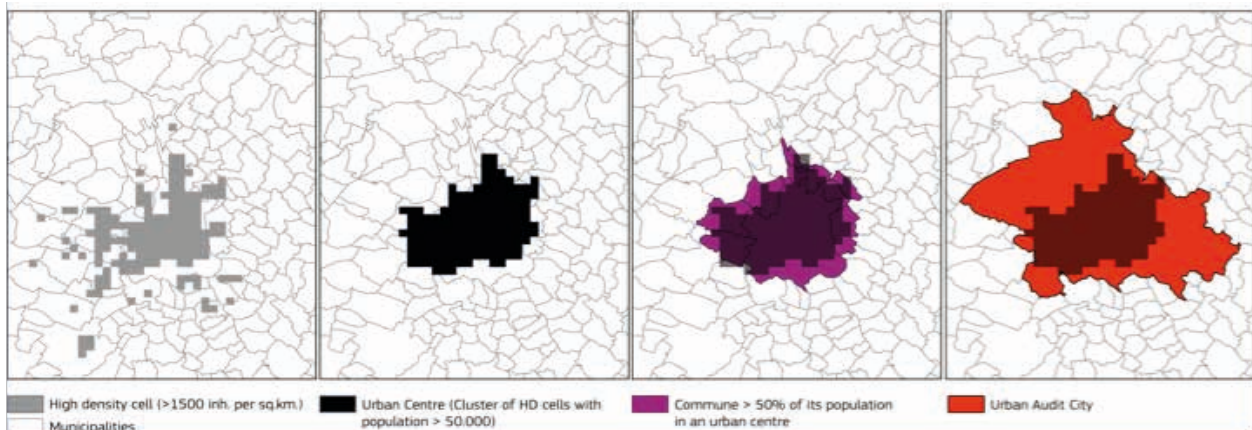
An example of the application of the first rule is Vienna.

Map 4: High density cells, urban centre and city (Wien)



An example of the second rule is Toulouse.

Map 5: High density cell, urban centre and city (Toulouse)



These modifications were made based on requests from the national statistical institutes and verified by the European Commission.

5.7 Other adjustments

This method can be distorted by two elements: the type of grid used; and the geography of the area.

In countries where no bottom-up grid was available, the method may be less accurate due to the resolution of the data (mainly CORINE land cover and LAU2 population) used in the population disaggregation grid. More information about the disaggregation method can be found at: <http://www.eea.europa.eu/data-and-maps/data/population-density-disaggregated-with-corine-land-cover-2000-2>. Future updates will increasingly rely on bottom-up grids and disaggregation using high resolution data.

The method does not take into account the presence of steep slopes. As a result, the method may not identify high-density clusters or urban clusters in these types of areas.

Due to these two sources of possible distortion, national statistical institutes were asked to verify and validate the classification. NSIs could propose additional cities with an urban centre with at least 50 000 inhabitants. These were verified by the Commission to ensure that they indeed had such an urban centre, for example by examining the population size of the high-density clusters below 50 000 within the city boundaries or analysing the data produced using a more precise national population grid. For example, the city of Trondheim did not have a centre of 50 000 inhabitants according to this methodology, but this is likely to be due to the geography of the city.

In some cases, NSIs have asked to exclude a city. Some of the reasons to exclude a city were that it lacked functions of a centre, it had a negative commuter balance or the population of its urban centre was likely to be below 50 000 (today). These requests were verified by the Commission and if the estimated population of the urban centre was close to the threshold and/or the other reasons were valid, the city was excluded.

NSIs could also request minor corrections to the thinly populated and intermediate categories.

6 WHAT ARE THE CHANGES BETWEEN THE OLD AND THE NEW DEGREES OF URBANISATION?

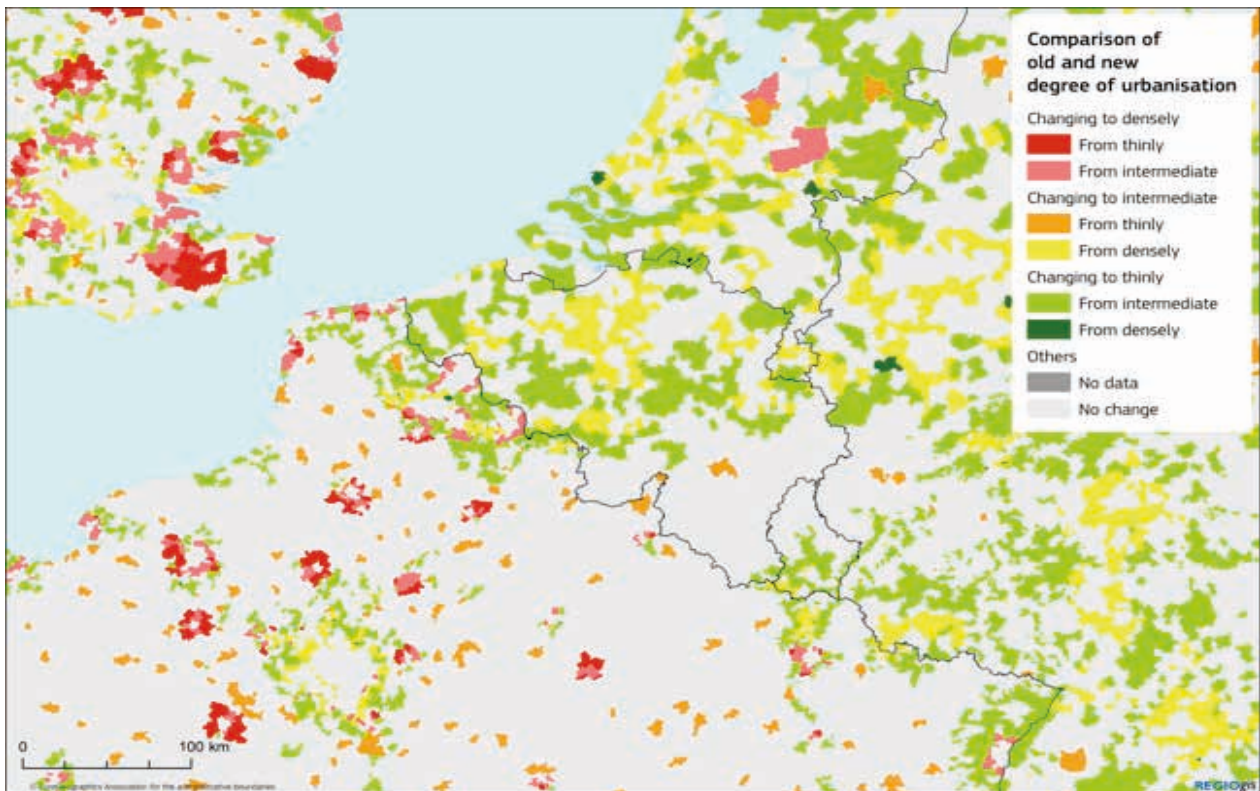
Overall the change between the old and the new degree of urbanisation leads to a slightly lower population share in densely populated areas: a drop from 47% to 40%, while the population share in intermediate density areas increase by 6 percentage points and in thinly populated areas by 0.4 percentage points. (see table).

Despite the change in methodology and the use of the population grid, there is still a relatively high level of continuity in the classification: 73% of the EU population does not change its degree of urbanisation (see table). In some countries, the share of population shifting between categories is more important. As a result, data for the old and new degrees of urbanisation may not be fully comparable and a break in the series should be flagged.

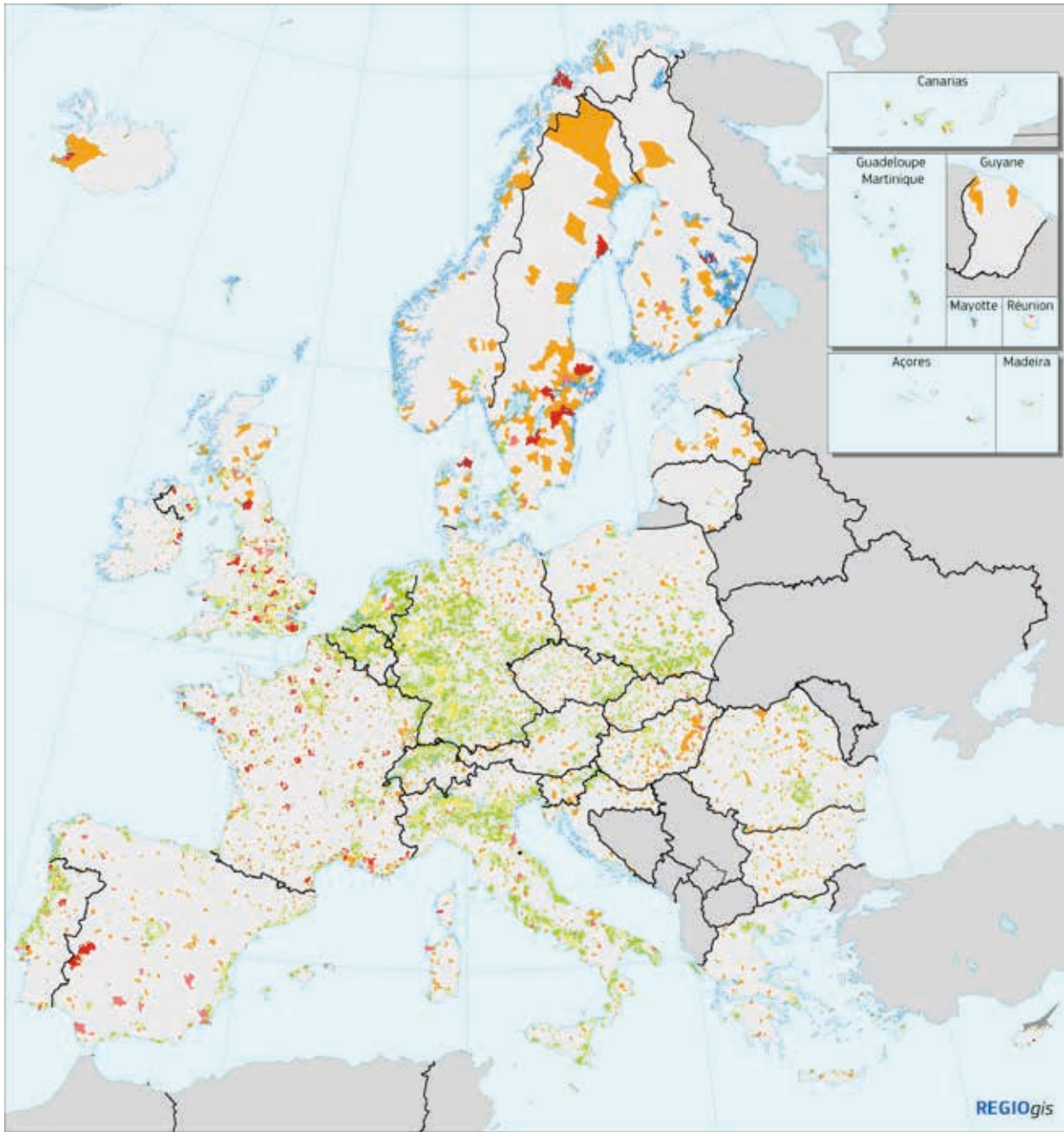
	Share of total population in %			Change in share of total population in pp (new – old)		
	Densely populated	Intermediate density	Thinly populated	Densely populated	Intermediate density	Thinly populated
EU	40	31	29	-7	6	0
Belgium	27	57	17	-28	16	12
Bulgaria	43	23	35	-1	14	-14
Czech Republic	30	33	37	-4	8	-3
Denmark	34	21	45	-1	10	-9
Germany	34	42	24	-14	6	8
Estonia	41	17	43	5	7	-12
Ireland	35	21	44	2	14	-17
Greece	50	24	27	-1	1	0
Spain	33	31	36	7	16	-23
France	38	25	38	-12	12	0
Italy	33	42	25	-11	2	9
Croatia	29	29	42	-3	11	-8
Cyprus	52	22	26	-4	9	-5
Latvia	42	20	38	-2	18	-16
Lithuania	41	5	54	0	4	-4
Luxembourg	18	37	45	-22	-3	25
Hungary	29	35	36	-3	12	-10
Malta	50	43	8	-34	26	8
Netherlands	44	41	15	-19	7	13
Austria	30	29	41	-6	4	2
Poland	35	24	41	-5	7	-2
Portugal	43	30	27	2	-5	2
Romania	33	22	45	-4	8	-4
Slovenia	18	32	50	0	-3	3
Slovakia	21	36	43	-2	10	-8
Finland	45	22	33	1	1	-2
Sweden	38	31	31	14	16	-31
United Kingdom	57	29	13	-8	11	-3
Switzerland	28	49	22	-21	16	5
Iceland	70	15	15	70	-52	-18
Norway	26	34	40	2	13	-15

	Share of total population in the same degree				Share of total population changing degree			
	Total	Densely populated	Intermediate density	Thinly populated	Total	Changing to densely	Changing to intermediate density	Changing to thinly
EU	73	37	15	21	27	3	16	7
Belgium	60	27	28	5	40	0	28	12
Bulgaria	79	42	5	32	21	1	17	2
Czech Republic	75	30	17	28	25	0	16	9
Denmark	76	30	6	40	24	4	15	5
Germany	70	34	24	12	30	0	18	12
Estonia	73	33	1	39	27	7	15	4
Ireland	77	30	4	43	23	5	17	1
Greece	76	37	7	33	24	1	18	5
Spain	79	44	13	22	21	6	11	4
France	75	39	10	26	25	6	13	6
Italy	69	31	26	13	31	3	16	11
Croatia	81	29	14	38	19	0	15	4
Cyprus	78	50	7	22	22	3	15	4
Latvia	81	42	1	38	19	0	19	0
Lithuania	94	41	0	53	6	0	5	1
Luxembourg	53	18	15	20	47	0	22	25
Hungary	70	25	14	31	30	4	21	5
Malta	59	50	9	0	41	0	34	8
Netherlands	64	42	20	2	36	2	21	13
Austria	79	30	17	32	21	0	13	9
Poland	78	35	10	33	22	0	15	7
Portugal	70	33	18	20	30	10	12	8
Romania	83	33	10	40	17	0	12	5
Slovenia	78	18	23	37	22	0	9	13
Slovakia	72	19	17	35	28	2	19	8
Finland	70	25	9	36	30	8	22	0
Sweden	56	23	6	28	44	16	26	3
United Kingdom	74	53	11	10	26	5	18	3
Switzerland	62	28	23	12	38	0	27	11
Iceland	15	0	0	15	85	70	15	0
Norway	69	19	12	37	31	6	22	3

Map 6



Map 7



Comparison of the old and new degree of urbanisation

Change

Changing to densely

■ From thinly

■ From intermediate

Changing to intermediate

■ From thinly

■ From densely

Changing to thinly

■ From intermediate

■ From densely

Others

■ No data

■ No change

Densely populated areas = cities

Intermediate density areas = towns and suburbs

Thinly populated areas = rural areas

Source: DG REGIO, Eurostat



© EuroGeographics Association for the administrative boundaries

7 CONCLUSION

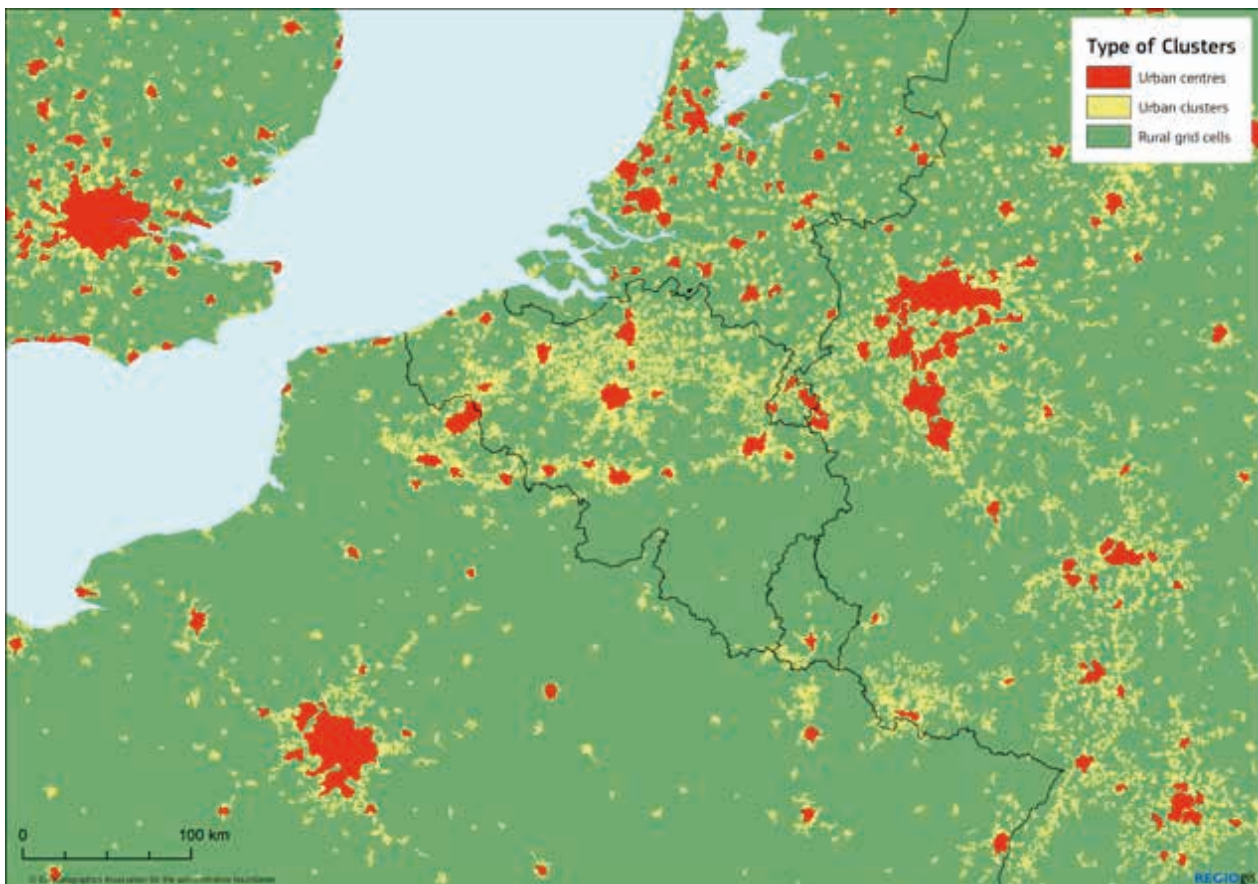
The new degree of urbanisation takes advantage of a new tool, the population grid, to create a more accurate classification. It takes account of the population distribution within and between local administrative units level 2.

In addition, the switch to the new classification allows a further harmonisation of spatial concepts by ensuring that the cities and densely populated areas are identical and as well as thinly populated areas and rural areas.

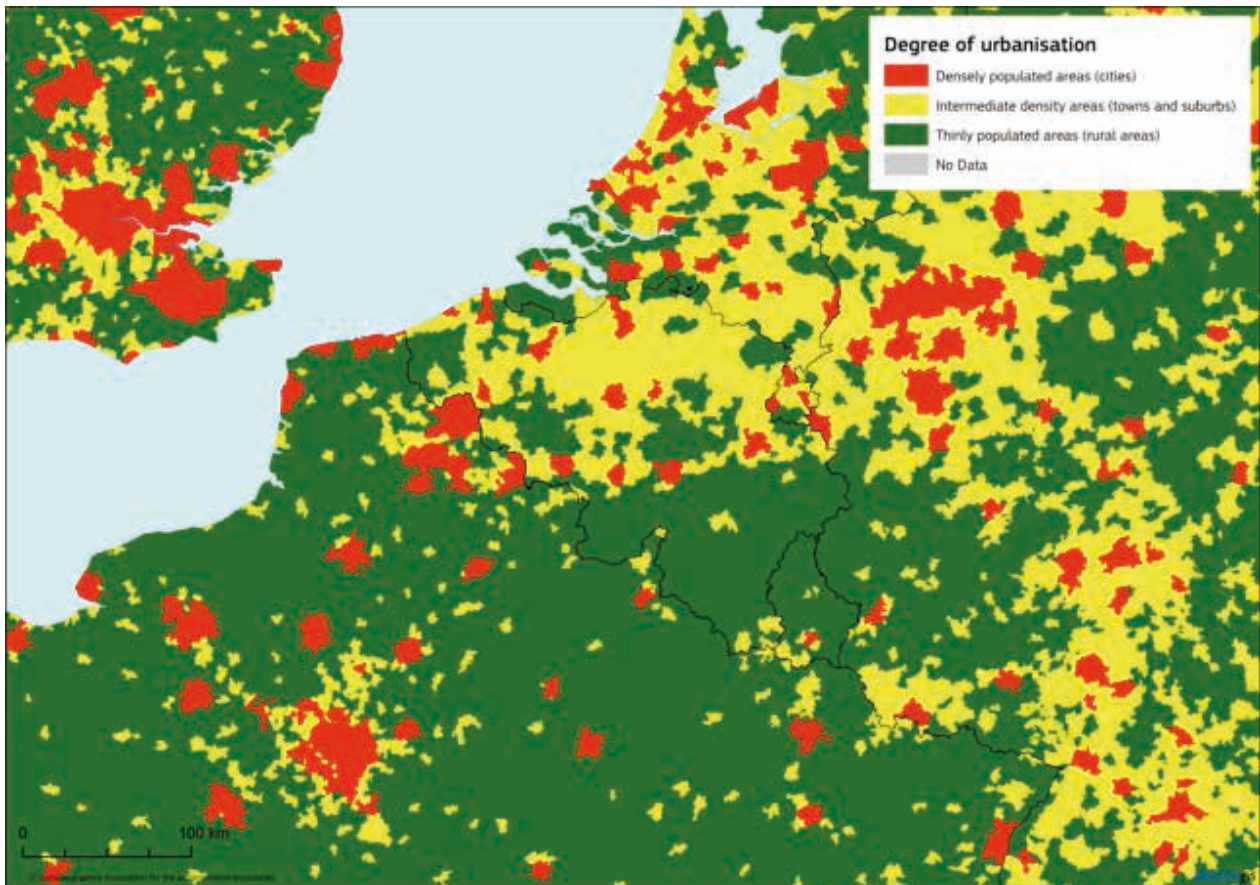
The new degree of urbanisation also uses the same building blocks as the urban-rural regional typology. As a result, the data collected for rural areas is linked to the data collected for rural regions as they are both defined by the share of population in rural grid cells.

Last but not least, this new degree of urbanisation could also be used to provide the UN with annual data for urban and rural areas. Until now, annual data for these type of areas was difficult to find and was based on a wide diversity of urban-rural classifications which undermined the comparability of the data.

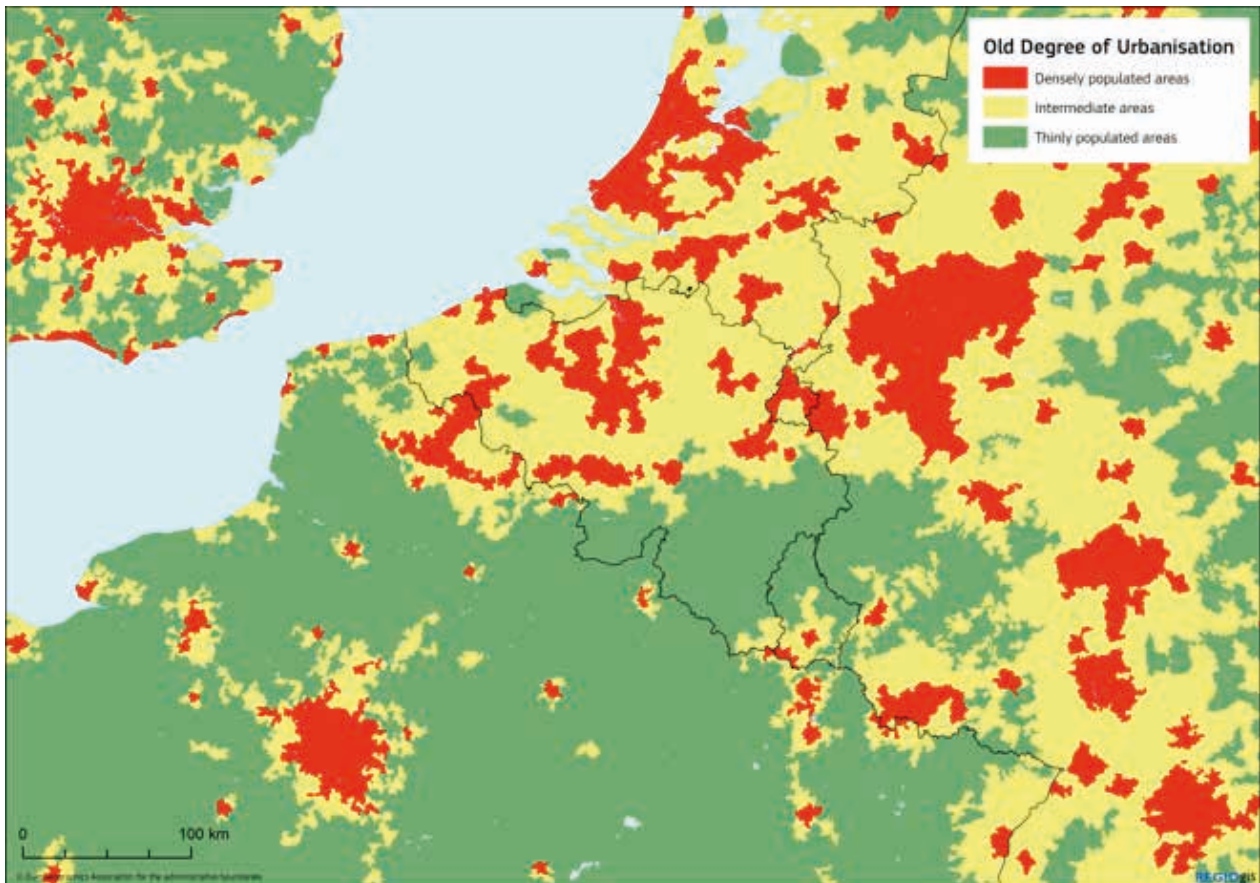
Map 8 Type of clusters



Map 9 New degree of urbanisation



Map 10 Old degree of urbanisation



> ANNEXES

1 ORIGINAL DEGREE OF URBANISATION

DEGURBA Col 174: Degree of urbanisation

Periodicity: QUARTERLY

Short description: Degree of urbanisation

Column	Code	Description	2006+	2001-2005	1998-2000	1992-1997	1983-1991
174		<i>Degree of urbanisation</i>					
	1	Densely-populated area	✓	✓	✓	✓	x
	2	Intermediate area	✓	✓	✓	✓	x
	3	Thinly-populated area	✓	✓	✓	✓	x

Purpose

Variable needed to calculate employment and unemployment rate breakdown by density of population.

Definitions

The concept of 'urbanisation' has been introduced to indicate the character of the area where the respondent lives. Three types of area have been identified:

- 1 Densely-populated (Code 1).
- 2 Intermediate (Code 2).
- 3 Thinly-populated (Code 3).

In the definition of 'degree of urbanisation' there is a criterion of geographical contiguity together with a population threshold. Harmonised, comparable correspondence between the degree of urbanisation and NUTS 5 regions has been (re-)defined on the basis of 2001 census data (for Member States and candidate countries) in 2005.

An 'area' consists of a group of contiguous 'local areas' where a 'local area' corresponds to the following entities in the respective countries:

Belgium	Gemeenten/Communes	
Czech Republic	Obce	6.249
Denmark	Kommuner	271
Germany	Gemeinden	13.176
Estonia	Vald, Inn	241
Greece	Demotiko diamerisma/Koinotiko diamerisma	6.130
Spain	Municipios	8.108
France	Communes	36.678
Ireland	DEds/Wards	3.440
Italy	Comuni	8.100
Cyprus	Dimoi, koinotites	614
Latvia	Pilsētas, novadi, pagasti	530
Lithuania	Seniūnijos	515
Luxembourg	Communes	118
Hungary	Települések	3.145
Malta	Kunsilli	68
Netherlands	Gemeenten	489
Austria	Gemeinden	2.381
Poland	Gminy	2.478
Portugal	Freguesias	4.257
Slovenia	Občine	193
Slovakia	Obce	2.928
Finland	Kunnat/Kommuner	446
Sweden	Kommuner	290
United Kingdom	Wards (or parts thereof)	10.679
Bulgaria	Naseleni mesta	5.340
Croatia		
Romania	Communes, Municipiu, Orajse	2.951
Turkey	Köy	37.675
Iceland	Sveitarfélag	101
Norway	Kommuner	433
Switzerland	Gemeinden/Communes/Comuni	2.815

The three types of area described above are defined as follows:

Code 1: Densely-populated area

This is a contiguous set of local areas, each of which has a density superior to 500 inhabitants per square kilometre, where the total population for the set is at least 50 000 inhabitants.

Code 2: Intermediate area

This is a contiguous set of local areas, not belonging to a densely-populated area, each of which has a density superior to 100 inhabitants per square kilometre, and either with a total population for the set of at least 50 000 inhabitants or adjacent to a densely-populated area.

Code 3: Thinly-populated area

This is a contiguous set of local areas belonging neither to a densely-populated nor to an intermediate area.

A set of local areas totalling less than 100 km², not reaching the required density, but entirely enclosed within a densely-populated or intermediate area, is to be considered to form part of that area. If it is enclosed within a densely-populated area and an intermediate area it is considered to form part of the intermediate area.

2 NEW DEGREE OF URBANISATION

DEGURBA – Col 168

Periodicity: QUARTERLY

Short description: Degree of urbanisation

Codes	
1	Densely-populated area
2	Intermediate area
3	Thinly-populated area

Purpose

Variable needed to calculate employment and unemployment rate and main population characteristics separately for urban and rural areas.

Definitions

The concept of 'urbanisation' has been introduced to indicate the character of the area where the respondent lives. Three types of area have been identified and defined using a criterion of geographical contiguity in combination with a minimum population threshold based on population grid square cells of 1 km². These grid cells all have the same shape and surface, which avoids distortions caused by using units varying in size. The three types to be distinguished are:

- densely-populated (Code 1);
- intermediate (Code 2);
- thinly-populated (Code 3).

The degree of urbanisation creates a classification of all LAU2s (Local Administrative Units – Level 2) as follows:

Thinly populated area (alternative name: rural area):

- More than 50% of the population lives in rural grid cells.

Intermediate density area (alternative name: towns and suburbs/small urban area):

- Less than 50% of the population lives in rural grid cells; and
- Less than 50% lives in high-density clusters.

Densely populated area: (alternative names: cities/large urban area):

- At least 50% lives in high-density clusters⁽¹²⁾.

In the above, the following definitions are used:

- Rural grid cells:
Grid cells outside urban clusters.
- Urban clusters:
Clusters of contiguous⁽¹³⁾ grid cells of 1 km² with a density of at least 300 inhabitants per km² and a minimum population of 5 000.
- High-density cluster:
Contiguous⁽¹⁴⁾ grid cells of 1 km² with a density of at least 1 500 inhabitants per km² and a minimum population of 50 000 (alternative names: urban centre or city centre).

In order to properly classify LAU2s based on the grid cell approach described, a few additional correction rules must be provided:

- If the LAU2s do not have a raster equivalent, they are classified according to the share of territory in rural grid cells and high-density clusters.

12 Furthermore, each high-density cluster should have at least 75% of its population in densely populated LAU2s. This also ensures that all high-density clusters are part of at least one densely populated LAU2, even when this cluster represents less than 50% of the population of the LAU2.

13 Contiguity for urban clusters does include the diagonal (i.e. cells with only the corners touching). Gaps in the urban cluster are not filled (i.e. cells surrounded by urban cells).

14 Contiguity for high-density clusters does not include the diagonal (i.e. cells with only the corners touching) and gaps in the cluster are filled (i.e. cells surrounded by high-density cells).

15 Please note that this threshold refers to the population in the LAU2, whereas the threshold used in the definition of an urban cluster refers to the set of contiguous grid cells – the cluster – which may cover cells belonging to several LAU2s.

- Thinly populated LAU2s may be classified as intermediate or densely populated due to border effects if rural grid cells cover most of the territory. For that reason, LAU2s with a population below 5 000 inhabitants⁽¹⁵⁾ and 90% of its area in rural grid cells are reclassified as rural areas.
- Very small densely populated LAU2s may be classified as thinly populated due to the coarse⁽¹⁶⁾ resolution of the population grid. For that reason, LAU2s with an area of less than 5 km² but with a share of surface outside rural grid cells higher than 30% are reclassified as intermediate density or densely populated according to the share of the correspondent cluster.

As LAU2s vary considerably in area, this methodology will lead to a closer match between a high-density cluster and densely populated LAU2s in countries with small LAU2s than in those with large LAU2s. To take this difference into account, the classification can be adjusted as follows:

- A densely populated LAU2 can be classified as intermediate as long as 75% of its high-density cluster population remains in densely populated LAU2s.
- An thinly populated or intermediate density LAU2 can be classified as densely populated if it belongs to a group of LAU2s with a political function and if the majority of the population of this group of LAU2s lives in a high-density cluster.

A LAU2 consists of municipalities or equivalent units in the 28 EU Member States and EFTA countries and corresponds to the following entities:

Belgium	Gemeenten/Communes
Bulgaria	Naseleni mesta
Czech Republic	Obce
Denmark	Kommuner
Germany	Gemeinden
Estonia	Vald, Linn
Greece	Demotiko diamerisma/Koinotiko diamerisma
Spain	Municipios
France	Communes
Ireland	DEDs/Wards
Croatia	
Cyprus	Dimoi, koinotites
Latvia	Pilsētas, novadi, pagasti
Lithuania	Seniūnijos
Luxembourg	Communes
Hungary	Települések
Malta	Kunsilli
Netherlands	Gemeenten
Austria	Gemeinden

Poland	Gminy
Portugal	Freguesias
Romania	Communes, Municipiu, Orajse
Slovenia	Občine
Slovakia	Obce
Finland	Kunnat/Kommuner
Sweden	Kommuner
United Kingdom	Wards (or parts thereof)
Turkey	Köy
Iceland	Sveitarfélag
Norway	Kommuner
Switzerland	Gemeinden/Communes/Comuni

Note: This new methodology of classifying urban and rural areas has been agreed by DG Regional Policy, DG Agriculture and Rural Development and Eurostat. It replaces the methodology used in the LFS so far. The older methodology can be consulted in previous versions of the explanatory notes.

The definition of urban clusters is drawn from the new methodology to classify urban and rural regions developed and agreed by DG Regional Policy, DG Agriculture and Rural Development, Eurostat and the JRC in 2010. The definition of high-density clusters is drawn from work done in 2011 by the OECD and DG Regional Policy on a new metropolitan area definition.

3 HOW TO UPDATE THE NEW DEGREE OF URBANISATION

The new degree of urbanisation (DEGURBA) has been applied to the local administrative units⁽¹⁷⁾ (LAU) as of 1 January 2011. It will have to be updated to take into account the possible changes in the LAU boundaries. This can be done by reapplying the full methodology or by applying a simpler approach which does not rely on using geographical information systems. This simpler approach is particularly suitable for relatively minor changes in the LAU boundaries. This section describes this simpler method to update the DEGURBA.

LAU boundaries change in three different ways: mergers, boundary shifts and splitting. The most common change to LAUs in the last decade is merging, boundary shifts are less common and splitting is least common. Therefore, this section starts with a detailed description of how to deal with mergers. The second part focuses on boundary shifts. The last part provides a simple approach to splitting.

¹⁶ 'Coarse' in relation to the small area of these particular LAU2s.

¹⁷ In most cases, LAU level 2 was classified. In some cases, where the LAU2s are small and little to no data is available at that level, level 1 was classified instead. In a few cases, the matching with the political functions of the densely populated areas meant that LAU1s were used for densely populated areas, while LAU2s were used for thinly populated and intermediate areas.

3.1 Merging LAU

3.1.1 Merging LAUs with the same degree of urbanisation

The new degree of urbanisation is additive, meaning that if two LAUs are classified as low density, classifying both LAUs together will also make them low density (idem for the two other degrees).

If two or more LAU2s of the same degree of urbanisation merge, the new merged LAU should remain in the same degree.

3.1.2 Merging LAUs with different degrees of urbanisation

The new degree of urbanisation treats the densely populated areas or cities in a specific manner, which means that merges between a thinly populated or intermediate density area and a densely populated area have to be addressed in a particular manner.

3.1.3 Merges with a densely populated area

The new DEGURBA specifies that each high-density cluster should have at least 75% of its population covered by a densely populated LAU2. This implies that a densely populated area can (in relatively rare cases) have less than 50% of its population inside a high-density cluster. Therefore, even if a merge leads to a drop of the share of population in a high-density cluster to below 50%, the new LAU will most likely have to be densely populated to ensure that at least 75% of the population of the high-density cluster remains included in a densely populated area.

The new DEGURBA foresees a method to match the densely populated area with a geographic area which has administrative functions. As the merging of the LAU will lead to the administrative function covering both the old and the new LAU, this link should be maintained in the new LAU.

The new DEGURBA is also linked to a city data collection (the Urban Audit). Therefore, all changes in the densely populated area should be mirrored in the Urban Audit. Therefore, these changes should be made in consultation with the national Urban Audit coordinators. These elements mean that:

All merges with a densely populated area should be classified as densely populated⁽¹⁸⁾.

3.1.4 Merges between thinly populated areas and intermediate density areas

These merges can be addressed in two simple ways: using the population in an urban cluster; and using the population of the LAUs.

1. If the population in the relevant urban cluster(s) is available in the list published by the Commission⁽¹⁹⁾ and the population in the relevant LAUs has not changed significantly since 2006, adding the population in an urban cluster for each of the LAUs and dividing it by the total population of the new LAU will determine the DEGURBA.

If more than 50% of the population of the new LAU lives in an urban cluster, the new LAU should be intermediate density.

If the population share is less than 50%, the new LAU should be thinly populated.

2. If the population in an urban cluster cannot be identified based on the list published by the Commission (due to previous changes) or if the population in these LAUs has changed significantly since 2006, the DEGURBA of the new LAU can be determined based on the population distribution between the LAUs.

If more than 50% of the population of the new LAU comes from thinly populated LAUs, the new LAU should be thinly populated.

If more than 50% of the population of the new LAU comes from intermediate density LAUs, the new LAU should be intermediate density.

3.2 Boundary shifts

Whereas merges can be dealt with perfectly by using a simple method, boundary shifts cannot always be as reliably addressed. In some rare cases, boundary shifts even between LAUs in the same degree of urbanisation can lead to a change in classification⁽²⁰⁾. Due to this complexity, a simple rule of thumb may be the most efficient approach.

If a LAU loses less than 25% of its population or gains less 50% of its population due to boundary shifts, the degree of urbanisation does not change.

This rule of thumb will probably cover 90% of all boundary shifts and ensures a maximum continuity in degree of urbanisation.

¹⁸ In exceptional cases, where the high-density cluster is close to the 50 000 population threshold and the merge leads to a very low population share living in the high-density cluster, the new LAU can be classified as thinly populated or intermediate (depending on the size of the urban cluster) if this LAU is simultaneously dropped from the Urban Audit.

¹⁹ For each LAU2, an estimate of the 2006 population inside an urban cluster and the total population is published on the RAMON website (Eurostat's metadata server). The 2006 figures should be used to keep consistency between the total population and the urban cluster population. The Commission will publish 2011 figures for the two types of clusters and the LAU when they are available. In most cases, using 2006 data instead of more recent data will make no difference in the classification.

²⁰ For example, two thinly populated areas have a number of small and medium-sized towns which contain in each case about 45% of their population. A number of these towns are shifted to the other area, tipping the population in urban clusters over 50%. This would lead to a thinly populated LAU2 becoming intermediate.

If this is not the case, a further investigation may be required. Three cases are described below.

3.2.1 Changes in DEGURBA can be excluded

For each LAU, the share of population in three types of grids cells is known. This share allows us to identify situations where the DEGURBA cannot be changed.

For example, if a LAU that has 100% of its population in rural grid cells shrinks, it will always remain thinly populated. If that LAU adds population, it would have to more than double its population (with population living exclusively in an urban cluster) before it would become intermediate.

If a boundary shift leads to a change in population that is too small to tip the population share of the revised LAU below 50% of the relevant grid cells, it keeps the same degree of urbanisation.

3.2.2 Changes in DEGURBA are unlikely but cannot be excluded

If the boundary shifts lead to a change in population that is theoretically sufficient to tip the share of population below or above 50%, but the shift is between LAUs with the same degree of urbanisation, than the same degree of urbanisation should be kept.

3.2.3 Changes in DEGURBA are likely

In some cases, changes in DEGURBA are likely. Take for example, if a city annexes a suburb located in a neighbouring LAU. The city (densely populated area) gains a small share of population (DEGURBA unchanged). The intermediate area loses 30% of its population and that population it lost was located in an urban cluster (suburb). The population in the revised LAU now has less than 50% of its population living in an urban cluster and thus becomes thinly populated.

If this occurs, it cannot be assessed purely on population shares of the original LAU. Two simple methods can be used in these situations:

- 1 Look at the map with the urban clusters and high-density clusters and the LAU boundaries to determine whether the shift in boundary is likely to change the population share per cluster in the revised LAU.
- 2 Look at a local map to determine whether the boundary shifts primarily affect rural areas, suburban or urban areas.

3.3 Splitting LAU

This type of change is relatively rare. Therefore, the main recommendation is one of continuity, i.e. give the same degree of urbanisation to all the new LAUs.

If a LAU is split, the new LAUs should get the same degree of urbanisation as the old LAU.

If there are concerns that the new LAUs may have different urban structures, the same approaches described for boundary shifts can be used:

- 1 Check the population share per grid cell for the old LAU. For example, if the old LAU has 100% of its population in rural grid cells, splitting will have no impact.
- 2 Check the pattern of urban clusters and high-density clusters on the map.
- 3 Check the urban structure on a local map.

3.4 Conclusion

This section provides an overview of how to identify the degree of urbanisation of LAUs that have changed since 2011 without using geographic information systems (GIS). The Commission will update the degree of urbanisation when a complete 2011 population grid becomes available and apply it to the most recent LAU boundary set available.

3.5 Summary table

Merging LAUs		
Merging the same degree of urbanisation	Merging densely populated areas with other areas	Merging thinly populated and intermediate areas
1 merged with 1 = 1 2 merged with 2 = 2 3 merged with 3 = 3	1 merged with 2 = 1 1 merged with 3 = 1	2 merged with 3 = 2 or 3 depending on population share in urban clusters or in original LAUs
Boundary shifts		
Rule of thumb: If a LAU loses less than 25% of its population or gains less 50% of its population due to boundary shifts, the degree of urbanisation does not change		
Changes excluded	Changes unlikely	Changes likely
Change in population too small to change degree of urbanisation	Change in population is bigger but unlikely to change degree of urbanisation	Boundary shifts target a specific type of grid cells or urban structure
Splitting LAUs		
Splitting 1 = 1 and 1 Splitting 2 = 2 and 2 Splitting 3 = 3 and 3		

4 UN PRINCIPLES AND RECOMMENDATIONS

Principles and Recommendations for Population and Housing Censuses, Revision 2. 2008. UN Publication Sales No. E.07.XVII.8

Locality (core topic)

2.78. For census purposes, a locality should be defined as a distinct population cluster (also designated as inhabited place, populated centre, settlement and so forth) in which the inhabitants live in neighbouring sets of living quarters and that has a name or a locally recognised status. It thus includes fishing hamlets, mining camps, ranches, farms, market towns, villages, towns, cities and many other population clusters that meet the criteria specified above. Any departure from this definition should be explained in the census report as an aid to the interpretation of the data.

2.79. Localities as defined above should not be confused with the smallest civil divisions of a country. In some cases, the two may coincide. In others, however, even the smallest civil division may contain two or more localities. On the other hand, some large cities or towns may contain two or more civil divisions, which should be considered as segments of a single locality rather than separate localities.

2.80. A large locality of a country (that is to say, a city or a town) is often part of an urban agglomeration, which comprises the city or town proper and also the suburban fringe or thickly settled territory lying outside, but adjacent to, its boundaries. The urban agglomeration is therefore not identical with the locality but is an additional geographical unit, which may include more than one locality. In some cases, a single large urban agglomeration may comprise several cities or towns and their suburban fringes. The components of such large agglomerations should be specified in the census results.

Urban and rural (core topic)

2.81. Because of national differences in the characteristics that distinguish urban from rural areas, the distinction between the urban and the rural population is not yet amenable to a single definition that would be applicable to all countries or, for the most part, even to the countries within a region. *Where there are no regional recommendations on the matter*⁽²¹⁾, countries must establish their own definitions in accordance with their own needs.

2.82. The traditional distinction between urban and rural areas within a country has been based on the assumption that urban areas, no matter how they are defined, provide a different way of life and usually a higher standard of living than are found in rural areas. In many industrialised countries, this distinction has become blurred and the principal difference between urban and rural areas in terms of the circumstances of living tends to be a matter of the degree of concentration of population. Although the differences between urban and rural ways of life and standards of living remain significant in developing countries, rapid urbanisation in these countries has created a great need for information related to different sizes of urban areas.

2.83. Hence, although the traditional urban-rural dichotomy is still needed, classification by size of locality can usefully supplement the dichotomy or even replace it where the major concern is with characteristics related only to density along the continuum from the most sparsely settled areas to the most densely built-up localities.

2.84. Density of settlement may not, however, be a sufficient criterion in many countries, particularly where there are large localities that are still characterised by a truly rural way of life. Such countries will find it necessary to use additional criteria in developing classifications that are more distinctive than a simple urban rural differentiation. Some of the additional criteria that may be useful are the percentage of the economically active population employed in agriculture, the general availability of electricity and/or piped water in living quarters and the ease of access to medical care, schools and recreation facilities. For certain countries where the facilities noted above are available in some areas that are still rural since agriculture is the predominant source of employment, it might be advisable to adopt different criteria in different parts of the country. Care must be taken, however, to ensure that the definition used does not become too complicated for application to the census and for comprehension by the users of the census results.

2.85. Even in the industrialised countries, it may be considered appropriate to distinguish between agricultural localities, market towns, industrial centres, service centres and so forth, within size-categories of localities.

2.86. Even where size is not used as a criterion, the locality is the most appropriate unit or classification for national purposes as well as for international comparability. If it is not possible to use the locality, the smallest administrative unit of the country should be used.

2.87. Some of the information required for classification may be provided by the census results themselves, while other information may be obtained from external sources. The use of information provided by the census (as, for example, the size-class of the locality or the percentage of the population employed in agriculture), whether alone or in conjunction with information from other sources, means that the classification will not be available until the relevant census results have been tabulated. If, however, the census plans call for the investigation of a smaller number of topics in rural areas than in urban areas or for a greater use of sampling in rural areas, the classification must be available before the enumeration takes place. In these cases, reliance must be placed on external sources of information, even if only to bring up to date any urban-rural classification that was prepared at an earlier date.

2.88. The usefulness of housing census data (for example, the availability of electricity and/or piped water) collected simultaneously with, or not too long before, the population census should be kept in mind. Images obtained by remote sensing may be of use in the demarcation or boundaries of urban areas when density of habitation is a criterion. For assembling information from more than one source, the importance of a well-developed system of geocoding should not be overlooked.

Principles and Recommendations for a Vital Statistics System, Revision 2 (2001)

UN Publication SALES NO.: 01.XVII.10

Locality

Locality is defined as a distinct population cluster (also designated as inhabited place, population centre, settlement etc.), in which the inhabitants live in neighbouring sets of living quarters and which has a name or a locally recognised status⁽²²⁾. Localities should not be confused with the smallest civil divisions of a country. In some cases, the two may coincide. In others, however, even the smallest civil division may contain two or more localities.

97. In compiling vital statistics, the basis for geographic tabulation may be either place of occurrence, i.e., the locality, major civil division or other geographic place where the event occurred, or place of usual residence, i.e., the locality where the person in question (parent, decedent, marriage partner, etc.) usually resides (for recommendations regarding the basis for vital statistics geographical tabulations, see annex).

98. The recommended classification of localities by size class is as follows:

All localities
500 000 or more inhabitants
100 000 – 499 000 inhabitants
50 000 – 99 999 inhabitants
20 000 – 49 999 inhabitants
10 000 – 19 999 inhabitants
5 000 – 9 999 inhabitants
2 000 – 4 999 inhabitants
1 000 – 1 999 inhabitants
500 – 999 inhabitants
200 – 499 inhabitants
Less than 200 inhabitants
Population not in localities

99. As noted in the Handbook of Household Surveys (Revised Edition⁽²³⁾), this comprehensive classification would usually be too detailed for the tabulation of survey results. Only when surveys are based on very large sample sizes would they have sufficient numbers to permit such detailed classification. For survey results, therefore, consideration may be given to a much more condensed classification.

Urban and rural

100. Urban/rural is a derived topic of high priority in a vital statistics system which is based on geographic information obtained from place of occurrence (topic 3) and place of usual residence (topic 6). Because of national differences in the characteristics which distinguish urban from rural areas, the distinction between urban and rural population is not amenable to a single definition applicable to all countries. For this reason, each country should decide which areas are to be classified as urban and which as rural, in accordance with their own circumstances.

101. For national purposes as well as for international comparability, the most appropriate unit of classification is the size of locality (as defined in para. 98 above) or, if this is not possible, the smallest administrative division of the country (for a discussion of definition and classification of locality as well as of the urban/ rural division, see locality (topic 4)).

102. It must be recognised, however, that a distinction by urban and rural based solely on the size of the population of localities does not always offer a satisfactory basis for classification, especially in highly industrialised countries. Some countries have developed a classification of localities based not on population size alone but on 'socioeconomic structure of the population', in the localities. Others have tried to express degrees of urbanisation by use of indices of population density etc.

103. The difficulty of applying these criteria to vital statistics lies in the fact that data on the relevant variables are seldom available.

22 See Principles and Recommendations for Population and Housing Censuses, Revision 1 (United Nations publication, Sales No. E. 98.XVII.8), paras. 1.2 and 2.49.

23 United Nations publication, Sales No. E.83.XVII.13.

5 DEFINITIONS USED OF URBAN AREAS IN UNPD WORLD URBANIZATION PROSPECTS (2009)

UN Methodology to identify urban population

Country	Sources	Definition
Belgium	Census of 1981; Estimate for 1976; UN Estimates for 1961, 2000 and 2006.	Cities, urban agglomerations and urban communes following the 1977 administrative reclassification (2000 and 2006 UN estimates are based on communes with 5 000 inhabitants or more).
Bulgaria	Censuses of 1956, 1965, 1975, 1985, 1992 and 2001; Estimates for 1960, 1970, 1980 and 2003.	Towns, that is, localities legally established as urban.
Czech Republic	Censuses of 1950, 1961, 1970, 1980, 1991 and 2001.	Municipalities with 2 000 inhabitants or more.
Denmark	Censuses of 1950, 1955, 1960, 1965 and 1970; Estimates for 1990, 2000, 2001, 2003 and 2004; Registers of 1976, 1981 and 2006.	Localities with 200 inhabitants or more.
Germany	Censuses of 1950, 1961 and 1987; Estimates for 1970, 1980, 1981, 1982, 1983, 1984, 1985, 1986, 1987, 1988, 1989, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004 and 2005.	Communes (kreisfreie Städte and Kreise) with population density equal or greater than 150 inhabitants per km ² .
Estonia	Censuses of 1959, 1970, 1979, 1989 and 2000; Estimates for 1994 and 2007.	Population of officially designated urban settlements including cities, cities without municipal status and towns.
Ireland	Censuses of 1951, 1956, 1961, 1966, 1971, 1981, 1986, 1991, 1996, 2002 and 2006.	Persons living in population clusters of 1 500 or more inhabitants (aggregate town areas, including suburbs).
Greece	Censuses of 1951, 1961, 1971, 1981, 1991 and 2001.	Municipalities and communes in the largest population centre with 10 000 inhabitants or more, plus 18 urban agglomerations as defined in the 1991 census: Greater Athens (Athínai), Thessaloniki, Pátrai, Iraklion, Vólos, Chania, Irannina, Chalkida, Agrino, Kalamata, Katerini, Kerkyra, Salamina, Chios, Egio, Rethymno, Ermoúpolis and Spárti.
Spain	Censuses of 1950, 1960, 1970, 1981, 1991 and 2001.	Municipalities (municipios) with 10 000 inhabitants or more.
France	Censuses of 1954, 1962, 1968, 1975, 1982, 1990 and 1999.	Communes with 2 000 inhabitants or more living in houses separated by at most 200 meters; or communes in which the majority of the population is part of a multi-communal agglomeration as defined above.
French Guiana	Censuses of 1954, 1961, 1967, 1982, 1990 and 1999.	Not available.
Réunion	Censuses of 1954, 1967, 1974, 1982, 1990 and 1999.	Communes with 2 000 inhabitants or more living in houses separated by at most 200 metres; or communes in which the majority of the population is part of a multi-communal agglomeration.
Martinique	Censuses of 1954, 1961, 1982, 1999 and 2006; Estimate for 1967.	For the census in 1990 and 1999, total population of the Commune of Fort-de-France plus the agglomerations of other communes with 2 000 inhabitants or more.
Guadeloupe	UN Estimates for 1954, 1961, 1967, 1974, 1982, 1990 and 1999.	Localities with 2 000 inhabitants or more.
Italy	Censuses of 1951, 1961, 1971, 1981, 1991 and 2001.	Communes with 10 000 inhabitants or more.
Cyprus	Censuses of 1956, 1960, 1973, 1982, 1992 and 2001.	Six district towns and the suburbs of Nicosia and Larnaka.
Latvia	Censuses of 1959, 1970, 1979, 1989 and 2000; Estimates for 1981, 1986, 1990, 1991, 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2001, 2002, 2003, 2004, 2005 and 2006.	Cities and urban-type localities, officially designated as such, usually according to criteria based on the number of inhabitants and predominance of non-agricultural workers and their families.

Country	Sources	Definition
Lithuania	Censuses of 1959, 1970, 1979, 1989 and 2001; Estimates for 1950, 2005 and 2007.	Cities and urban-type localities, officially designated as such, according to criteria based on the number of inhabitants and the predominance of non-agricultural workers and their families.
Luxembourg	Censuses of 1961, 1971, 1981 and 1991; Estimates for 1992, 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000 and 2003.	Communes with 2 000 inhabitants or more.
Hungary	Censuses of 1960, 1970, 1980, 1990 and 2001; Estimate for 2005.	Budapest and all legally designated towns.
Malta	Censuses of 1957, 1967, 1985, 1995 and 2005.	No official definition available. In the present publication, localities with 2 500 inhabitants or more.
Netherlands	UN Estimates for 1950, 1960, 1970, 1980, 1990 and 2000.	Due to several historical changes in definition of urban areas, urban is defined in this publication as municipalities with 20 000 inhabitants or more.
Austria	Censuses of 1951, 1961, 1971, 1981, 1991 and 2001; Estimates for 2005 and 2007.	Based on the concept of a functional and structural urban area (Stadtregion) consisting of an urban core area (Kernzone) and surrounding urban areas (Außenzone). The surrounding urban areas is defined as an area in which at least 30% of working adults commute daily into the corresponding core area.
Poland	Censuses of 1950, 1960, 1970, 1978, 1988 and 2002; Estimate for 2005.	Towns and settlements of urban nature (for example, workers' settlements, fishermen's settlements and health resorts).
Portugal	Censuses of 1950, 1960, 1981, 1991 and 2001.	Agglomerations of 2 000 inhabitants or more.
Romania	Censuses of 1956, 1966, 1977 and 1992; Estimates for 2002 and 2003.	Municipalities and towns with certain urban socio-economic characteristics.
Slovenia	Censuses of 1953, 1961, 1971, 1981, 1991 and 2002; Estimate for 2006.	Settlements with over 3 000 inhabitants; settlements with 2 000-3 000 inhabitants and a surplus of workplaces; settlements that are seats of municipalities and have at least 1 400 inhabitants and a surplus of workplaces; suburban settlements that have fewer inhabitants but are spatially and functionally integrated with the city.
Slovakia	Censuses of 1950, 1961, 1970, 1980, 1991 and 2001.	Cities with 5 000 inhabitants or more.
Finland	Censuses of 1950, 1960, 1970, 1975, 1980, 1985, 1990 and 2000; Estimate for 2004.	Urban communes.
Sweden	Censuses of 1950, 1960, 1965, 1970, 1975, 1980, 1985 and 1990; Estimates for 1995 and 2000; Register of 2005.	Built-up areas with at least 200 inhabitants and where houses are at most 200 metres separated from each other (according to the administrative divisions of 2003).
United Kingdom	Censuses of 1951, 1961 and 1971; Estimates for 1981, 1991 and 2001.	England and Wales: urban areas formed of continuously built-up urban land, the largest urban areas forming agglomerations in which urban subdivisions are recognised. Scotland: urban localities, similar in concept to urban areas in England and Wales, except that the urban localities as defined do not extend across local government district boundaries. Northern Ireland: urban area formed of continuously built up land, forming an agglomeration in which urban subdivisions are recognised. Prior to 1974 (England and Wales) and 1975 (Scotland) the definition of urban and rural was based on administrative boundaries. The census figures refer to the population present. In order to achieve consistency in the definition of an urban area it was assumed for the 2001 census that an urban area in England and Wales had a population of at least 1 500 people; in Northern Ireland it was 1 000 people or more; while in Scotland it was assumed that all settlements and localities were assumed to be urban.

