COUNCIL OF
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COVER NOTE

from:	Secretary-General of the European Commission, signed by Mr Jordi AYET PUIGARNAU, Director
date of receipt:	17 January 2013
to:	Mr Uwe CORSEPIUS, Secretary-General of the Council of the European Union
No Cion doc.:	SWD(2013) 3 final - Part II/II
Subject:	Commission Staff Working Document
	Assessing territorial impacts: Operational guidance on how to asses regional and local impacts within the Commission Impact Assesment System

Delegations will find attached Commission document SWD(2013) 3 final - Part II/II.

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Encl.: SWD(2013) 3 final - Part II/II

Brussels, 17.1.2013
SWD(2013) 3 final

Part II/II

COMMISSION STAFF WORKING DOCUMENT

Assessing territorial impacts: Operational guidance on how to assess regional and local impacts within the Commission Impact Assessment System

7.   ANNEX

This annex provides an overview of regional and local typologies. These typologies have been developed for analytical and statistical purposes. The regional and local typologies are also linked, which ensures greater consistency and data availability. (See section 2 and chapter 14 of the Eurostat 2012 regional yearbook[17] for more detail.)

In addition, the annex provides an overview of sources of sub-national data, tools developed to support impact assessments and models with a sub-national component held by the Joint Research Centre.

1.   DEFINITIONS OF REGIONAL TYPOLOGIES

All these typologies have been published in a Regional Focus (2011/01)[18] and on the Eurostat website 'Statistics explained'[19]. These typologies will be updated after each change in the NUTS classifications. Changes in the methodology or in its application will discussed with the relevant services prior to their application. Updates will be published on both websites.

1.1.   Urban-rural typology

Urban-rural typology of NUTS3 regions
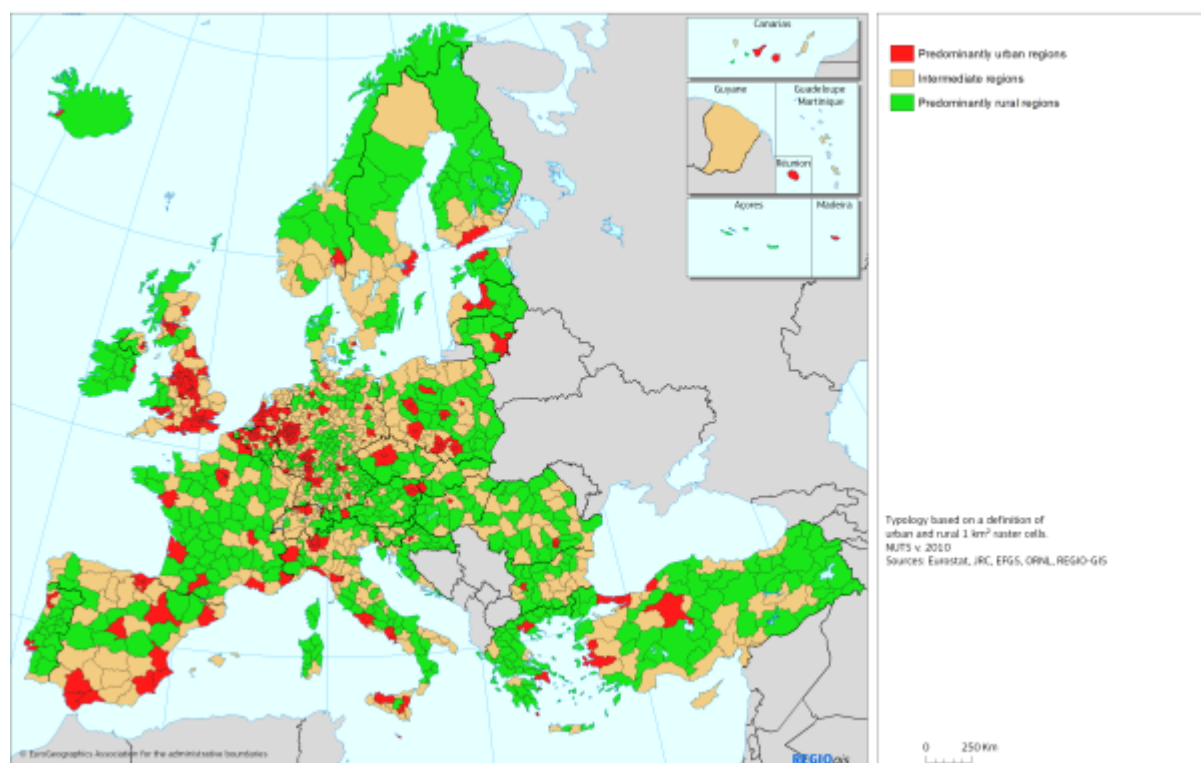
The urban-rural including remoteness typology classifies all NUTS 3 regions according to criteria based on population density and population distribution (urban-rural). This classification is combined with a distinction between areas located close to city centres and areas that are remote. It creates five categories of NUTS 3 regions:

1.   predominantly urban regions;
2.   intermediate regions, close to a city;

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3. intermediate, remote regions;
4. predominantly rural regions, close to a city;
5. predominantly rural, remote regions.

The classification is completed in four steps: identify rural area population, classify NUTS 3 regions and adjust classification based on the presence of cities. The last step assesses which regions are remote.

Population in rural areas

This typology uses a simple two-step approach to identify population in rural areas:

1. rural areas are all areas outside urban clusters;
2. urban clusters are clusters of contiguous[20] grid cells of 1 km2 with a density of at least 300 inhabitants per km2 and a minimum population of 5 000.

Regional classification

NUTS 3 regions are classified on the basis of the share of population in rural areas:

- predominantly rural if the share of population living in rural areas is higher than 50 %;

- intermediate, if the share of population living in rural areas is between 20 % and 50 %;

- predominantly urban, if the share of population living in rural areas is below 20 %.

To resolve the distortion created by extremely small NUTS 3 regions, regions smaller than 500 km^2 are combined for classification purposes with one or more of their neighbours.

Presence of cities

In a third step, the size of the urban centres in the region is considered:

- a predominantly rural region which contains an urban centre of more than 200 000 inhabitants representing at least 25 % of the regional population it becomes intermediate;

- an intermediate region which contains an urban centre of more than 500 000 inhabitants representing at least 25 % of the regional population becomes predominantly urban.

(See also the Eurostat regional yearbook 2010, pp.240-253 or Urban-rural typology).

1.2. Urban-rural typology including remoteness

This typology follows the same approach as above and adds a remoteness dimension to it.

Remoteness dimension

All predominantly urban regions are considered close to a city.

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[20]   Contiguity for urban clusters includes the diagonals (i.e. cells with only the corners touching). Gaps in the urban cluster are not filled (i.e. cells surrounded by urban cells).

A predominantly rural or intermediate regions is considered remote if less than half of its residents can drive to the centre of a city of at least 50 000 inhabitants within 45 minutes. If more than half of the regions' population can reach a city of at least 50 000, it is considered close to a city. For more details on the methodology please consult Regional Focus 01/2008[21].

Urban-rural typology of NUTS3 regions including remoteness
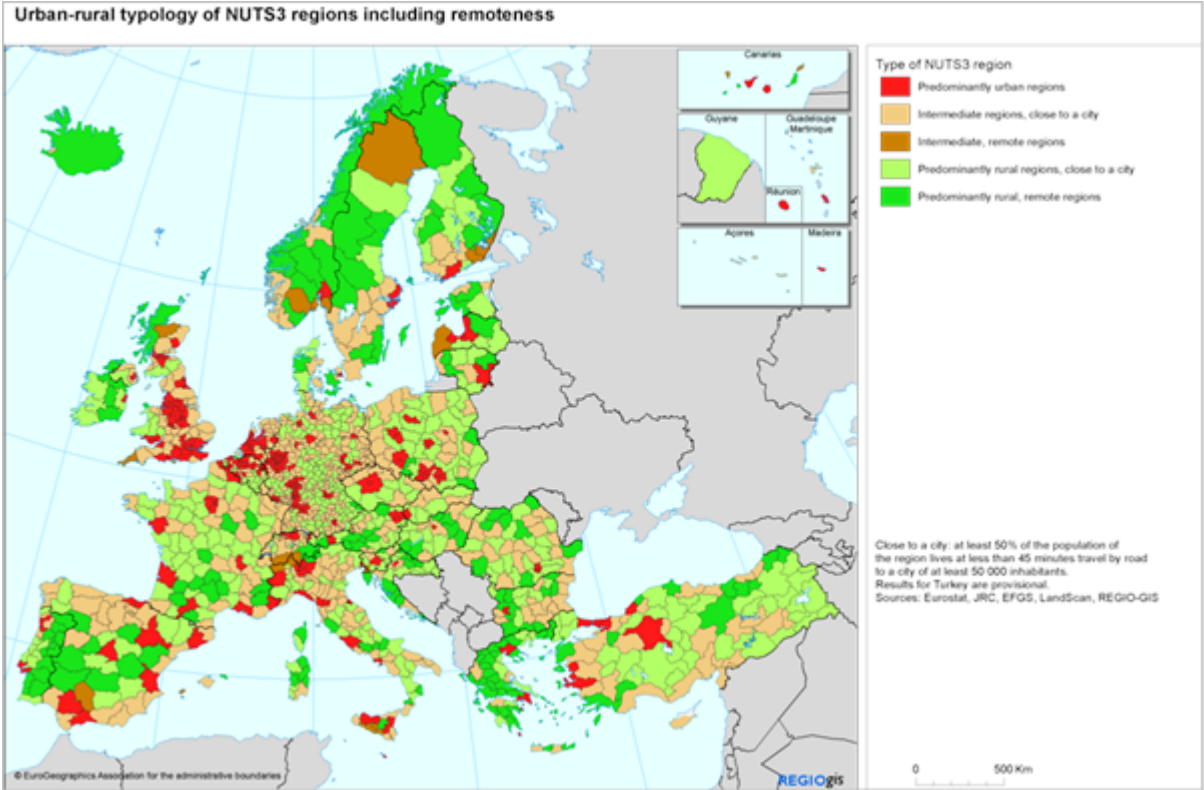
1.3. Metro regions

Typology of metro regions
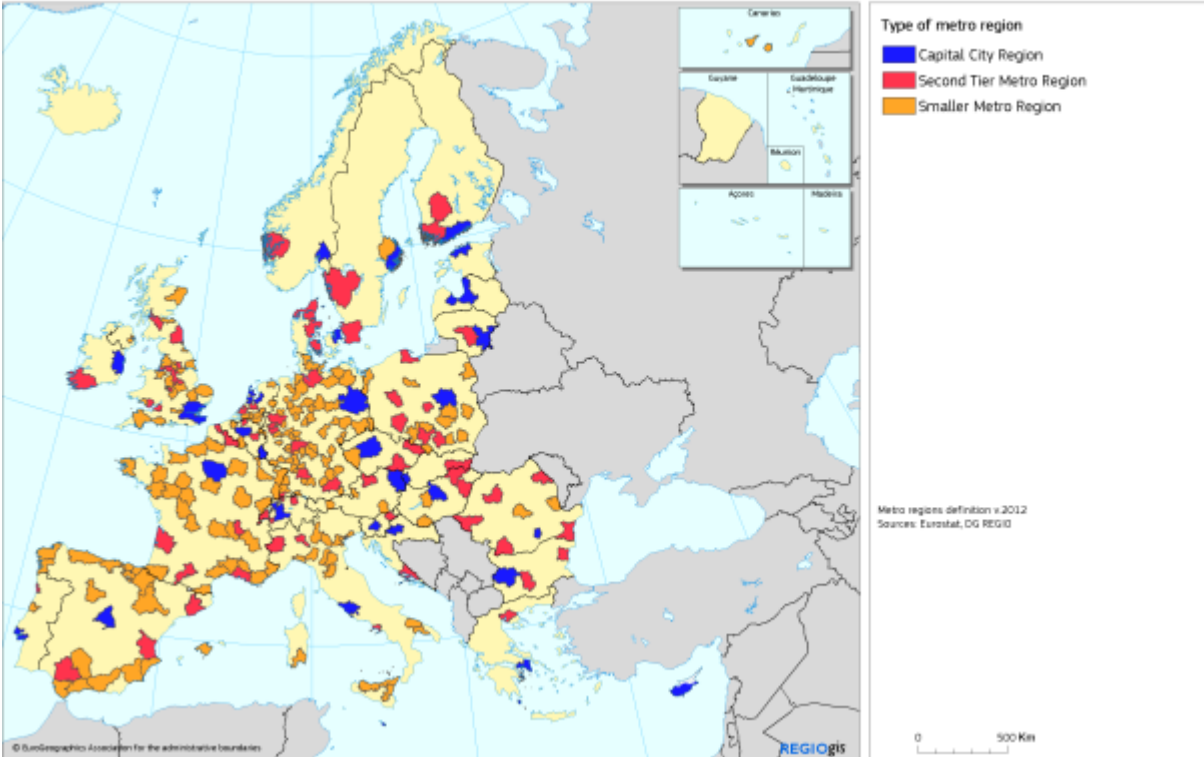
21   http://ec.europa.eu/regional_policy/information/focus/index_en.cfm

The NUTS 3-based typology of metro regions contains groupings of NUTS 3 regions used as approximations of the main metropolitan areas.

The initial methodology for the selection of the NUTS 3 components of the metro regions is based on the Urban Audit definition of Larger Urban Zones (LUZ). These LUZs contain the major cities and their surrounding travel-to-work areas. LUZs are defined as groupings of existing administrative areas (often LAU2 units). Their boundaries do not necessarily coincide with those of NUTS 3 regions. Consequently, NUTS 3 regions in which at least 50% of the regional population lives inside a given LUZ were considered to be the components of the metro region related to that LUZ.

Hence, the quality of the territorial approximation depends on the average size of the NUTS 3 regions concerned.

In cooperation with the OECD, refined versions of the methodology are being tested, using population distribution at a fine level of disaggregation (1 km²) to identify the cores of the metro regions. Census-based local commuting data are then used to define contiguous areas around the cores, where substantial levels of commuting to these cores occur.

This approach has resulted in revised definitions of the extent of several metro regions. The typology distinguishes three types of metro regions:

1.   capital city regions;
2.   second-tier metro regions;
3.   smaller metro regions.

The capital city region is the metro region which includes the national capital.

Second-tier metro regions are the group of largest cities in the country excluding the capital. For this purpose, a fixed population threshold could not be used. As a result, a natural break served the purpose of distinguishing the second tier from the smaller metro regions. The distinction between second tier and smaller metro regions may be adapted in future to provide a closer match with the distinctions used in, especially national, policy debates.

1.4. Border regions

Cross-border cooperation programme areas (ERDF, IPA and ENPI), 2007-2013
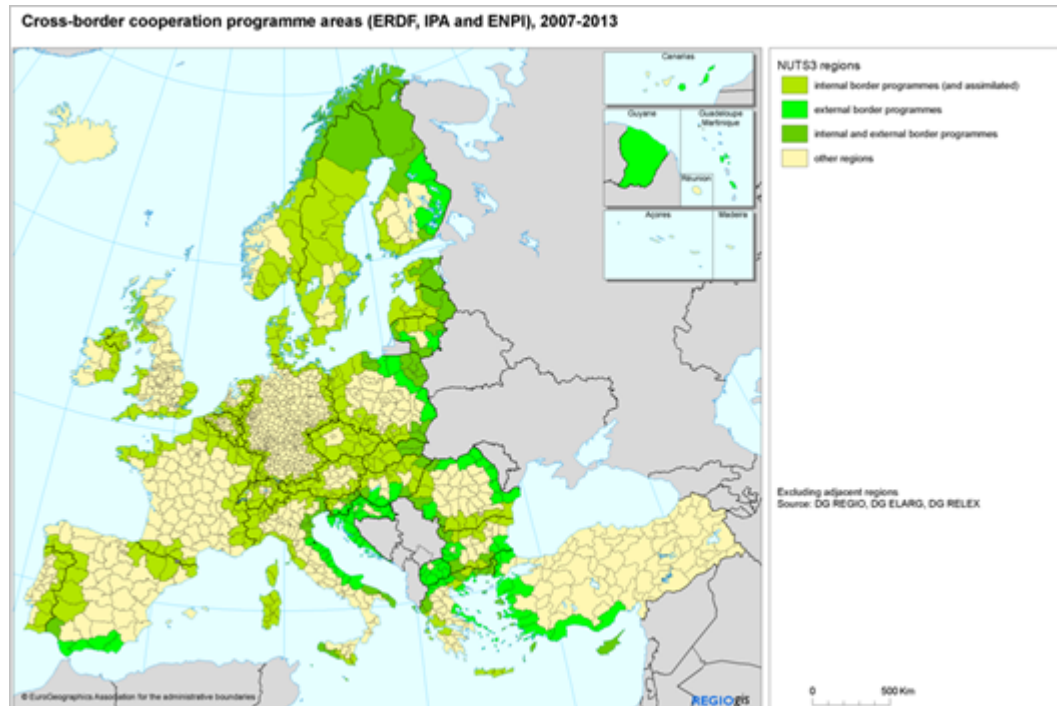
The NUTS 3-based selection of border regions refers to the regions participating in the core areas of cross-border cooperation programmes in the programming period 2007-2013.

This includes:

- programme areas of cross-border programmes co-financed by ERDF under the European territorial cooperation objective;

- areas of the cross-border cooperation component of IPA (Instrument for Pre-Accession Assistance);

- areas of the cross-border cooperation programmes within ENPI (European Neighbourhood and Partnership Instrument).

The typology lists regions according to the current NUTS classification (valid from 1/1/2008 to 31/11/2011). Some programme areas have been determined on the basis of a former NUTS classification. Due to NUTS boundary changes, some current NUTS 3 regions are only partly eligible as programme areas.

The typology does not consider areas adjacent to the core programme areas, i.e. the 'flexibility areas' referred to in Art. 21(1) of Regulation 1080/2006 of 05/07/2006.

Two main types of border regions can be distinguished:

1. internal border regions – these regions are located on borders between EU Member States and/or European Free Trade Area (EFTA) countries;
2. external borders – these regions participate in programmes involving countries outside both the EU and EFTA.

This typology will be updated to cover the new NUTS classification and the new Cohesion Policy programming period.

1.5. Mountain regions

Typology of mountain regions at NUTS3 level
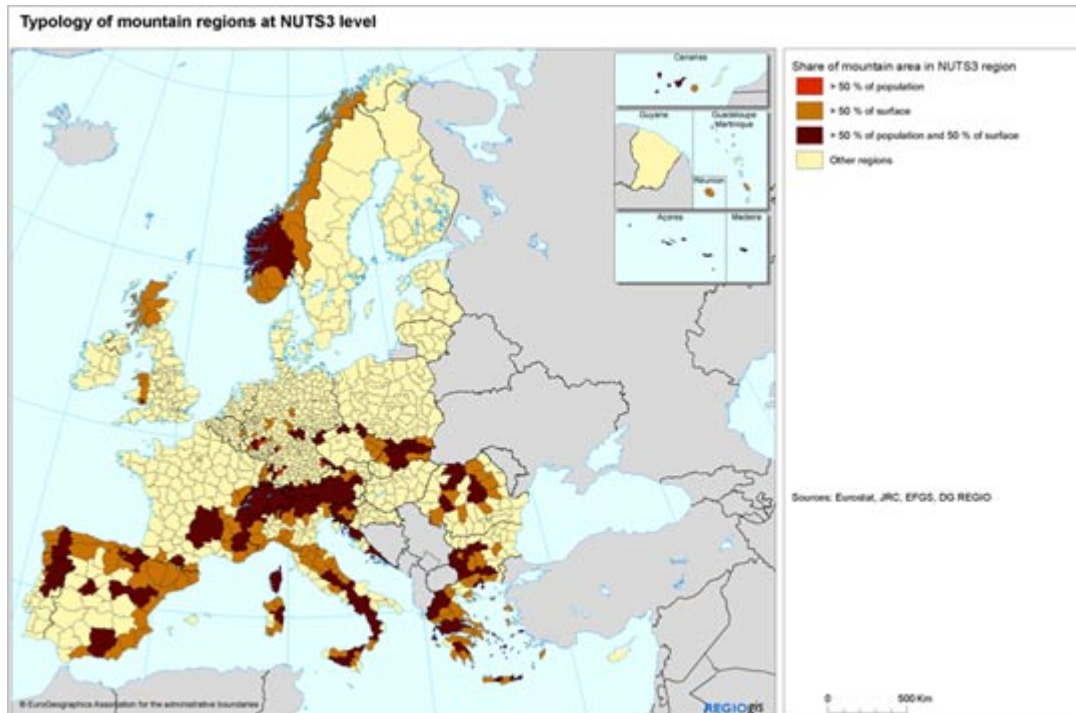
Mountain regions at NUTS 3 level are defined as regions in which more than 50% of the surface is covered by topographic mountain areas or in which more than 50% of the regional population lives in these topographic mountain areas.

The study on mountain areas in Europe[22] defines topographic mountain areas using the following criteria:

- above 2500m, all areas are included within the mountain delimitation;

- between 1500m and 2500m, only areas with a slope of over two degrees within a 3 km radius are considered mountainous.

Between 1000m and 1500m, areas had to justify one of two sets of criteria in order to be considered mountainous. The first of these is that the slope within a 3 km radius should exceed five degrees. If the slope is less steep than this, the area can still be considered mountainous if elevations encountered within a radius of 7 km vary by at least 300 meters. If neither of these two sets of criteria is met, the area is considered non-mountainous.

Between 300m and 1000m, only the latter of the two previous sets of criteria is applied. This means that only areas in which elevations encountered within a radius of 7 km vary by at least 300 meters are considered mountainous.

Below 300m, the objective was to identify areas with strong local contrasts in topography, such as Scottish and Norwegian fjords and Mediterranean coastal mountain areas. Selecting areas according to the standard deviation of elevations in the immediate vicinity of each appeared to be the best approach for the inclusion of these types of landscape. For each point of the digital elevation model, the standard deviation from the eight cardinal points surrounding it (North – North-East – East – South-East – South – South-West – West –

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[22]   http://ec.europa.eu/regional_policy/information/studies/archives_en.cfm#4

North-West) was calculated. If this standard deviation is greater than 50 meters, the landscape is sufficiently undulating to be considered mountainous despite its low elevation.

The typology of NUTS 3 mountain regions distinguishes three categories:

1. regions with more than 50% of their population living in mountain areas;
2. regions with more than 50% of their surface covered by mountain areas;
3. regions with more than 50% of their surface covered by mountain areas, and with more than 50% of their population living in mountain areas.

1.6. Island regions
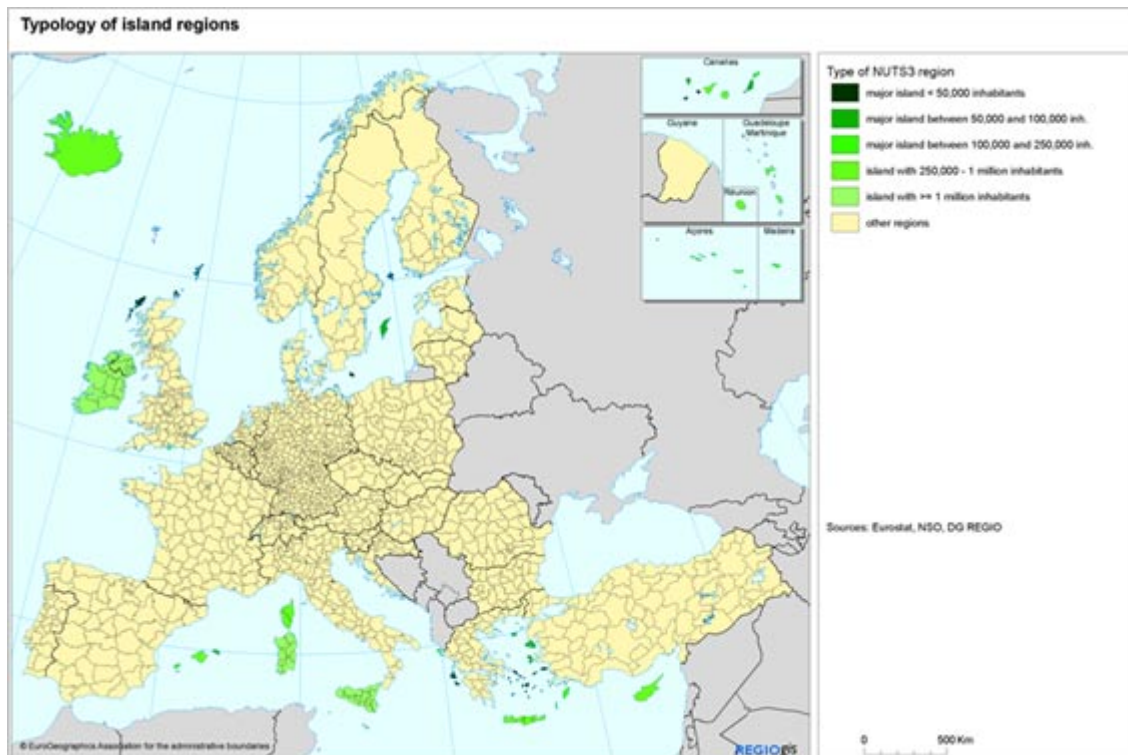
Island regions are NUTS 3 regions entirely covered by islands.

In this context, islands are defined as territories having:

- a minimum surface of 1 km²;

- a minimum distance between the island and the mainland of 1 km;

- a resident population of more than 50 inhabitants;

- no fixed link (bridge, tunnel, dyke) between the island and the mainland.

NUTS 3 island regions can correspond to a single island, or can be composed of several islands, or can be part of a bigger island containing several NUTS 3 regions.

The typology of NUTS 3 island regions distinguishes five categories, depending on the size of the major island related to the NUTS 3 region:

1. regions where the major island has less than 50 000 inhabitants;
2. regions where the major island has between 50 000 and 100 000 inhabitants;
3. regions where the major island has between 100 000 and 250 000 inhabitants;

4. regions corresponding to an island with 250 000 to 1 million inhabitants, or being part of such an island;

5. regions being part of an island with at least 1 million inhabitants.

1.7.   Sparsely-populated regions
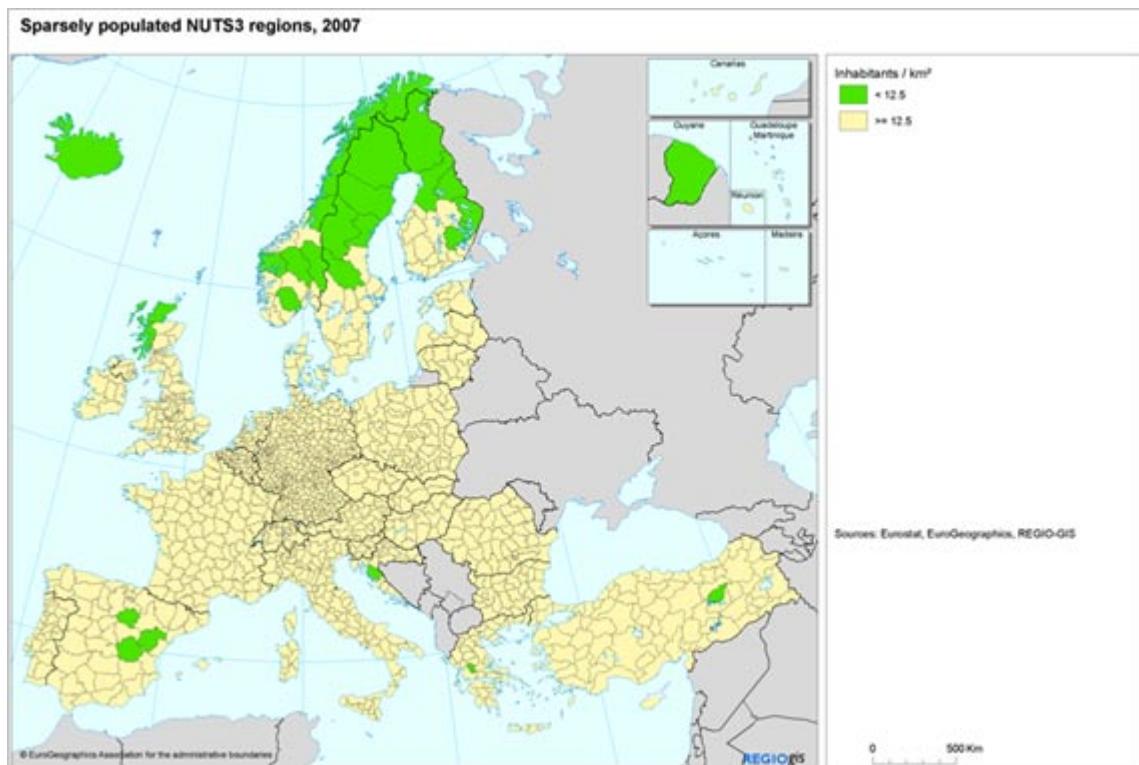
Sparsely-populated regions are regions with a population density below a certain threshold. Paragraph 30(b) of the Guidelines on national regional aid for 2007-2013 defines low population density regions as 'areas made up essentially of NUTS 2 geographic regions with a population density of less than 8 inhabitants per km², or NUTS 3 geographic regions with a population density of less than 12.5 inhabitants per km²'. In the Cohesion Report, the analysis was based on the NUTS 3 regions.

As a result, sparsely-populated areas are defined as NUTS 3 regions with a population density of fewer than 12.5 inhabitants per km².

1.8.   Outermost regions

Outermost regions are identified by Article 349 of the Consolidated Treaty on the Functioning of the European Union as Guadeloupe, French Guiana, Martinique, Réunion, Saint-Martin (i.e. the French overseas departments), the Azores, Madeira and the Canary Islands.
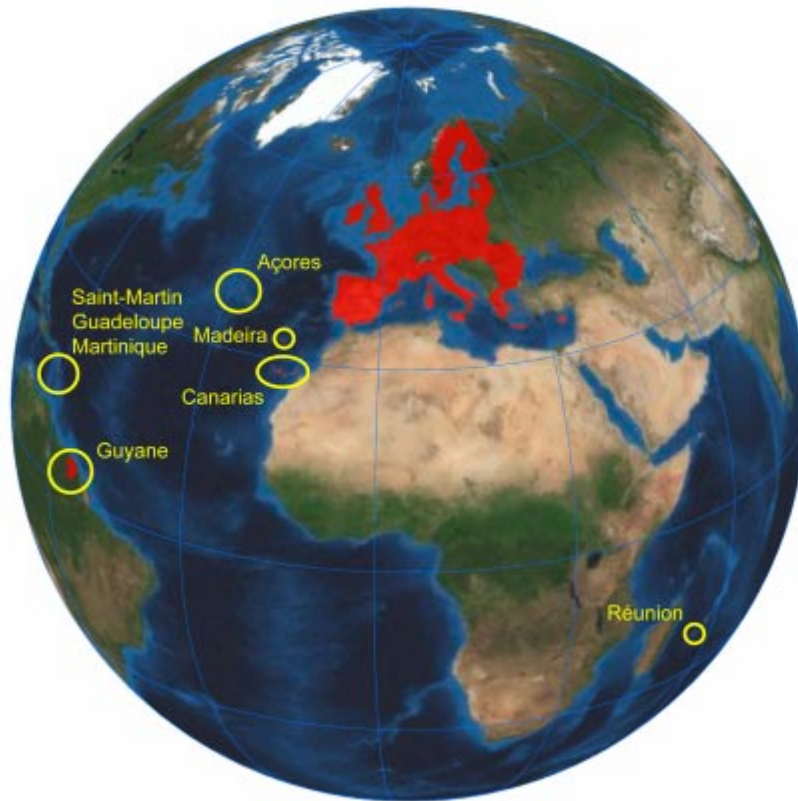
2. DEFINITION OF LOCAL TYPOLOGIES

This section presents two linked local typologies. They are linked because in both typologies, the cities are defined in an identical manner.

Both local typologies are also linked to regional typologies:

- The rural grid cells used in the degree of urbanisation are also used in the urban-rural regional typology.

- The cities are used to identify regions close to a city.

- The cities and commuting zones are used to identify the metro regions.

2.1. The degree of urbanisation

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

(a) Densely populated area: (alternate name: cities or large urban area)
→ At least 50% lives in a city centre

(b) 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 city centre

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

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

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

Figure 3: Cork, Ireland: Type of cluster and degree of urbanisation
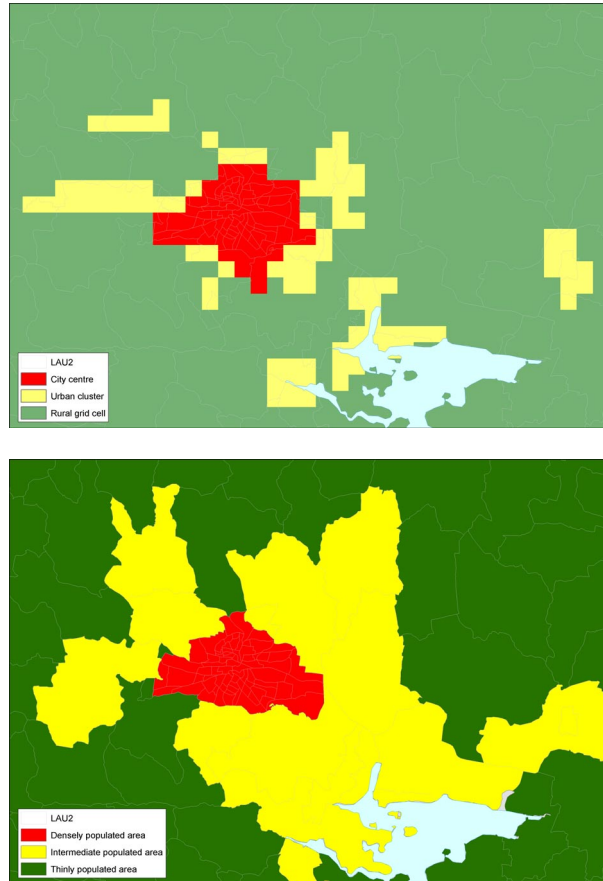
Definitions:

City centre (or high-density cluster):

→ Contiguous[23] grid cells of 1km2 with a density of at least 1 500 inhabitants per km2 and a minimum population of 50 000.

Urban clusters:

→ clusters of contiguous[24] grid cells of 1km^2 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

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[23]   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.

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

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

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.

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.

This new definition identified 885 cities with an urban centre of at least 50 000 inhabitants in the EU, Switzerland, Croatia, Iceland and Norway. These cities host about 40% of the EU population. Each city is part of its own commuting zone or a polycentric commuting zone which covers multiple cities.
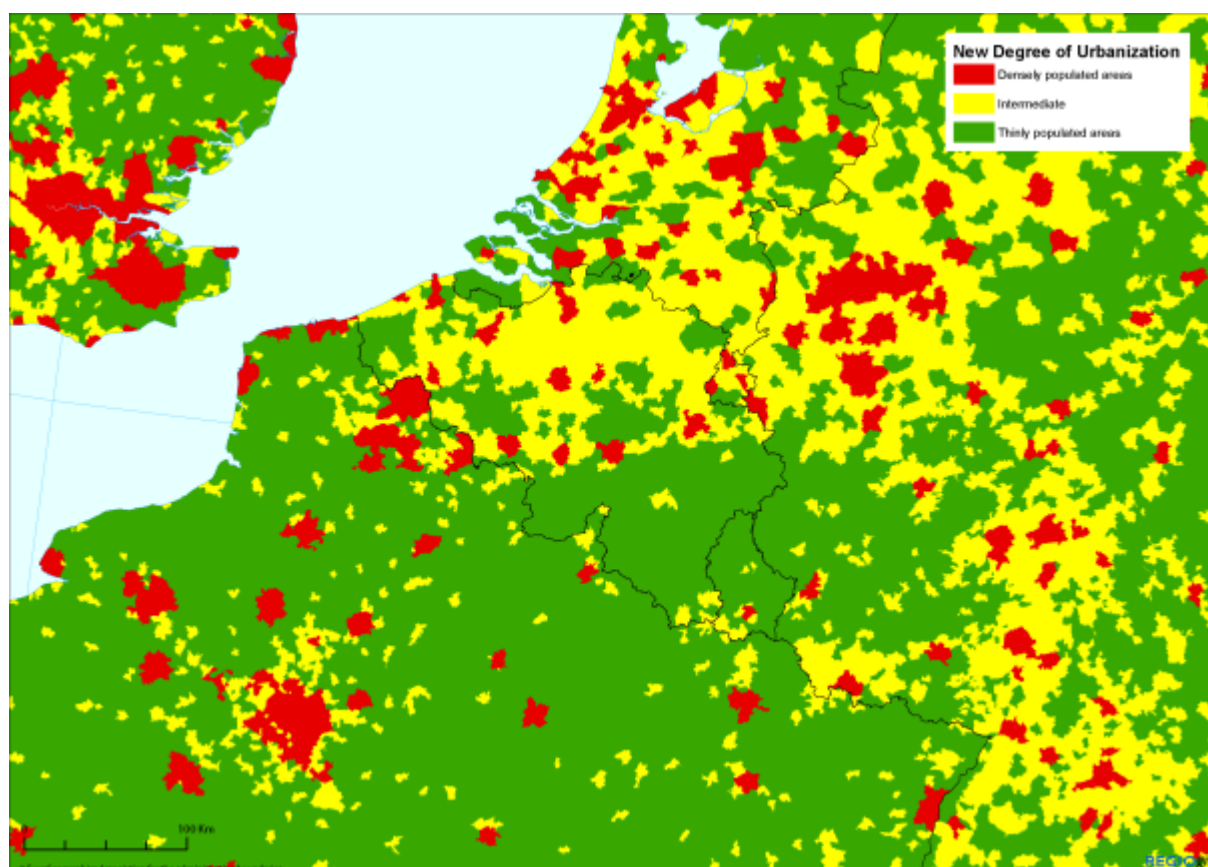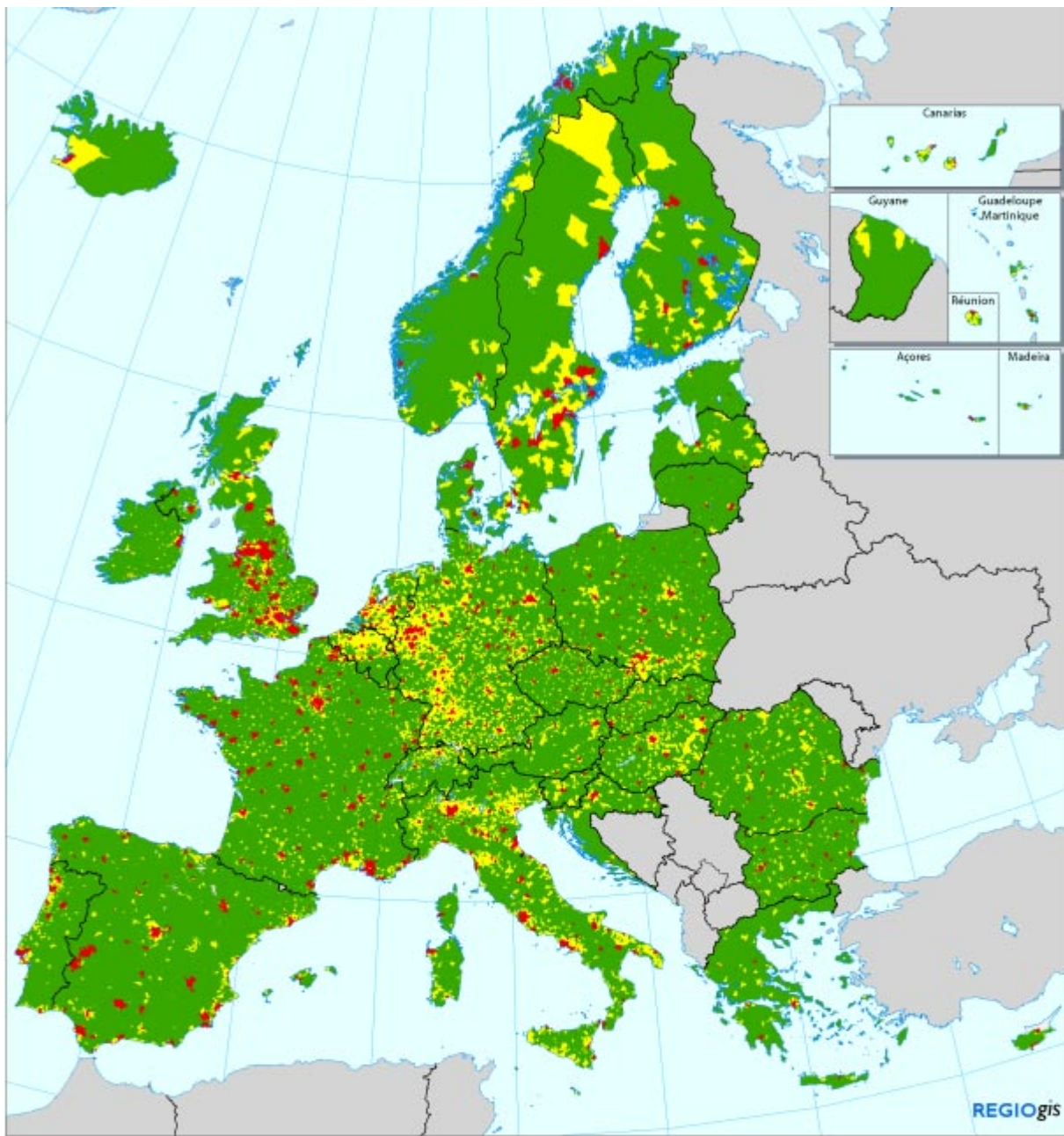
Degree of Urbanisation 2011

- Densely populated areas
- Intermediate
- Thinly populated areas
- No Data

Sources: EFGS, JRC, Eurostat, LandScan, REGIO-GIS
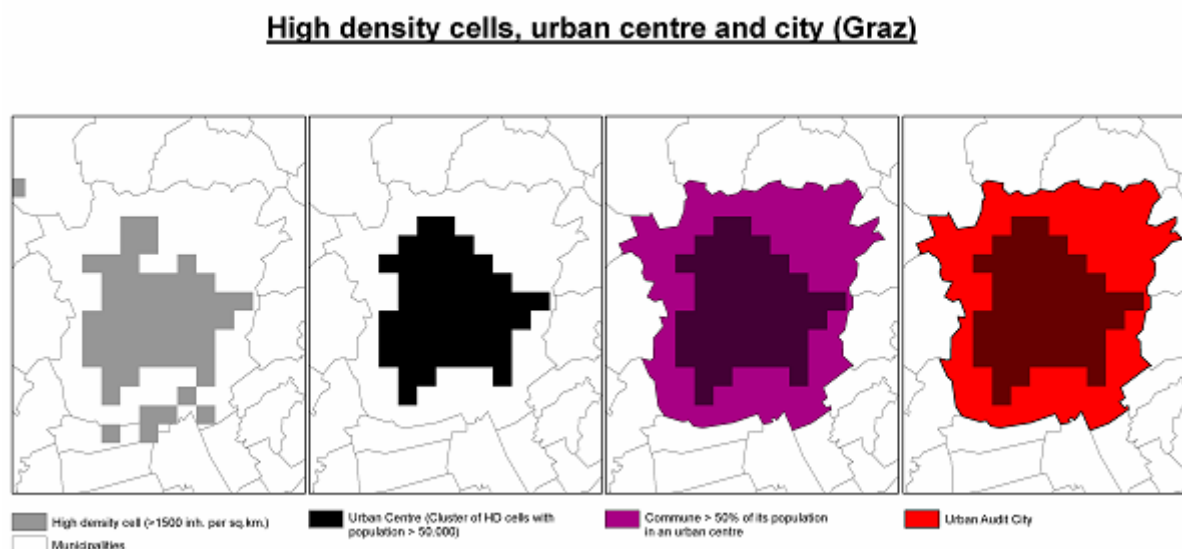
0   1,000 Km

© EuroGeographics Association for the administrative boundaries

2.2.   Harmonised definition of a city and its commuting zone

How does this definition work?

This new definition works in four basic steps and is based on the presence of an 'urban centre' a new spatial concept based on high-density population grid cells.

Figure 5.1-4 How to define a city

Step 1: All grid cells with a density of more than 1 500 inhabitants per sq. km are selected (map 1.1.).

Step 2: The contiguous[25] high-density cells are then clustered, gaps[26] are filled and only the clusters with a minimum population of 50 000 inhabitants (map 1.2) are kept as an 'urban centre'.

Step 3: All the municipalities (local administrative units level 2 or LAU2) with at least half their population inside the urban centre are selected as candidates to become part of the city (map 1.3).

Step 4: The city is defined ensuring that 1) there is a link to the political level, 2) that at least 50% of city the population lives in an urban centre and 3) that at least 75% of the population of the urban centre lives in a city (map 1.4).

In most cases, as for example in Graz, the last step is not necessary as the city consists of a single municipality that covers the entire urban centre and the vast majority of the city residents live in that urban centre.

For 32 cities with an urban centre that stretched far beyond the city, a 'greater city' level was created to improve international comparability.

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[25]   Contiguity for high-density clusters does not include the diagonal (i.e. cells with only the corners touching).

[26]   Gaps in the high-density cluster are filled using the majority rule iteratively. The majority rule means that if at least five out of the eight cells surrounding a cell belong to the same high-density cluster it will be added. This is repeated until no more cells are added.

To ensure that this definition identified all relevant centres, the national statistical institute were consulted and minor adjustments were made where needed and consistent with this approach.

A Harmonised Definition of a Commuting Zone

Once all cities have been defined, a commuting zone can be identified based on commuting patterns using the following steps:

1. If 15% of employed persons living in one city work in another city, these cities are combined into a single destination.
2. All municipalities with at least 15% of their employed residents working in a city are identified (image 2)
3. Municipalities surrounded[27] by a single functional area are included and non-contiguous municipalities are dropped (image 2.3).

Figure 6.1-3 How to define a commuting zone

City and its commuting zone (Genova)

City   Commuting area   Commuting area after including enclaves and dropping exclaves

■ City
▨ Added enclave
▨ Removed exclave
▨ Commune with > 15 % of its population commuting to the city
☐ Commune

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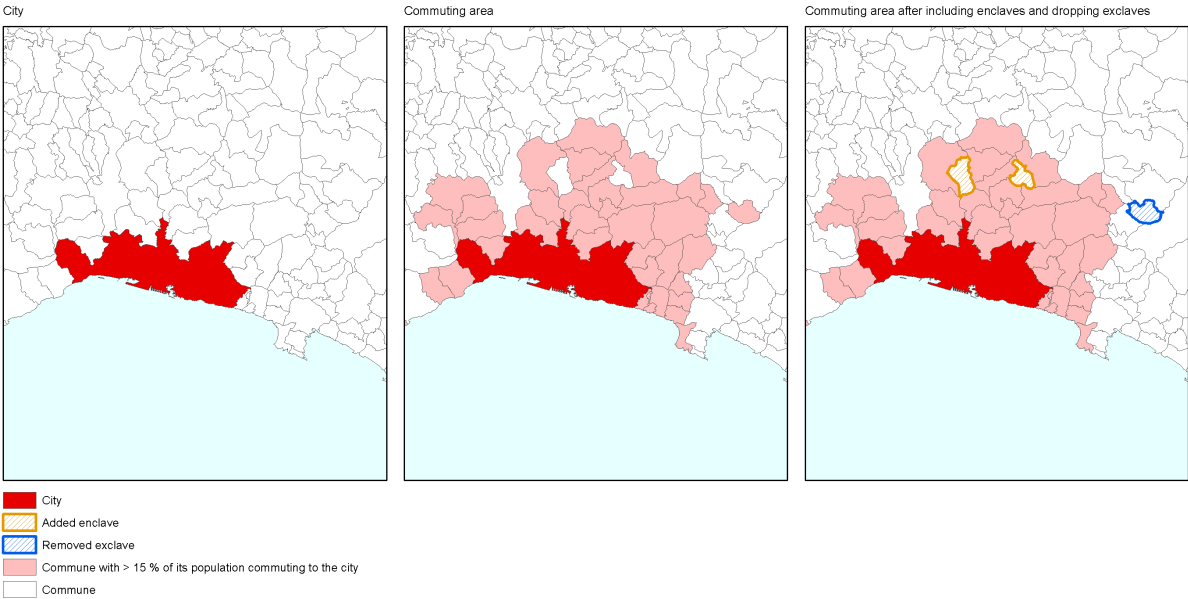
[27]   Surrounded is defined as sharing at least 100% of its land border with the functional area.
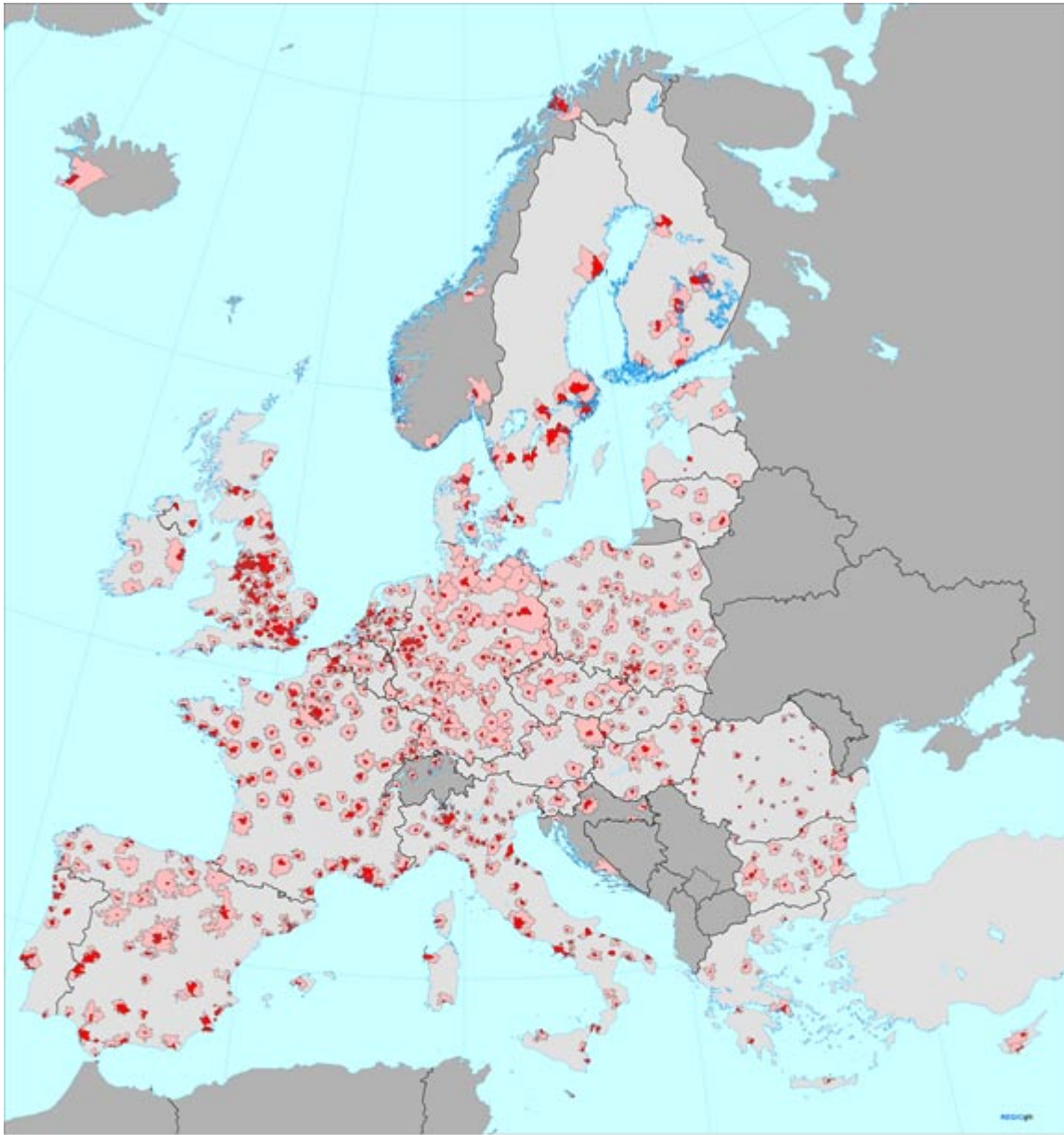
2012: Urban Audit Cities and Larger Urban Zones

City
Larger Urban Zone

0   820 Km

© EuroGeographics Association for the administrative boundaries

3.   SUB-NATIONAL DATA SOURCES

This section provides an overview of the main sources of sub-national data for the European Union.

3.1.   Eurostat

Eurostat has been expanding its sub national data offer in the recent years in two dimensions, more domains covered and more detailed geographical levels:

- Most indicators are published for the so called NUTS regions (see Table 2 for details).

- Some of these indicators are also calculated for a predefined group of NUTS 3 regions, like rural regions, metropolitan regions, coastal regions, etc.

- The urban-rural characteristics could be also analysed at a lower geographical scale, at the 'local area' (communes, municipalities) level using the degree of urbanization classification. Data is published for the sum of all urban/intermediate/rural local areas of a given country (see Table 3).

- Data is also available for cities. The list of indicators covers most aspects of urban life, e.g. demography, housing, health, the labour market, education, climate, transport and cultural infrastructure.

- The European population 1km² grid dataset provides data for the reference year 2006 combining data from registers, hybrid data from various national data sources and disaggregated data.

- The statistical information listed above can be overlaid with several geographical layers, allowing calculating new indicators, like accessibility of services, share of population living within a certain distance from the coast, etc. (see List 1 below).

For more information please visit the website dedicated to sub-national statistics.

Table 1 – Statistics by NUTS regions

Domain	Content	NUTS level
Demography	Population by age and by gender; Population change (births, deaths); Life tables (life expectancy, etc.); Infant mortality; Census data (2001)	NUTS 2 or NUTS 3
Migration	Internal migration (arrivals, departures by sex, origin and destination)	NUTS 2
Economic accounts	Gross Domestic Product (GDP) indicators; Branch accounts; Household accounts	NUTS 2 or NUTS 3
Labour Market	Economically active population; Employment and unemployment; Socio-demographic labour force statistics; Labour market disparities; Job vacancy	NUTS 2 or NUTS 3
Labour Cost	Labour cost, wages and salaries, direct remuneration, hours worked (1996, 2000, 2004, 2008)	NUTS 1
Science and Technology	R&D expenditure and staff; Human resources in science and technology; Employment in technology-intensive sectors; European patent applications	NUTS 1 or NUTS 2
Structural Business	Structural business statistics (Number of local units, persons employed and Wages and salaries by economic activity); Distributive trade statistics (2009)	NUTS 1 or NUTS 2
Agriculture	Land use/cover; Farm Structure Survey indicators (Area, livestock, labour force and standard output of farms); Animal, milk and crop production; Economic accounts for agriculture; Agri-environmental indicators (for e.g. farmers training level)	NUTS 1, NUTS 2 or NUTS 3
Health	Causes of death; Health care infrastructure; Health status; Hospital patients	NUTS1 or NUTS 2
Tourism	Tourist accommodation, arrivals, nights spent	NUTS 2 or NUTS 3
Transport	Road, rail, maritime, inland waterways and air transport; Transport infrastructure, stock of vehicles and road accidents	NUTS 2 or NUTS 3
Education	Number of students by sex, age, education level, orientation; Educational attainment and lifelong learning	NUTS 1 or NUTS 2
Information Society	Internet access; Computer usage	NUTS 1 or NUTS 2
Environment	Water resources; Wastewater treatment; Solid waste	NUTS 1 or NUTS 2
Social policy / income and living conditions	At-risk-of-poverty-or-social-exclusion and its three dimensions	NUTS 0, NUTS 1 or NUTS 2

Table 2 - Statistics by degree of urbanisation

Domain	Content
Labour Market	Economically active population; Employment and unemployment;
Education	Participation rate in education; Educational attainment and lifelong learning
Information Society	Internet access; Computer usage
Social, income and living conditions	At-risk-of-poverty; Severe material deprivation rate; Household budget characteristics; Housing costs; Distribution of population by dwelling type and income group

List 1 - Geographical Information (Reference topographic layers and Specific thematic layers

- Administrative and statistical regions (NUTS 0-3, LAU1-2) (source : EuroGeographics)

- Topographic layers (administrative areas and boundaries, hydrography, transport infrastructure, settlements and city areas, points of interest) (source : EuroGeographics)

- Country boundaries (source: UN), Exclusive Economic Zones (EEZ, source: VLIZ), coastline

- Ports, Airports, Maritime routes (under validation), coverage: Europe

- Degree of Urbanisation, coverage: EU27, EFTA

- Urban Audit (SubCity districts, cities, Large Urban Zones)

- Digital Elevation Model, coverage: Europe up to 60° N

- High resolution road network, including detailed network at street level, some points of interest, speed profiles for itinerary and journey time calculation, coverage: EU27 (excl. CY), EFTA, candidate and potential candidate countries

- Data from the LUCAS land use, land cover survey

3.2. JRC

DG JRC develops georeferenced datasets at European and global scale, many of which are relevant for regional or territorial analysis. These datasets cover themes as natural hazards and risk prevention, distribution of species, climate change, agriculture, land cover, soil data, etc.

An updated inventory of available datasets can be retrieved from the JRC Reference Data and Service Infrastructure (RDSI): http://rdsi-portal.jrc.it:8081/web/guest/home

For Commission services, this inventory can also be searched using the INSPIRE@EC Geoportal:

https://webgate.acceptance.ec.europa.eu/inspire/geoportal/catalog/identity/login.page

Additionally, the JRC operates and maintains the INSPIRE geoportal giving access to data and services from Member States: http://inspire-geoportal.ec.europa.eu/discovery/

3.3. EEA

Data sets in this table are organised per EEA Environmental Data Centres that could be consulted for additional information.

Table 3: Data available from the EEA

Key data sets	Brief description of the content	Spatial coverage e.g. countries	Spatial resolution e.g. MMU, meters	Update frequency, latest year available
Air pollution[28] (Data centre http://www.eea.europa.eu//themes/air/dc)				
E-PRTR (also used for water)	Pollutant releases from individual industrial facilities to air, water and soil, and waste transfers	EU-27, IS, LI, NO, CH, RS	Point source data. Geographic coordinates available.	Annual. Data for 2010 available.
E-PRTR (also used for water)	Spatial emission maps of selected pollutants to air and water from 'diffuse' sources e.g. transport, households etc.	Air: EU-27, CH, LI, NO, IS Water: EU-27, NO, CH, LI	Air: 5 km grid Water: River basin district	Air: Periodic updates. 2009 available. Water: Periodic updates. Dataset compiles data from different years
Large combustion plant emissions	Emissions of NOx, SOx, and dust from individual large combustion plants. Fuel data for the plants where this is not confidential.	EU-27	Point source data. Plant name and address available.	Three yearly updates. Datasets 2004-2006, and 2007-2009 available.
AirBase	Measurement data and associated meta information delivered under the EoI decision and the set of derived statistics are made publicly available in the European air quality database (AirBase). All products are downloadable (e.g. raw data, calculated statistics, meta data). AirBase covers all EoI	EEA-32, AL, BA, HR, ME, MK, RS	Geographic coordinates available.	Annual. Data for 2010 available.

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[28]   http://www.eea.europa.eu/themes/air

	pollutants, which amount to 187 different components of which 15 are mandatory.			
Air Quality Questionnaire	The EU air quality legislation requires EU Member States (MS) to divide their territory into a number of air quality management zones and agglomerations. In these zones and agglomerations, the Member States should annually assess ambient air quality levels against the attainment of air quality standards and objectives (for different pollutants). EEA publishes the related spatial information: http://www.eea.europa.eu/data-and-maps/data/zones-in-relation-to-eu-air-quality-thresholds-2	EU-27, CH, IS, NO	Polygons (zones and agglomerations)	Annual. Data for 2009 available.
Biodiversity[29] (Data centre http://www.eea.europa.eu//themes/biodiversity/dc)				
NATURA 2000	The European network of protected sites(Special Protected Areas, Sites of Community Importance and Special Areas of Conservation)	EU27	1:100 000	2011
CDDA	The European inventory of nationally designated areas holds information about protected sites and about the national legislative instruments, which directly or indirectly create protected areas	EEA39	n/a	2011
Conservation status of habitat types and species	All Member States are requested by the Habitats Directive (1992 Article 17) to monitor habitat types and species considered to be of Community interest.	EU27	10 km grid (1:10 000 000)	2006 (temporal coverage 2000-2006)
Biogeographical regions, Europe	The bio-geographic regions dataset contains the official delineations used in the Habitats Directive (92/43/EEC) and for the EMERALD Network set up under the Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention)	EEA39 + ENPI East countries and European part of Russian Federation	varying/a (1:1M to 1:10M)	2011
Climate change[30] (Data centre http://www.eea.europa.eu//themes/climate/dc)				
Urban Audit data	329 variables covering socio-economic and environmental data per city and per LUZ: These are needed to assess urban vulnerability to climate change in Europe (sensitivities and adaptive capacity)	EU27 plus Turkey, Croatia, Switzerland and Norway	Per core city, sub-city districts and per Larger urban Zone	Every 3 years Last: 2004, 2007, 2009
DEGURBA Degree of Urbanisation	degree of urbanisation based on population densities (1km^2 population grid) (1)Densely populated area: (2)Intermediate density area (3) Thinly populated area	EU27 plus Turkey, Croatia, Switzerland, Norway , Iceland	LAU 2	2006 Next population updates for 2011, 2014
European	Daily gridded data of surface	EEA39 ++	Gridded 25 km	Update 2 times

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[29]   http://www.eea.europa.eu/themes/biodiversity
[30]   http://www.eea.europa.eu/themes/climate

Climate Assessment and Dataset (ECA&D)	temperature, precipitation and surface atmospheric pressure. Daily gridded data are available since 01-01-1950. http://eca.knmi.nl/download/ensembles/download.php		resolution	per year, last update April 2012. Next update September 2012

Climate change adaptation (Climate-Adapt platform: http://climate-adapt.eea.europa.eu)

Climate observation and scenarios (data from other organisations made accessible by EEA)	Interactive maps of various layers from ClimWatAdapt, ESPON Climate, JRC-IES and ENSEMBLES are available through climate-adapt mapviewer *	EU27	Gridded in 25 km spatial resolution or NUTS2 and NUTS 3 level	No regular update is foreseen

Land use[31] (Data centre http://www.eea.europa.eu//themes/landuse/dc)

Corine Land Cover	Vector land cover map with 44 classes derived from satellite image at scale 1:100 000	EEA39 (38)	25ha (5ha changes)	1990, 2000, 2006
Imperviousness	Raster map on degree of soil sealing 0-100% derived from satellite image	EEA39	100m raster	2006, 2009
Landscape fragmentation	Fragmentation of landscape by urban areas and transport infrastructure calculated as mesh size on unfragmented land	EEA29	1km grid (EEA)	2009
Urban Atlas (also used for climate change)	Vector land cover map of cities with their surroundings at scale 1:10 000	EU27, ca. 300 large urban zones	0.25ha	2006

Water[32] (Data centre http://www.eea.europa.eu//themes/water/dc)

Waterbase (use WISE viewer to explore)	a) Water quantity time series b) chemical quality of groundwater, characteristics of groundwater bodies and sampling sites c) physical characteristics of the transitional, coastal and marine water monitoring and flux stations, proxy pressures on the upstream catchment, basin and River Basin District associated with transitional and coastal waters, chemical quality data on nutrients in seawater and hazardous substances in biota, sediment and seawater, as well as data on direct discharges and riverine input loads. d) River Basin Districts (RBDs) and/or their subunits (RBDSUs) e) Lakes: nutrients, organic matter, hazardous substances and other chemical determinands in water, proxy pressure data on the upstream catchments and physical	Varying, but exact country coverage is available for each data category. Example of typical country coverage for a) 'Water quantity time series' (in the column to the left): a) Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Hungary, Ireland, Latvia, Liechtenstein, Lithuania, Macedonia the former Yugoslavian Republic of, Netherlands,	a) b) c) e) f) h) point data, geographical coordinates available d) vector data	a) 1961-2010 (latest update 2012) b) 1960-2010 (latest update 2012) c) 1978-2009 (latest update 2011) d) 2011 e) 1931-1939 and 1949-2009 (latest update 2011) f) 1965-2009 (latest update 2011) g) 1977-1998 and 2000-2009 (latest update 2011) h) 2007-2008 (latest update 2011)

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[31]   http://www.eea.europa.eu/themes/landuse
[32]   http://www.eea.europa.eu/themes/water

	characteristics f) Rivers: data on nutrients, organic matter, hazardous substances and other chemical determinands in water, proxy pressure data on the upstream catchments and physical characteristics g) emissions of nutrients and hazardous substances to water, aggregated within River Basin Districts (RBDs) h) data selected from the reporting of Member States as part of the UWWTD implementation	Portugal, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom		
Bathing Water Directive - Status of bathing water	The EU Bathing Waters Directive requires Member States to identify bathing places in fresh and coastal waters and monitor them for indicators of microbiological pollution (and other substances) throughout the bathing season which runs from May to September.	EU27, Croatia, Montenegro, Switzerland	Point data. Geographic coordinates available.	1990-2011
E-PRTR data for water	(see section on air pollution)			

3.4. ESPON

The mission of the ESPON 2013 Programme is to support policy development in relation to the aim of territorial cohesion and a harmonious development of the European territory. Support is being provided, amongst other, by providing comparable information, evidence, analyses and scenarios on territorial dynamics. The ESPON 2013 Database is a core element in making fundamental regional information provided by ESPON projects and EUROSTAT accessible for policy makers and practitioners related to regions, cities and larger territories.

Currently the ESPON 2013 Database contains approximately 1250 socio-economic indicators, covering 60 countries in Europe and in the world, with a main focus to cover the entire European Union plus Switzerland, Norway, Iceland and Liechtenstein (ESPON space). The Database provides access to the following data categories: regional, local, urban, neighbourhood (candidate countries), world, grid and historical data.

The regional and local data and indicators use the Nomenclature of Territorial Units for Statistics (NUTS) references. The other types of data use similar statistical units or grid. The temporal coverage of the data ranges from 1950 to 2050. Most of the datasets and information produced are public available and free accessible.

Some of the data included in the ESPON 2013 Database are further elaborations upon data published by the EEA. For example, in field of climate change and land use, ESPON has completed a number of studies which further analyses and refine data published by the EEA.

Themes covered by the ESPON 2013 Database are related to territorial cohesion and as such very diverse.

They cover:

- demography
- agriculture
- transport
- accessibility
- energy and resources
- climate change
- land use and land cover
- natural hazards and risk prevention
- education
- labour market
- living conditions
- culture
- economy
- employment
- research and innovation
- typologies
- scenarios
- geographical objects.

Link to the ESPON 2013 Programme website: http://www.espon.eu/

Direct link to the ESPON 2013 Database: http://database.espon.eu/data

4. TOOLS TO SUPPORT THE ASSESSMENT OF TERRITORIAL IMPACTS

4.1. ESPON ARTS[33]

ESPON ARTS assesses the impact of policy options using a vulnerability approach.

It relies on seven steps and is often used in a workshop.

(1) Setting the frame

The first step is to detect the potential effects of a policy option on a territory. In a workshop, the experts draw a picture of the cause-effect relationships.

(2) Considering different types of regions – regional Exposure

A policy may affect only particular regions (e.g. coastal regions, regions with presence of particular productions or facilities like nuclear power plants etc.) or different types of regions could be touched in different ways by a directive. This instrument provides a set of pre-selected types of regions to facilitate the decision if a certain type of region is involved. Moreover it enables to define the exposure differently for different types of regions.

This step should determine:

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[33]   http://www.espon.eu/main/Menu_Projects/Menu_AppliedResearch/arts.html

(a) If a directive affects a certain type of region (according to the preselected types of region) or

(b) Is it necessary to distinguish the exposure resulting from a directive along different types of regions?

(3)   Estimating in exposure

The previous step decided if a region was exposed to a policy. In this step, the intensity of the exposure should be defined according to the following classes:

→ high positive exposure intensity

→ low positive exposure intensity

→ no exposure

→ low negative exposure intensity

→ high negative exposure intensity

(4)   Calculating the impact and plausibility checks

Based on the exposure and the regional sensitivity, which can be integrated in preformatted excel file, the territorial impact is calculated automatically. It provides for each thematic field/indicator and for each region the impact of the policy option in a region in 9 classes ranging from very high positive impact to very high negative impact. These should be checked for plausibility.

(5)   Mapping the Territorial impact

If the plausibility checks are positive the maps showing the impact along the different indicators can be drawn. Additionally 'summative' impacts of a policy option on each region, considering together all impacts on the different fields can be drawn.

(6)   Discussion on policy implications

Based on the maps the discussion on policy implication can be done, focusing on the positive impacts of a directive as well as on negative effects. The host moderates the discussion and writes the minutes.

(7)   Writing the minutes

Based on the results of the meeting and the discussion minutes are elaborated according to a common structure.
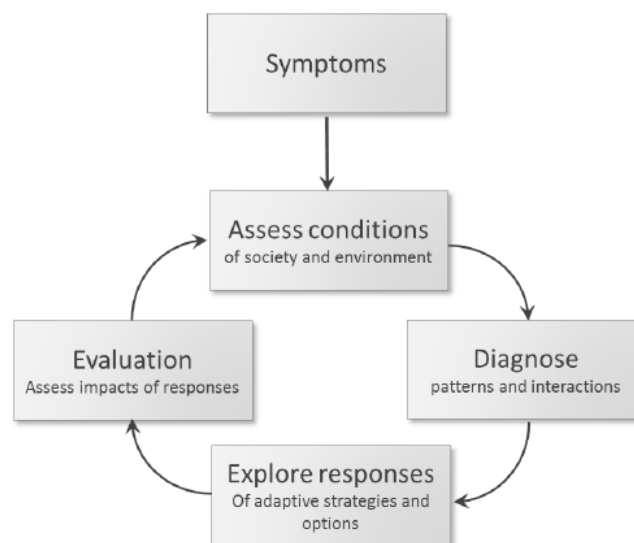
4.2.   QUICKScan

QUICKScan[34] is both a framework (Figure 7) and a software tool to be applied in group-processes with policy makers and experts to develop and explore potential policy options and assess likely impacts of those options. The framework addresses five questions:

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[34]   For more information see: Verweij, P., Winograd, M., Perez-Soba, M., Knapen, M., van Randen, Y. (2012), *QUICKScan: a pragmatic approach to decision support*. In: Seppelt, R. Voinov, A.A. and D. Bankamp (Eds.): 2012 International Congress on Environmental Modelling and Software. Managing Resources of a Limited Planet, Sixth Biennial Meeting, Leipzig, Germany.

(a)   What aspects, in a policy context are relevant with respect to human and ecosystems well-being?

(b)   What typical 'pictures' of the past and actual condition and trends exist?

(c)   What elements and interactions are relevant for the persistence of these patterns, trends and impacts?

(d)   Which strategies and options can be devised to preserve, restore, use, improve, mitigate, or adapt?

(e)   Which hotspot areas, services or land covers could be identified as targets for policy actions?

Figure 7 – QUICKScan framework

The QUICKScan software encompasses a modelling environment with functionalities to do the assessment of societal and environmental conditions, diagnose patterns and interactions, implement alternative responses and evaluate the impacts of those responses.

A typical EEA QUICKScan exercise starts by populating the system with data that the participants find relevant to the policy question. In the next step, participants try to assess the impact of different policy options by defining rules of 'if..then..else' type. The rules can be quantitative or use qualitative typologies. They may also be linked together to form a chain of rules. The system will apply these rules to the data and create derived data. Finally, the derived data can be aggregated (e.g. by administrative unit, biophysical units) and displayed in tables, charts and maps in order to help the policy makers to compare the impact of different policy scenarios.

The EEA QUICKScan toolbox allows combining tacit expert knowledge with available spatial and statistical data. Inevitably, it requires a certain level of knowledge of data

http://www.iemss.org/society/index.php/iemss-2012-proceedings. Perez-Soba, M., Verweij, P., Winograd, M., *QUICKScan: a decision-making support toolbox to improve assessments of ecosystems and ecosystem services* (2012), The Economics of Ecosystems and Biodiversity - TEEB Conference 2012 Mainstreaming the Economics of Nature: Challenges for Science and Implementation, Leipzig, Germany.

availability and Geographic Information Systems. However, with this condition in place, the EEA QUICKScan can help the assessment of policy questions in a relatively short period.

5.   DESCRIPTIONS OF JRC MODELS WITH A SUB-NATIONAL DIMENSION

The models listed below were developed by the JRC to support the policy needs of different services of the European Commission, such as exploration of future policies and impact assessments of specific policy options.

5.1.   LUMP: Land Use Modelling Platform

Non-technical description

The changes in the cover and use of the surface of the earth depend on natural processes and are, at the same time, shaped by demographic, economic, cultural, political, and technological drivers. The Land Use Modelling Platform (LUMP) can help to understand and interpret the complex interactions between the bio-physical and human factors that influence land use/cover dynamics. In addition, it can be used as a tool to assess environmental consequences of policies with direct or indirect spatial impacts.

The model is based upon the combination of a spatially explicit land use model and its linkages with other modelling activities in thematic fields such as hydrology, agriculture, economy, forestry and so on.

LUMP consists of three modules. The first module formulates the demand for different land uses. The second module allocates the land and it is the core of the model called also EU Clue Scanner. Finally, the third module computes the indicators necessary for the interpretation of the results. These can be related to the use of the land itself (e.g. change in agricultural land abandonment, urban expansion) or thematic such as land cover connectivity potential, soil sealing, river flood risk, urban sprawl and content of organic carbon in soils.

Areas where the model can be applied

The LUMP is most suited for ex-ante impact assessment of European policies that influence, directly or indirectly land use/cover change. The forecasted land use/cover changes are not only analysed per se. Land use/cover is an important factor for many ecosystem services such as provision of food; fibre and timber; biodiversity; water flows and climate regulation; carbon sequestration; provision of recreational opportunities; etc. Therefore, LUMP aims at providing relevant input to analyse a growing number of environmental domains that are influenced by land use/cover change.

The modelling framework in LUMP allows the translation of policy questions into alternative scenarios that could be compared through a set of indicators that capture economic, environmental and social issues. To date, LUMP has been applied in the following ex-ante impact assessments:

- Integrated Coastal Zone Management
- Green measures of the Common Agricultural Policy post-2013
- 2012 Blueprint to Safeguard Europe's Waters

Further applications are being prepared in the fields of energy, resource efficiency, bio-economy and the adaptation strategy to climate change.

Spatial resolution

The latest version of the model can operate at a resolution of 100 x 100 m which is also the resolution of the most important input map, the CORINE Land Cover 2006, which defines the original state of the land use/cover in Europe. The outputs and indicators of the model can be aggregated to a coarser resolution, e.g. at any NUTS aggregation level.

It can be run also for individual NUTS1 or countries only. It also allows working with irregular regions of interest, composed by any configuration of NUTS1 regions.

Input and output variables

LUMP links specialized models and data within a coherent workflow. The model uses input from demographic (EUROPOP 2008, 2010) and economic models (CAPRI, GEM-E3, RHOMOLO) and also from TRANS-TOOLS. The model also requires a number of spatially explicit parameters at different resolutions (1 x 1 km, 100 x 100 m).

The main output of LUMP is a simulated map of the land use/cover for a given year in the future. The allocation module is currently able to simulate land use/cover classes such as urban, industry and commerce, agriculture, forest and semi-natural areas, thus allowing the competition between land uses to be accounted for dynamically in time and space. However, due to its components, functionalities and linkages with other models, the platform goes beyond the simple allocation of land uses and can be considered an integrative platform capable of translating scenarios into physical impacts in a range of environmental domains. LUMP is currently prepared to provide relevant output to the LISFLOOD model, which models river discharge at European level.

Timeframe

As currently configured, the model runs from 2006, producing yearly results up to 2030. Under some conditions, the timeframe can be extended by 10 or 20 years.

Country coverage

LUMP covers the whole of the EU. The model can be extended to cover new Member States of the European Union or to other neighbour countries of interest for which CORINE Land Cover 2006 (or comparable map) is available.

5.2. TRANS-TOOLS: a transport network model

Non-technical description

TRANS-TOOLS was tailored specifically to the main priorities of the EU transport policy. It combines, in an integrated manner, advanced modelling techniques in transport generation and assignment, economic activity, trade, logistics, regional development and environmental impacts. It covers the networks of all main modes in both passenger and freight transport.

It can be used in combination with other models and tools (TREMOVE, TRANSVISIONS meta-models, PRIMES, etc.) when required.

Areas where the model can be applied

The features of the model have been selected in order to best simulate and analyse the impacts of three types of measures:

- Changes in transport networks, especially TEN-T
- Pricing measures
- Changes in logistics and distribution systems

TRANS-TOOLS is not suited to assess the impact of the selected specific projects, mainly due to its traffic generating equations that were calibrated to minimize aggregate errors across all of Europe, and therefore could produce very erroneous results locally. Whereas this type of error might be acceptable in the evaluation of global policies, in which case such errors could be mutually compensating, it would be unacceptable when looking at individual projects defined over relatively limited areas.

Spatial resolution

NUTS3

Input and output variables

The main input variables are:

- Transport statistics, GDP and demographics, trade statistics (Eurostat)
- Logistics patterns (research projects)
- Price elasticities of transport demand (economic literature and research projects)
- Emission factors and external costs (research projects)

In order to keep consistency with past or parallel policy relevant analyses and projections, the TRANS-TOOLS Reference scenario matches historical data as published by EUROSTAT and DG MOVE, it is consistent with the energy outlook (PRIMES Reference scenario) and it uses the same assumptions concerning population and economic development than the other related policy departments do (e.g. DG ECFIN, DG CLIM, DG ENV).

The model can simulate the impact of changes in accessibility in terms of:

- Demand per mode
- Traffic on the network links
- Transport costs (per Origin-Destination pair, commodity type, specific corridor, etc.)
- Regional GDP
- Travel times
- Emission and accidents

Timeframe

Currently runs up to year 2030. Version 2.6 (due late 2012) will run until 2050.

Country coverage

EU28 plus neighbouring European countries

5.3. RHOMOLO: Regional Holistic Model

Non-technical description

The model integrates economic, spatial and social dimensions in a micro-economically founded framework.

RHOMOLO incorporates the following important features:

- Each regional economy is divided into six sectors which are linked through input-output linkages
- Producers (firms) produce goods and services by combining labour, capital, and intermediate inputs
- Consumers (households, governments and firms) purchase goods and services and save the rest of their budget
- Regional governments collects taxes, pay subsidies, consume goods and services and accumulate savings (or make debts)
- Dynamic optimisation of investments
- Regions are linked within the framework of New Economic Geography: inter-regional trade of goods and services are subject to trade costs; the model allows for knowledge spillovers, factor mobility and agglomeration economies

The pattern of inter-regional trade flows depends upon the preferences of consumers for buying goods from particular regions and upon the prices RHOMOLO differ by the type of good transported, the distance between the regions of origin and destination, and the quality/density of the transport infrastructure.

Each NUTS2 region in RHOMOLO consists of three types of economic agents: households, production sectors, and a government. The six activities are differentiated according to the NACE classification. Each activity is produces only one type of good or service. Service sectors in RHOMOLO include both market and public sectors.

Labour is not differentiated according to skill/education level, although wages are region-specific and vary according to the differing educational and productivity levels of the regions. Wages take the appropriate level that equalises demand and supply. In addition, RHOMOLO allows also for inter-regional labour migration and positive unemployment in each region and sector.

Areas where the model can be applied

RHOMOLO can be used for ex-ante impact assessment of European Cohesion Policy and also for other policy simulations and comparison between policy scenarios. For example, RHOMOLO can be used to analyse the impact of innovation policy through the links between R&D expenditure, TFP growth and spillover effects.

Spatial resolution

NUTS2

Input and output variables

The input data come mainly from EUROSTAT, WIOD and the National Statistical Offices. The model simulates the impact of changes in exogenous shocks (economic integration, changes in policy regime, etc.

- Gross domestic product (GDP)
- Employment and unemployment
- Public and private savings and investment

- Inter-regional trade
- Inter-regional labour migration, unemployment and wages
- Regional disparities in wealth, poverty, etc.

Timeframe

Currently, the time horizon of RHOMOLO is 2030 but it can be extended to a longer time period if combined with DSGE models such as QUEST.

Country coverage

EU27 and the rest of the world as one aggregated region

5.4. CAPRI: Common Agricultural Policy Regional Impact Analysis

Non-technical description

CAPRI is a modelling system which consists of specific data bases, a methodology, its software implementation and the researchers involved in their development, maintenance and applications. It is the key model for the Commission reporting on agricultural and agri-environmental policies at the regional level. The model consists of a supply module and a market module, e.g. a spatial, global multi-commodity model for agricultural products including 47 products in 77 countries organized in 40 trade blocks.

Areas where the model can be applied

The objective of CAPRI is to evaluate ex-ante impacts of the Common Agricultural Policy (CAP) and trade policies on production, income, markets, trade and the environment, from global to regional level.

For example, it is able to perform a regional level analysis of specific Common Market Organisations (e.g. sugar, dairies), trade of agricultural goods with the rest of the world (e.g. WTO proposals) and different subsidisation schemes in Europe (e.g. partial decoupling of agricultural subsidies).

Recent examples include the 'greening measures' in the framework of the CAP 2014-2020 and the Mercosur free trade agreement.

Spatial resolution

NUTS0, NUTS1, NUTS2, farm types (within NUTS2) and cluster of 1x1 km grid cells (for environmental impact assessment)

Input and output variables

The model is based on data from EUROSTAT, FAOSTAT, OECD and extractions from the Farm Accounting Data Network (FADN). They cover about 50 agricultural primary and processed products in the EU, from regional to global level including input and output coefficients. Specific modules ensure that the data used in CAPRI are mutually compatible and complete in time and space.

Some exogenous variables like population growth, GDP, exchange rates, oil prices are coming from UN, DG ECFIN or Global Insight.

Output variables:

- Supply, demand, trade flows of agricultural commodities
- Hectares, herd size, yields, input use
- Producer and consumer prices, income indicators
- Environmental indicators, e.g. nutrient balances, GHG
- Welfare effects including the EU budget for the CAP

Timeframe

CAPRI is a static model and therefore compares a scenario (policy change) to a baseline (business as usual) for a specific year in time.

- Medium term : at this moment, one point in time = 2020
- Long term : under development (= 2050)

Country coverage

CAPRI is a global model, covering 77 countries in 40 trade blocks in the EU27, Norway, Turkey and Western Balkans.

5.5. RIAT-CHIMERE: Assessment of regional Air quality scenarios

Non-technical description

The RIAT-CHIMERE is composed of two main elements: (1) RIAT is a Regional Integrated Assessment Tool that brings together data on pollutant sources (emission inventories), their contribution to atmospheric concentrations and human exposure, with information on potential emission reduction measures and their respective implementation costs. (2) CHIMERE is a multi-scale air quality model (developed by the Laboratoire de Meteorologie Dynamique and by INERIS (France)) which is designed to produce daily forecasts of ozone, aerosols and other pollutants and make long-term simulations (entire seasons or years) for emission control scenarios. CHIMERE provides the link between emissions and concentrations within RIAT.

Areas where the model can be applied

RIAT-CHIMERE is well suited to assess the impact of emission reduction strategies on air quality and health at both the urban and regional scales.

RIAT-CHIMERE has not been directly used in impact assessments for the Commission but its CHIMERE component is currently used in projects which aim at providing support to the Commission, e.g. EC4MACS or in the frame of contract services in support to Commission departments (e.g. DG. ENV). RIAT is currently used by several regions (e.g. Lombardy, Emilia-Romagna and Alsace) in the EU to assess the impacts of regional air quality plans.

Spatial resolution

RIAT-CHIMERE runs over a range of spatial scales from the regional (several hundreds kilometres) to the urban (few tens of km) with resolutions from 1-2 Km to 20 Km.

The CHIMERE model has been widely used over Europe, with a spatial resolution as low as 10 km and time period up to full years to assess the impact of urban and regional areas. It can

as well be used at higher resolution, with smaller domains or for shorter periods. RIAT is mostly used with resolutions ranging from 2 to 20 km.

Input and output variables

CHIMERE requires meteorological data (from prognostic meteorological model), boundary conditions for pollutant concentration (e.g. from coarser scale models) and land-use information and temporally and spatially defined emissions (both anthropogenic and biogenic). Outputs are gridded three dimensional fields of the selected pollutants (O_3, aerosol, NO_x, CO etc.) with an hourly time resolution.

In addition to CHIMERE the RIAT component requires information on technological costs (set to GAINS value by default) and emission-concentrations relationships (from CHIMERE). RIAT provides cost-effective sets of abatement measures together with a spatial distribution of air quality indicators and associated costs.

Timeframe

CHIMERE can be used for both short episodes or for full year simulations. RIAT is mostly used for seasonal or yearly assessments (although based on a hourly resolution) Entire year air quality scenarios can be produced as well to assess pollution trends in future years (e.g. 2020, 2030) based on adequate emission projections.

Country coverage

In theory, the model can be applied to any specific area having adequate input data. At present CHIMERE is a well-established and widely used (about 35 modeling groups) air quality model in Europe to assess and/or design future compliance with air quality standards. The RIAT component recently developed requires a more intensive data preparation and is currently applied within a few regional areas in the EU.

5.6. RURAL EC MOD: Ex ante Spatial Policy Impact Analysis of the rural development policy

Non-technical description

The RURAL EC MOD model allows for a split between urban and rural areas while capturing the economic interactions between the different actors - firms, government and households - in the short and medium run. When implementing policy scenarios, the model captures the responses of all actors to policy changes and indicates the impact on the regional economy but also on rural and urban areas.

Areas where the model can be applied

The model can be used for assessing the impact of expenditure-based interventions. The model has been used in the Impact Assessment of the reformed CAP.

Spatial resolution

NUTS3

Input and output variables

The inputs required:

- Social accounting matrix of a NUTS 3 region
- Assumptions on types of factor markets and macroeconomic balances best define the economy (closure rules)
- Elasticities for structural forms: trade, production, substitution, LES-demand
- Exogenous parameters, e.g. depreciation rate, TFP by sector
- Spending on rural development policy measures at NUTS 3 level
- Pillar 1 by type (e.g. coupled, SFP) and Pillar 2 by measure (e.g. 311)

The output of the model typically includes:

- GDP: total region, urban and rural areas
- Employment levels: activity, skilled/unskilled, urban/rural
- Income: rural/urban, farm households
- Exports: total region, and by sector
- Producer Prices: by sector
- Production: total, by activity: cereals, mining, manufacturing
- Wages: by type of labour, by area: urban/rural

Timeframe

Theoretically, the model can be run for a very long period, although in practice, it is better to limit the horizon to a maximum of 25 years (because of uncertainty surrounding the additional data requirement). As an example, previous impact assessments have modelled the impact of rural development policies from 2006 up to 2020.

Country coverage

EU