THE NEW DEGREE OF URBANISATION

EXECUTIVE SUMMARY

This paper describes the new degree of urbanisation classification as approved by the Eurostat Labour Market Working Group in 2011. This classification distinguishes three types of areas: densely, intermediate and thinly populated areas. The paper explains the background of new approach, the new method and the advantages of the new classification. A more detailed explanation of the methodology is also provided as are the original and the new guidance note on the degree of urbanisation.

This new classification can be found on the EUROSTAT RAMON metadata server :

http://ec.europa.eu/eurostat/ramon/miscellaneous/index.cfm?TargetUrl=DSP_DEGURBA

or on CIRCABC for tables (MS Access mdb format) and maps (PDF) at European level:

 https://circabc.europa.eu/d/d/workspace/SpacesStore/33fc35be-5ebc-4ba5-91ee-dc6744cc2c98/DGUR_2011_Tables_Maps_Europe.zip

For tables (Excel) and maps (PDF) per country:

https://circabc.europa.eu/d/d/workspace/SpacesStore/b32fcc21-c566-45ea-8795-2a9ffe2ac58c/DGUR_2011_Tables_Maps_Countries.zip

1. BACKGROUND

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, intermediate and thinly populated areas. This definition was based on the population size and density and contiguity of local administrative units level 2 (LAU2, see annex 1 for official names of this level in each country and 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.

In 2010, a new urban-rural regional typology was published in the Eurostat regional yearbook 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 based on population density, while the new method is based on grid cells of 1km^2. As the grid cells are identical in size, this new method eliminates the distortions of using LAU2s that vary in size.

This new urban-rural regional typology created the opportunity to revise the definition of rural LAU2s and harmonise it with the definition of thinly populated areas as used in the degree of urbanisation.

The review of the Urban Audit created the opportunity to revise the definition, boundary and number of cities and harmonise it with the densely populated areas as used in the degree of urbanisation.

2. THE NEW APPROACH

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

(1)   Densely populated area: (alternate name: cities or large urban area)

      – At least 50% lives in high-density clusters[1]

(2)   Intermediate density area (alternate name: towns and suburbs or small urban area)

      – Less than 50% of the population lives in rural grid cells and

      – Less than 50% lives in a high-density cluster

(3)   Thinly populated area (alternate name: rural area)

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

This classification can be downloaded. For tables (MS Access .mdb format) and maps (PDF) at European level:

https://circabc.europa.eu/d/d/workspace/SpacesStore/33fc35be-5ebc-4ba5-91ee-dc6744cc2c98/DGUR_2011_Tables_Maps_Europe.zip

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

For tables (Excel) and maps (PDF) per country:

https://circabc.europa.eu/d/d/workspace/SpacesStore/b32fcc21-c566-45ea-8795-2a9ffe2ac58c/DGUR_2011_Tables_Maps_Countries.zip

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

Figure 1: Cork, Ireland: Type of cluster and degree of urbanisation
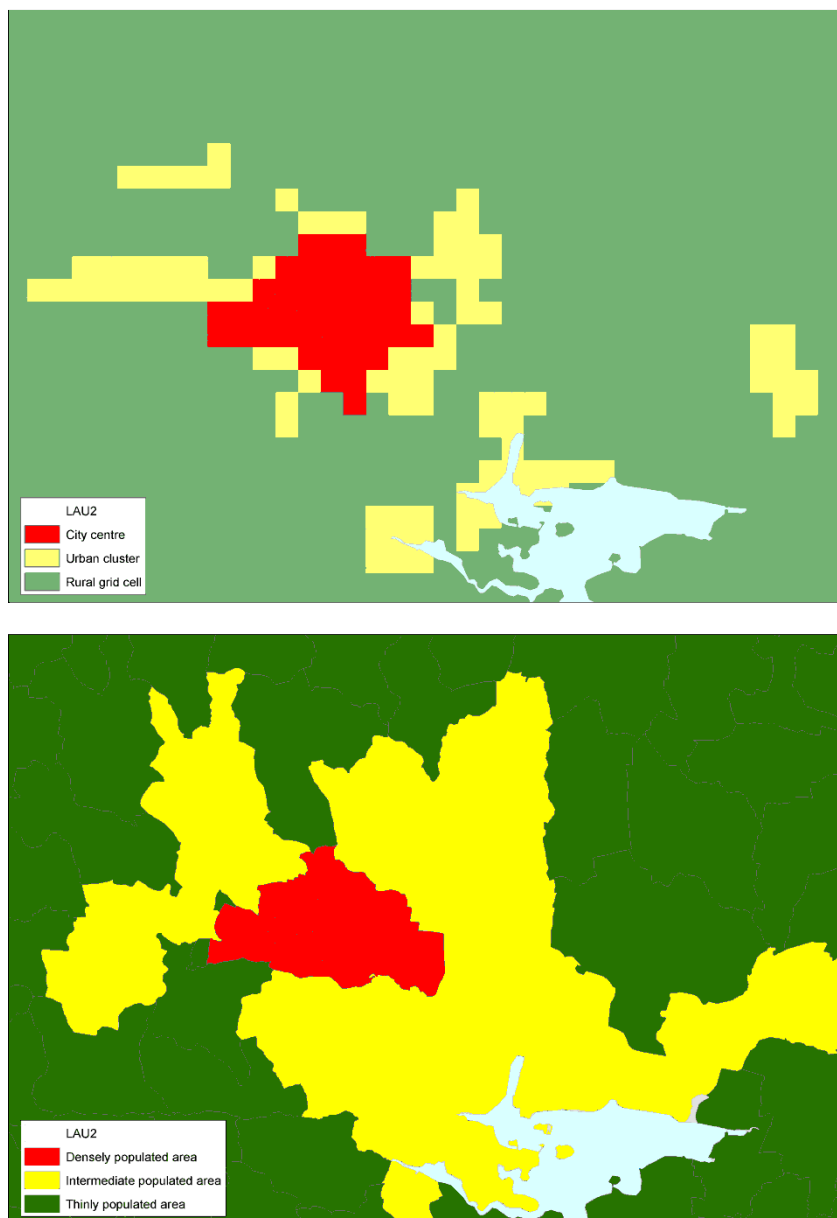
2.1. Definitions:

Rural grid cells:

Grid cells outside urban clusters

Urban clusters:

clusters of contiguous[2] grid cells of 1km^2 with a density of at least 300 inhabitants per km^2 and a minimum population of 5 000.

High-density cluster (or city centre):

Contiguous[3] grid cells of 1km^2 with a density of at least 1 500 inhabitants per km^2 and a minimum population of 50 000.

2.2. 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

2.2.1. 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 NSI 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.

2.2.2. 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 critical review this classification and to make, where necessary, adjustments to the classification.

3. ADVANTAGES OF THE NEW APPROACH

The two main advantages are greater comparability and a harmonisation of spatial concepts.

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[2]   Contiguity includes the diagonal. For more detail see section 4.5.

[3]   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.

3.1. Greater comparability and less distortion

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 was underestimated 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: $1km^2$ 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.

3.2. Harmonising four spatial concepts

Prior to the new degree of urbanisation four similar but not identical urban-rural spatial concepts were used: rural areas (OECD), thinly populated area, densely populated area, and Urban Audit City.

The OECD method classifies all LAU2 with a population density below 150 inhabitants per km^2 as rural. This is different from the original degree of urbanisation method which also took into account population size and contiguity. This OECD method will also classify large LAU2s with a city as rural due to low population density.

The Urban Audit covered a large sample of cities with at least 50 000 inhabitants. These cities were not selected in a harmonised manner and not all cities were included. The Urban Audit was not compatible with the densely populated areas identified by the original LFS method.

Figure 2: Four conflicting spatial concepts

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

The new degree of urbanisation ensures that rural areas equal thinly populated areas. This also means that rural regions are identified using the same approach (share of population in rural grids). For more information see Eurostat Regional Yearbook 2010.

The high-density clusters were used to identify all cities with an urban centre with at least 50 000 inhabitants. As a result the Urban Audit now covers all those cities and the densely populated areas are identical to the Urban Audit cities.

Figure 3: Harmonised spatial concepts

New Degree of urbanisation
Thinly populated ← Rural areas
Intermediate density
Densely populated → Urban Audit Cities

4. 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: 1) updates because the LAU2 boundaries have changed and 2) updates because the population distribution has changed.

4.1. 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: 1) applying the methodology as described here to the new layer of LAU2s or 2) 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.

4.2. 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 $1km^2$ 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 or ten 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 population of reference year 2011. A complete population grid should be available for this reference year in 2014, allowing the modification to be used starting in January 2015.
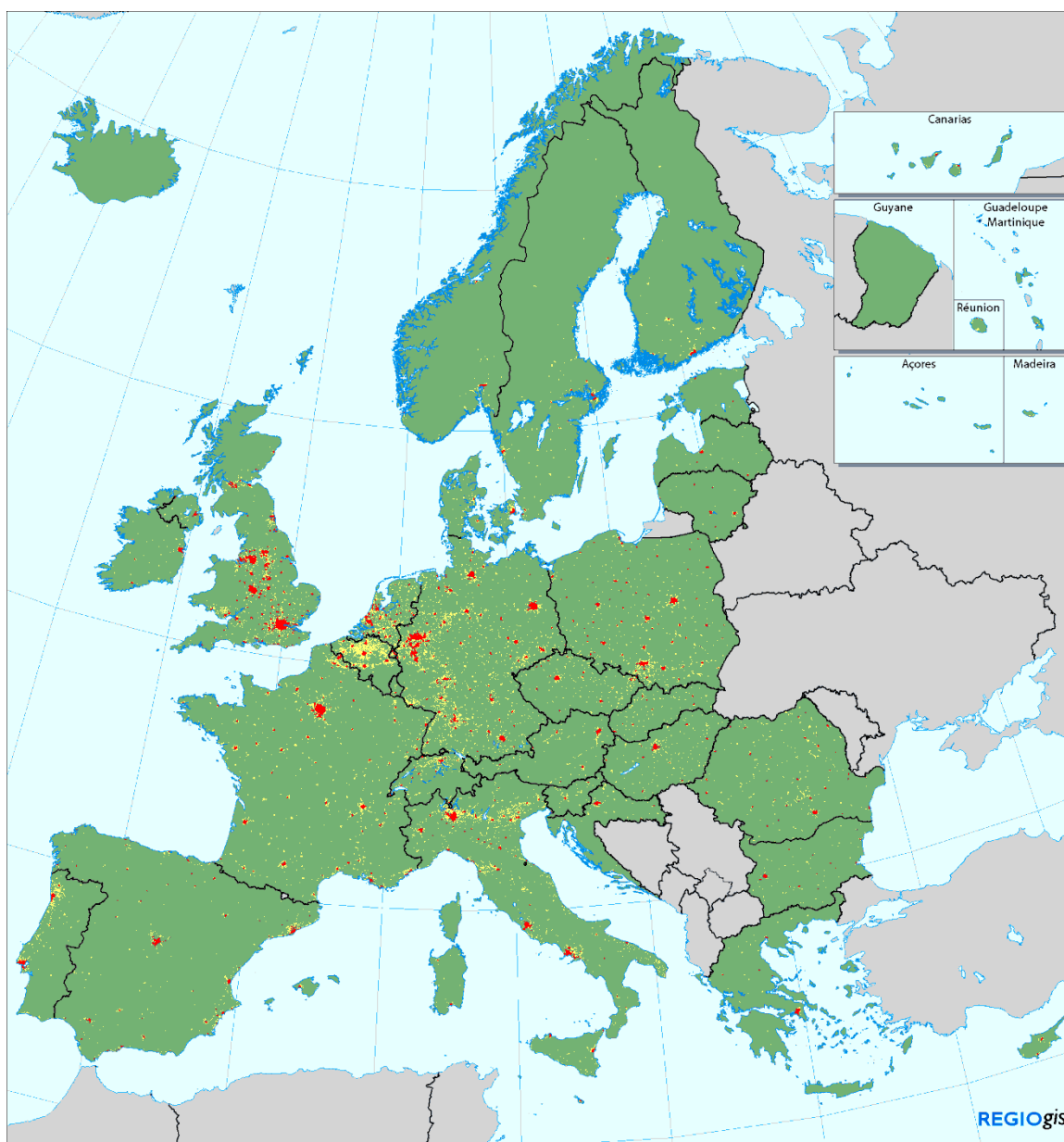
Clusters 2011

- 🟥 City Centres
- 🟨 Urban Clusters
- 🟩 Rural Grid Cells

Sources: EFGS, JRC, Eurostat, LandScan, REGIO-GIS

0   1,000 Km

© EuroGeographics Association for the administrative boundaries

Type of Clusters
- City centres
- Urban clusters
- Rural grid cells

0   100 km

©Euro Geographics Association for the administrative boundaries

REGIOgis

10
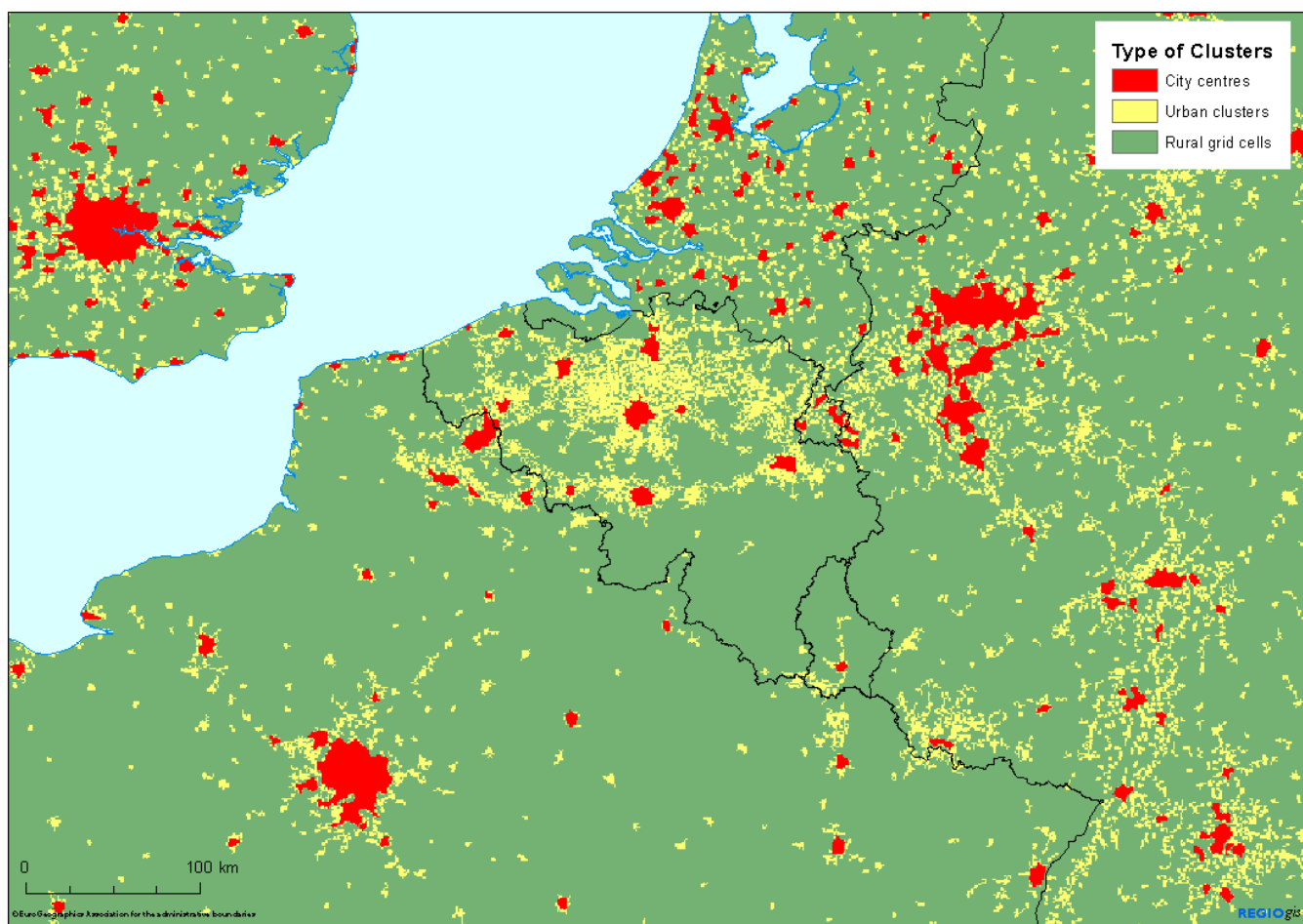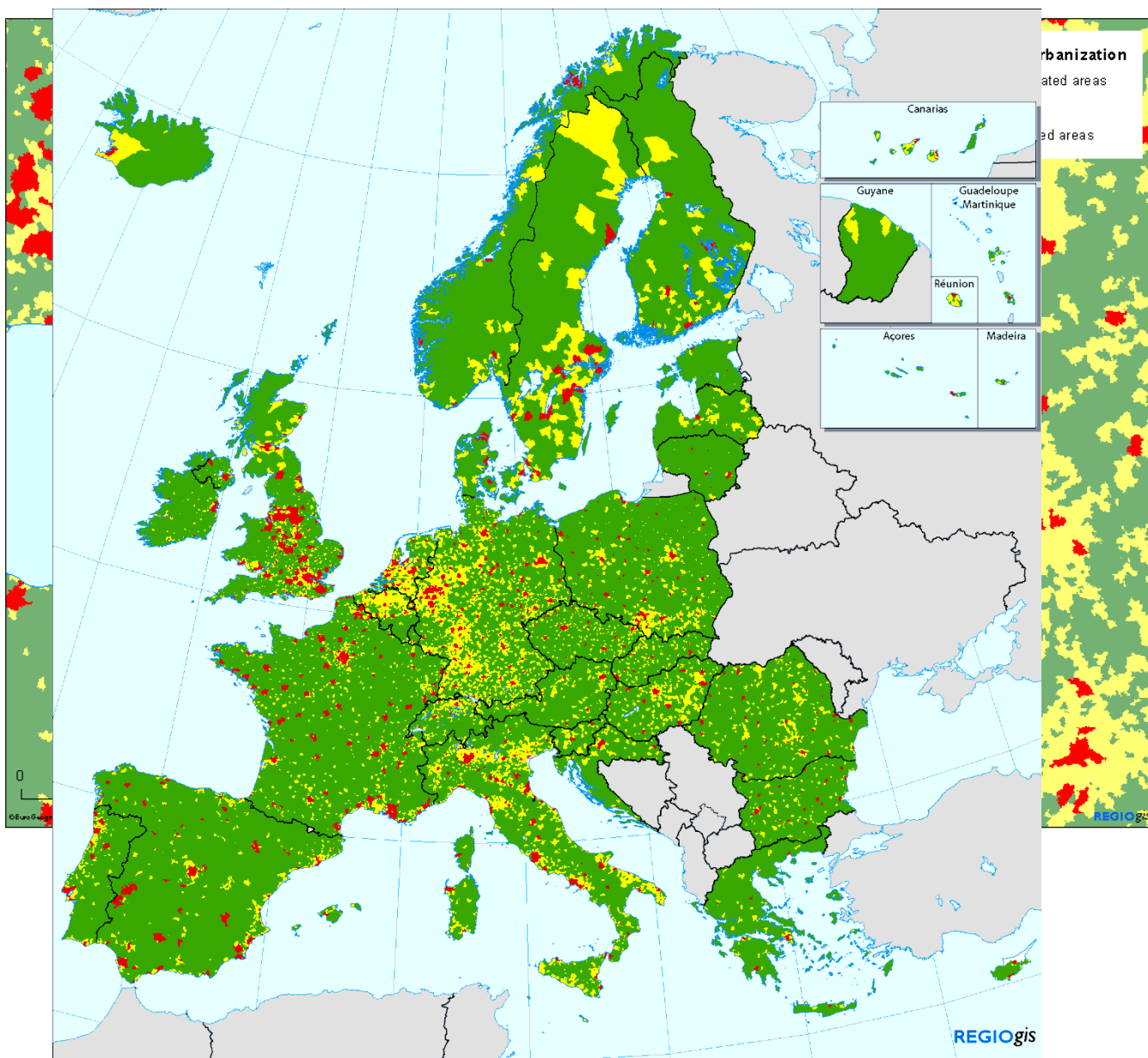
Degree of Urbanisation 2011

- 🟥 Densely populated areas
- 🟨 Intermediate
- 🟩 Thinly populated areas
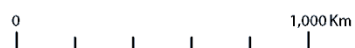- No Data

Sources: EFGS, JRC, Eurostat, LandScan, REGIO-GIS

0   1,000 Km

© EuroGeographics Association for the administrative boundaries

5. DETAILED METHODOLOGY OF THE NEW DEGREE OF URBANISATION CLASSIFICATION

5.1. Introduction

This document describes in detail the methodology described in the Labour Force Survey Guidance note on degree of urbanisation (2011). It explains how to classify local administrative units (LAU2) in thinly (rural), intermediate (towns and suburbs/small urban) and densely populated (cities/large urban) areas. This methodology has been jointly developed by DG AGRI and DG REGIO with support of JRC and Eurostat.

5.2. 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 those '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[4]. The disaggregation grid has a resolution of 100x100 m, but has been aggregated to a cell size of 1 km^2 for this analysis.

Because the CORINE land cover map does not cover the four French overseas regions and Madeira and Açores in Portugal, the population disaggregation grid does not cover these regions. Therefore, the classification for these regions has been done based on other sources (LandScan[5] data) which DG REGIO has acquired.

5.3. Rural grid cells and urban clusters

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

Rural grid cells: Grid cells outside urban clusters

Urban clusters:

clusters of contiguous[6] grid cells of 1km^2 with a density of at least 300 inhabitants per km^2 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 km^2 are selected. Second contiguous cells (see figure below).

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[4] 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. A final version of the 2006 population grid is expected in the first half of 2012.

[5] http://www.ornl.gov/sci/landscan/

[6] Contiguity includes the diagonal.

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.

Population in group

		Population: 3050
Population: 6000		

Urban Cluster

The resulting raster of urban clusters is available here:
https://circabc.europa.eu/d/d/workspace/SpacesStore/a932d937-82fe-48b6-9c14-1d549ac494f3/URB_CLST_2006.zip

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

5.4. High-density clusters (city centres)

To make 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[7] grid cells of 1km^2 with a density of at least 1 500 inhabitants per km^2 and a minimum population of 50 000.

The raster of high-density clusters is available here:

https://circabc.europa.eu/d/d/workspace/SpacesStore/d4ded292-c66b-4927-ae8e-2c6f2b606b46/HDENS_CLST_2006.zip

The method to identify high-density cluster is similar to the method of the urban clusters. First, all cells with a population density of more than 1500 inhabitants per km^2 are

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[7] 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).

selected. Second, contiguous high-density cells are grouped. In contrast to the urban clusters, diagonal contiguity is not included. The last steps fills gaps and smoothes sharp borders (see figure below). This is done by applying the majority rule iteratively. This means that if five or more of cells surrounding a cell belonged to a single high-density cluster, it was added to that high density cluster. This was repeated until no more cells were added.

Clusters before filling	Clusters after filling.	Clusters with at least 50 000
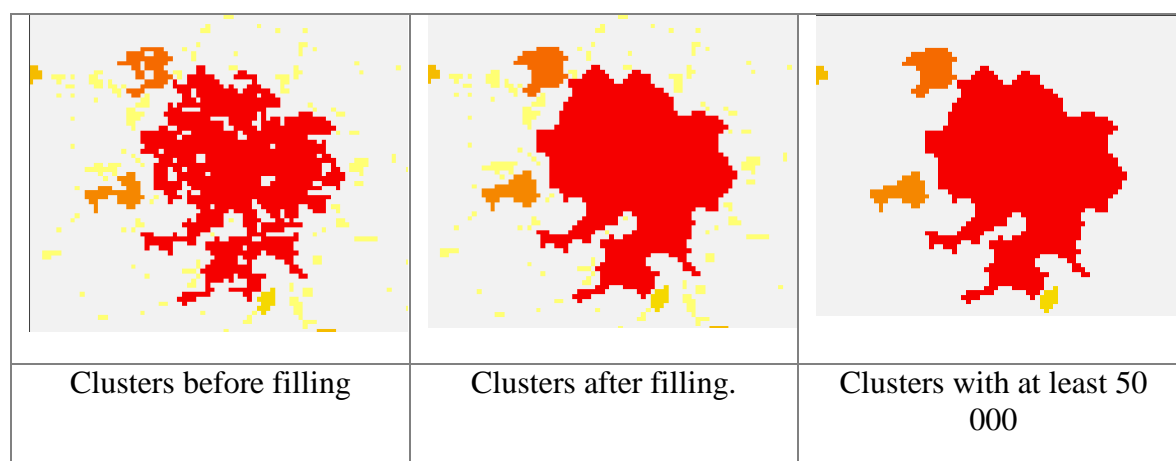
The high-density clusters can be overlaid with LAU2s, which allows us to calculate the share of population of each LAU2 living in a high-density cluster. If more than 50% lives in a high-density cluster, the LAU2 is classified as densely populated.

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.

5.5. 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 cells with number 2, 4, 5 and 7 can be included. Cells with number 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.

5.6.   Completing and correcting the classifications

To classify LAU2s based on a population grid, the LAU2s have to be transformed into a

Figure 1: Contiguous grid cells

1	2	3
4		5
6	7	8

raster as well, which can lead to a few situations which require an ad-hoc solution

5.6.1. LAU2 without an 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.

5.6.2. 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 5000 inhabitants and with 90% or more of its area in rural grid cells were reclassified as thinly.

Small LAU2s classified as "Rural area" 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.

5.6.3. 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.

5.6.4. 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 REGIO has acquired the

LandScan population grid for these regions and used that grid to classify the LAU2s of these regions.

5.7. 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.

•   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 population of this group of LAU2s lives in a high-density cluster.

An example of the application of the first rule is Luxembourg

High Density Cluster and densely populated area (Luxembourg)
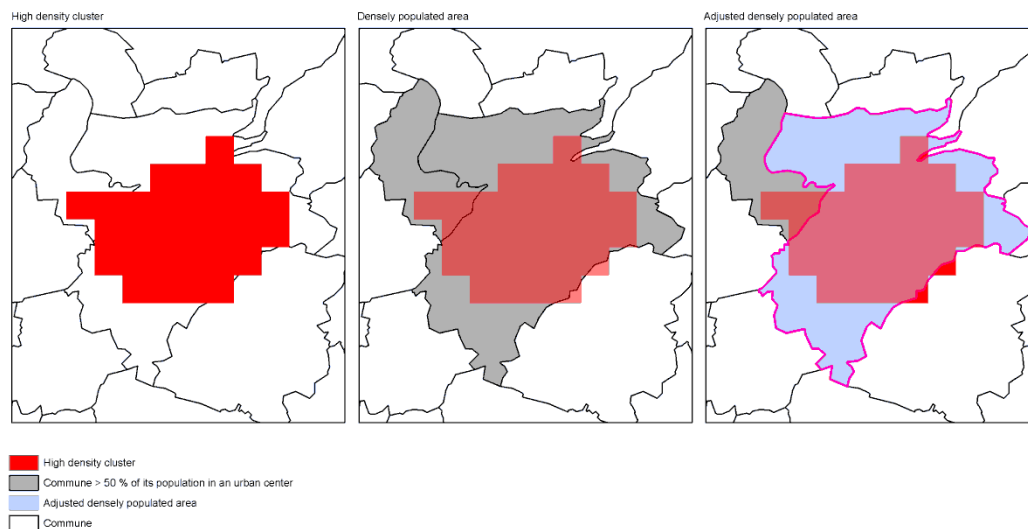
An example of the second rule is Toulouse.

High Density Cluster and densely populated area (Toulouse)

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

5.8.   Other adjustments
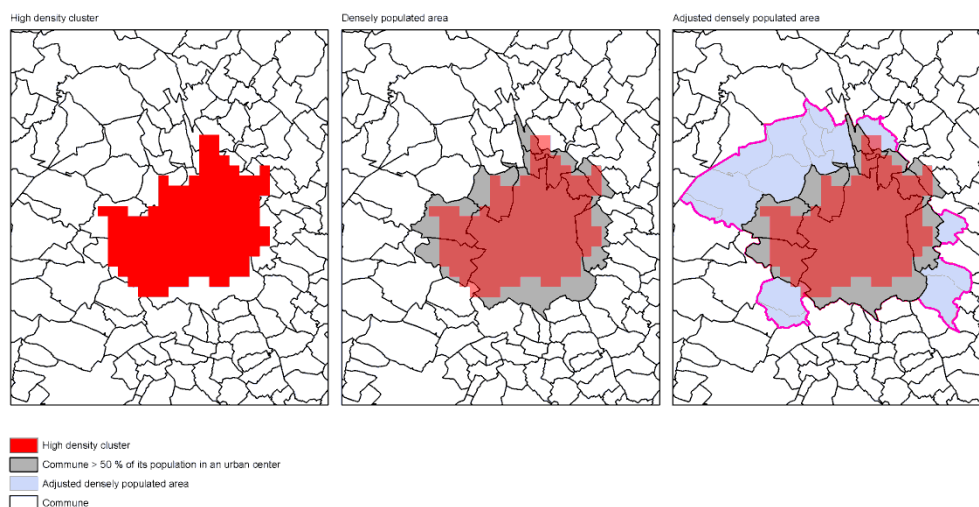
This method can be distorted by two elements: 1) the type of grid used and 2) the geography of the area.

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 or bodies of water. 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 cities of Namur and Trier were not identified by the method due to their geography. At the request of the respective NSIs, these cities were added.

In some cases, NSIs have asked to drop a city. Some of the reasons to drop a city were that it lacked centre functions, 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 dropped.

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

6. ANNEX I: ORIGINAL DEGREE OF URBANISATION

DEGURBA **Col 174** : *Degree of urbanisation*

Periodicity

QUARTERLY

Short description

Degree of urbanisation

Filter

(Everybody)

Codes: (Y = Yes   N = No)

Column	Code	Description	2006+	2001-2005	1998-2000	1992-1997	1983-1991
174		*Degree of urbanisation*					
	1	Densely-populated area	Y	Y	Y	Y	N
	2	Intermediate area	Y	Y	Y	Y	N
	3	Thinly-populated area	Y	Y	Y	Y	N

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, as follows:
> densely-populated (Code 1)
> intermediate (Code 2)
> 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
The 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 square kilometres, 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.

7. ANNEX II: 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

Filter

Everybody

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[8]

In the above, the following definitions are used:

- Rural grid cells: Grid cells outside urban clusters

- Urban clusters: clusters of contiguous[9] 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[10] 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 classify properly 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.

- 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 5000 inhabitants[11] and 90% of its area in rural grid cells are reclassified as rural area.

- Very small densely populated LAU2s may be classified as thinly populated due to the coarse[12] resolution of the population grid. For that reason, LAU2s with an area 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 following:

- A densely populated LAU2 can be classified intermediate as long as 75% of its high-density cluster population remains in densely populated LAU2s.

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[8] 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.

[9] 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).

[10] 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).

[11] 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.

[12] "Coarse" in relation to the small area of these particular LAUS2s.

- 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 population of this group of LAU2s lives in a high-density cluster.

A LAU2 consists of municipalities or equivalent units in the 27 EU Member States and correspond to the following entities:

Belgium	Gemeenten/Communes
Czech Republic	Obce
Denmark	Kommuner
Germany	Gemeinden
Estonia	Vald, Linn
Greece	Demotiko diamerisma/Koinotiko diamerisma
Spain	Municipios
France	Communes
Ireland	DEDs/Wards
Italy	Comuni
Cyprus	Dimoi, koinotites
Latvia	Pilsētas, novadi, pagasti
Lithuania	Seniūnijos
Luxembourg	Communes
Hungary	Települések
Malta	Kunsilli
The Netherlands	Gemeenten
Austria	Gemeinden
Poland	Gminy
Portugal	Freguesias
Slovenia	Občine
Slovakia	Obce
Finland	Kunnat /Kommuner
Sweden	Kommuner
United Kingdom	Wards (or parts thereof)
Bulgaria	Naseleni Mesta
Croatia	
Romania	Communes+Municipiu+Orajse
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 for Regional Policy, DG for 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 for Regional Policy, DG for Agriculture and Rural Development, Eurostat and JRC in 2010. The definition of high-density clusters is drawn from work by the OECD and the DG for Regional Policy on a new metropolitan area definition done in 2011.