

MAPPING URBAN SHRINKAGE IN EUROPE

Final Report

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1. PREFACE: COST TRAINING SCHOOL: «MEASURING SHRINKING CITIES» – DORTMUND

In the context of the European COST Action 'Cities Regrowing Smaller' (CIRES) a training school was held in Dortmund, Germany from November 14th to 18th in 2011. The training school 'Mapping Urban Shrinkage' aimed to get young researchers and scholars from different European countries together to deal with questions of how to measure and illustrate shrinkage.

The COST Action CIRES is a network of more than 60 European researchers working on the topic of urban shrinkage in Europe. As the shrinking cities phenomena – a result of demographic, economic, political and physical transitions – is nowadays widespread throughout Europe, it is a future challenge to deal with considerably smaller but nevertheless livable cities. Hence, the COST Action aims to foster knowledge on regeneration strategies in shrinking cities across Europe. Therefore measurement and illustration of shrinkage is an important foundation in terms of shared knowledge and a common database. The most significant output of the training school is a common dataset and map illustrating shrinkage in Europe.

The scholars participating in the training school came from 9 different countries: Austria, France, Germany, Italy, Poland, Portugal, Spain, Switzerland and Turkey. The training school consisted of workshops, lectures as well as a field trip to the Ruhr Area.

Vlad Mykhnenko from the University of Nottingham (UK) held a lecture on the aim and problems of measuring shrinking cities and Manuel Wolff from TU Dresden University (Germany) informed about different data sources and spatial reference levels.

The participants were asked in advance to research available data of their countries for different indicators, such as total population, birth-dead-ratio, net migration, median age, and gross domestic product. In workshops the data from the different countries accomplished. Furthermore methodological questions like time references, spatial boundaries and methods of data collection were discussed. As a first result a shared data set that is available in a comparable type in every country was agreed on. These are data on the total population on the municipal level for all municipalities larger than 5.000 inhabitants for the years 1990/1991, 1995, 1999/2000/2001, 2005 and 2010 (or the most recent data

available). Individually, the participants processed the data for their own country during the week in Dortmund.

Based on the shared data set, first drafts of maps illustrating shrinkage in Europe were produced. The scholars agreed on two different maps: one showing the population development between 1990 and 2010 and a second showing in four charts the population development for the periods 1990 to 1995, 1995 to 2000, 2000 to 2005 and 2005 to 2010 to get a more detailed impression of the process of shrinkage in the countries considered.

As a result, the first maps are presented in this report. At Dortmund Technical University a student assistant currently assists on the implementation of the maps as well as on further data collection of other indicators and additional maps.

The workshops were complemented by a field trip to outstanding industrial heritage sites in the Ruhr Area that stand as a sign for the undergoing structural change in this region. The group visited the *Gasometer* in Oberhausen (a former gas tank now used as a museum) and the UNESCO World Heritage Site *Zeche Zollverein* in Essen (a former coal mine and coke plant). The trip ended in the *Unperfekthaus* in Essen, a former vacant building within the city center that today is used as a shared workplace for creative workers and artists.

2. MAPPING URBAN SHRINKAGE

2.1. GUIDING – SUPPORTING – DECIDING. WHAT MAPS CAN BE NEEDED FOR?

Maps have always been supporting spatial decisions. They have first been used as a means of navigation (best route) –in other words as a decision-support tool. Nowadays, maps are very important and play an essential role in modern decision making processes like retail planning, government policy making, business management, facilities management or military planning and exploration. In particular, the advantages and importance of maps for daily professional work experience increasing attention (Heywood, Cornelius, Carver, 2011).

In a more and more complex world some problems and objectives of the decision maker cannot be coherently specified. In other cases, already defined problems can be ill-structured or semi-structured. For those problems that may occur, maps can help to define and structure and to tackle those structural barriers as a support system.

Another importance of maps is the characteristic to cover high density of information. Using maps as decision-support system enables users to make full use of the data and models that are available. The combination of information - e.g. by crossing different thematic layers and their spatial links- is a strong advantage of using maps. Following cartographical rules, a high amount of details and information can be added to a map. This makes maps a compact knowledge store.

Moreover, maps can help to solve problems with spatial relevance or with spatial conflicts (e.g. identifying patterns). Therefore, the range is between a simple combination of two and more issues and the development of a solution procedure using complex models. Hence, maps can act as support for providing solutions of any spatial relevance. Additionally, they play an important role in generating a series of decision alternatives.

Finally, maps are very flexible to use. Related to the amount of involved information, the spatial degree can be varied:

- Zooming in and out,
- Change to smaller or bigger spatial reference units,
- Including or removing additional data.

Due to its flexibility, maps are easy of adaptation to the evolving needs of users, decision makers, or other relevant actors. Depending on the amount of information maps are simple to interpret and are used for aiming, encouraging and enabling public participation in decision making processes and to improve communication processes.

Maps provide a much-needed framework for approaching, supporting and making spatial decisions. They are used for future planning (like legal building-framework-plans for cities), monitoring the status quo (like identifying eligible regions for EU-financial support), the creation of time series in order to analyse trends and its spatial manifestation or even to show the spatial distribution of forecasts. Recent development deals with an increasing amount of data and technical complexity.

In sum, maps can provide a framework for the development of spatial decision-support systems. They are mighty tools that involve a high degree of information and spatiality. However, the focus is thereby to support, not to decide (check for reliability). There is a certain danger that maps are not used very critically because they easily can be memorized. Maps themselves do not make decisions – people do (Heywood, Cornelius, Carver, 2011).

But why and how should maps be used for describing urban shrinkage? First of all, the scientific community still lacks of a common definition describing all relevant processes associated with shrinkage in detail. However, there is consensus that we are dealing with a multidimensional phenomenon including demographic, social, physical, economic and even environmental trends which are more or less interrelated via causes and effects in a vicious circle. Contrary to tables or graphs maps are an ideal tool for displaying multidimensional structures and evolutions (Hermann, Leuthold, 2002). In most analysis of shrinking cities, population development is used as indicator because almost all processes are strongly interrelated with population development (Turok, Mykhnenko 2007; Banzhaf, Kindler, Haase, 2007). «The term 'shrinking city' first and foremost describes a symptom: population loss. A wide variety of processes and causes can be hidden behind this symptom» (Oswalt, Rieniets, 2006).

Moreover, maps are able to clearly show the spatial interrelation of the mentioned structures and trends and even allow identifying spatial and/or procedural patterns. The spatial context of trends like urban shrinkage is essential because growth and decline processes occur simultaneously. By analysing the spatial distribution of growth and decline regional differences can be identified (e.g. central and peripheral parts).

However, understanding urban shrinkage requires updated observation instruments and methodologies as well as spatial data integration procedures. In other words, maps need appropriate data which allow the comparison among all spatial units. Furthermore, the spatial reference for analysing urban shrinkage needs to be suitable, what means that small spatial units are needed in order to cover the closeness of growth and decline and to better represent urban areas. This, however, is related to several challenges occurring (methodological and others) when measuring and mapping urban shrinkage.

2.2. MEASURING SHRINKING CITIES: EXAMPLES

There are different examples for the measuring of shrinkage and the aim to show the process of shrinkage in maps. A few of them should be discussed below.

The UN HABITAT World Cities Report of 2008/09 provided an overview on urban growth patterns. Based on the data of the United Nations Statistical Yearbook, 2,695 cities worldwide with a population of more than 100,000 were shown in their population development between 1990 and 2000. In a map the report shows those cities that have either experienced a very high population growth of 4 % or more or a loss of population between 1990 and 2000. The map shows that first and foremost the cities in the developed world, i.e. Europe, North-East-Asia and North-America, experience shrinkage but also some cities in other parts of the (developing) world occasionally show patterns of shrinkage. (UN-HABITAT, 2008: 10-11, 40ff.)

A more detailed look on shrinkage in Europe was done by Ivan Turok and Vlad Mykhnenko (2007). Using population development as an indicator of urban change, they aim to show aggregated patterns of this change in 310 European cities from 36 countries with over 200,000 inhabitants in 2000 between 1960 and 2005. To have a more detailed look at the trajectories of the different cities they show the average growth rates of the cities in different time periods. Thereby it becomes obvious that the growth and decline rates for most cities differ seriously in different time periods. Only 13 cities in the UK and in Germany experienced long term shrinkage.

In a paper presented at the Annual RC21 Conference in 2011 Robert Beauregard (2011) presents the data for 106 large and medium size U.S. cities, comparing the period from 1950 to 1980 with the period of 1980 to 2000 in terms of urban growth and decline. His aim is to

show the linkage between the region, the metropolitan area and the city in terms of growth and decline and to discuss the spatial embeddedness hypotheses. The bottom line is that he finds only weak support for this argument with his data.

Other approaches are made in individual countries to measure and compare urban shrinkage like in Germany the *Raumbeobachtung* (spatial monitoring) of the German federal institute of spacial, urban and build research or the *Wegweiser Kommune* (municipal directory) by the Bertelsmann Foundation. These tools show population growth and decline in interrelation with other factors, mainly based on datasets by the statistical offices and the municipalities.

2.3. PROBLEMS – CHALLENGES – SOLUTIONS. WHAT MAPS REQUIRE

A major methodological problem is the choice of a proper spatial unit on which an analysis of shrinking cities can be based on. The question of spatial scale is even more challenging when it comes to an international comparison. Moreover, the availability of data for certain spatial units has to be taken into account – the bigger the units the better is the availability of data. At European level, EUROSTAT provides a cross-border database (Urban Audit) which has, however, some major disadvantages (see Wolff, 2012). It is therefore advisable to use the smallest unit available in the countries (municipalities) for describing cities. This choice is of some advantage as it allows to define 'cities' by an independent research approach and is not related to the single national city definitions (administrative, functional, morphological, etc.).

National city definitions mostly refer to administrative units, which are determined by a certain population. However, the population threshold varies and an administrative defined city does not necessarily cover the «true» city in its expansion. By contrast, a functional definition reflects dynamics and some countries like France use them for official statistics (e.g. France). As for the administrative city definition, the parameters for defining the functional units vary significantly (threshold for population or jobs, commuting values) as well as for morphological units in each country (distances, threshold, and land use of built-up area). Finally, a threshold (e.g. population) is needed in order to separate cities from rural areas. A survey conducted in the COST-Action in 2009 has shown that a threshold of 5.000 inhabitants is the most common mark for this purpose. Furthermore, territorial changes are a significant problem on the statistical data delivery, even for official European statistics.

The data collection themselves provides quite a lot of challenges, as well. The choice of special indicators (apart from total population figures) based on theoretical considerations goes hand in hand with the reference years available for each indicator/data in each country. Since shrinkage shows a non-linear evolution, the time reference is important to consider for retrospective analysis (several intervals). However, the time reference and time periods of available data in the countries are heterogeneous. Certain indicators (e.g. household structure and income) are just available for census years (e.g. Portugal) whereas others can be obtained annually (mainly demographic figures).

The question of the time frame also covers the debate about the 'starting point' of an analysis and how this choice may affect the result and the display of trends (like shrinkage). A compromise between data availability and methodological-theoretical considerations has shown that analysing the mid-term past (starting 1990) would be most beneficial for the expected results. In order to compare time series among countries, it is aimed to collect data within a 5-year time rhythm.

It is obvious that the exact and final choice of theory-based indicators is strongly related to their availability which is very heterogeneous in European countries. To display shrinkage with population evaluation would not meet the various aspects of this multidimensional phenomenon. Housing, labour and economic indicators as well as the population structure themselves have to be taken into account next to total population numbers. While low-scaled demographic data is more or less available, certain other indicators e.g. for the labour market or the economy, can be hardly obtained and the gross domestic product is hardly available at the municipal level. Moreover, all of those indicators can indicate systematic differences regarding their national definition and survey method. In particular, the change of definitions like of population or employed and unemployed people can hurdle a retrospective comparison.

In sum, the training school uses a rather pragmatic definition of a city for a European wide comparison and as a starting point for the overall data collection: all municipalities (smallest spatial unit available in each country) with at least 5.000 inhabitants in 2010. For these units, the population evaluation was analyzed beginning in 1990 in the first run. More indicators (e.g. fertility, migration, age groups and economic numbers) are going to be included furthermore (see Chapter 3).

3. DATA COLLECTION

Mapping urban shrinkage in Europe involved first of all the collection of data throughout the nine countries participating in the Training School in Dortmund; these countries were Austria, France, Germany, Italy, Poland, Portugal, Spain, Switzerland and Turkey. Below, we describe for each country, sources, data availability, most important definitions, and challenges regarding this data collection task. Although at a glance it may seem simple to make the maps presented in this report, this is not quite so, as explained in the next summary paragraphs. Finally, in this chapter a map of Poland will be presented as a first example and an impression how the final result shall look like.

3.1. AUSTRIA

Aggregated comparable statistical data for Austria is mainly provided by the federal institution Statistics Austria (STAT) (www.statistik.at) and also by the Provincial Statistical Offices. A broad range of data on municipality level is available for the years of the population censuses. Since the year 1951 censuses have been held repeatedly in the years ending in «1». 2001 the last “regular” population census using questionnaires took place; the population census of 2011 is the first register based census. Data availability on municipality level depends on the desired time range as well as on the specific indicators. Since the year 2002 data is transferred directly from the central register to Statistics Austria on a regular basis making the estimation of the population stock obsolete and providing statistical information (total population, net-migration, births and deaths...) for every year.

In total there are 2.357¹ municipalities in Austria, consisting of cities, market-towns and smaller villages. While more than half of the municipalities have less than 2.000, only nine have a total population number over 50.000 inhabitants. 225 (224) municipalities have a total population of over 5.000 inhabitants in 2011 (2010). The largest municipality is the federal capital Vienna with approximately 1,8 million inhabitants.

In Austria there are 35 NUTS 3 units, consisting of groups of municipalities. The federal capital Vienna is an own NUTS 3 unit. The NUTS 2 units correspond to the nine provinces of

¹ Q: Gemeindeverzeichnis Statistik Austria 1.1.2011

Austria. While analyzing the phenomenon of shrinkage on a NUTS 3 level seems to be too broad, since several NUTS 3 regions include both cities which are growing as well as regions that are shrinking. Studying cities only – the number of Austrian cities (with over 10.000 inhabitants) is relatively small in comparison to other European countries - would exclude important data. Therefore analyzing the phenomenon of shrinkage on municipality level should describe the relevant processes.

3.2. FRANCE

The urban dataset for France includes 1029 units of more than 5.000 inhabitants in 2008, and their population in 2006, 1999 and 1990. The population for 1995 has been estimated with the average annual growth rate method, as for the 2006 population of the overseas municipalities.

The specificity of French data is that the geographical level is not the municipality, but a group of municipalities forming an agglomeration (a built-up area). This choice has been made as a consequence to the very small size of municipalities compared with other European situations. In fact, French municipalities (the *communes*) hardly correspond to the city level, but rather to a sub-city level. On the opposite, the NUTS 3 definition does not suit either for urban studies, being more of a regional level. This is why we chose to use urban areas as the spatial definition of French cities.

Built-up areas are defined iteratively by the French bureau of Census (INSEE) as a municipality or group of municipalities counting more than 2.000 inhabitants, in which the distance between the buildings are inferior to 200 meters. The Census aggregates the municipality data and publishes results at both levels.

Finally, because the urban areas collected here are aggregations of the municipality level, almost all the indicators available at the municipality level can be collected for the city level, for example the death-birth ratio, the net-migration, but also information about houses and employment².

² The databases of municipality population are available online for 2008, 1999 and 1990 : <http://www.insee.fr/fr/ppp/bases-de-donnees/donnees-detaillees/base-cc-evol-struct-pop/base-cc-evol-struct-pop-08.zip>

3.3. GERMANY

Data at municipality level (the smallest unit in Germany, *Gemeinden*) is available up to 2010. However, there are differences among the federal states regarding the oldest data available. Whereas in most of the western German states data is available from the 80s or early 90s on, data for Eastern German municipalities can be obtained beginning 1991 (beside population data, which is available, even from early 80s on).

There are two major data sources for German data. One is the Federal Statistical Office (www.destatis.de), which, however, provides (in close cooperation with the federal states) a database at above-municipality level (*Kreise*, Gensesis-database www.regionalstatistik.de). The second opportunity is to address each federal statistical office in Germany directly for obtaining municipality data (an overview: <http://www.statistikportal.de/Statistik-Portal/linksuebersicht.asp>). Although municipality data can be obtained by several sources, all data (indicators and variables) are harmonized all over Germany and is comparable (see: www.statistik-portal.de/statistik-portal/regio-stat-katalog.pdf).

Regarding the availability of data is more appreciated to analysis the NUTS 3 regions in Germany (*Kreise*) instead of LAU2 (the former NUTS 5, *Gemeinde*). There are more than 11 000 *Gemeinden* in Germany (more than 2000 of them are cities) and about 400 *Kreise* (more than 100 of them are cities, city status by law). In particular, the definition of a city in Germany is difficult and *Kreise* is not a real option for analyzing cities in Germany because they differ in total size and absolute population. In 2011 (after several readjustments of borders especially in Eastern Germany) there are 2864 municipalities (*Gemeinden*) with a total population of more than 5 000 (2010), whereas the smallest of it has a size of 2 km² (*Eichwalde*, a very small suburb with more than 6000 inhabitants) and the biggest one 880 km² (Berlin with round 3.5 million inhabitants).

Population data for the year 2006 : <http://www.insee.fr/fr/ppp/bases-de-donnees/donnees-detaillees/poplog-com/poplog-frm-09.zip>
And the aggregation key to link municipalities and agglomerations is also available for 2010 : http://www.insee.fr/fr/methodes/zonages/unites_urbaines.zip
The shapefiles of the French communes have very recently been opened to free downloading by the National Institute for Geographical Information (IGN) : http://professionnels.ign.fr/DISPLAY/000/531/266/5312664/GEOFLA_1-1_SHP_LAMB93_FR-ED111.tar.gz

3.4. POLAND

The major source of the statistical data in Poland is the Central Statistical Office (GUS) (www.stat.gov.pl). GUS makes its data available from a database on its website called Local Data Bank (BDL) <http://www.stat.gov.pl/bdlen>

BDL gathers, completes, and updates statistical information on individual units of Poland's territorial division. The BDL data go back to 1995. Those from before 1995 are available from printed versions of statistical yearbooks published by GUS. The availability of data for particular years varies depending on the kind of data and the type of territorial unit concerned.

The term "municipality" is difficult to render in Polish. Generally, it is associated with an urban area with municipal rights, which corresponds to a town /city.

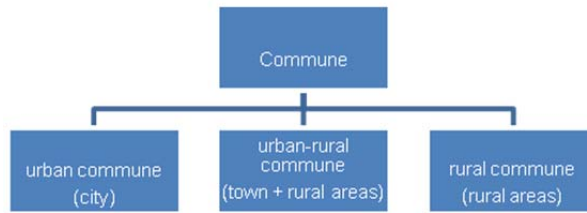
In the country's territorial division, the basic lowest-level unit is the commune (*gmina*) – LAU 2. Among the total of 2,475 communes, there are 306 urban communes (*gminy miejskie*) - all urban communes have the status of a city, 602 urban-rural communes (*gminy miejsko-wiejskie*), and 1571 rural communes *gminy wiejskie*.

Since the aim of the training school is to map urban shrinkage, data were collected for all urban communes (cities) and towns within urban-rural communes (rural areas were excluded). The total number, each with over 5 thousand inhabitants, was 569 (units created after 1990 were not taken into consideration).

According to the official definition adopted in Poland, a city/town³ is understood as a separate area having municipal status granted to it by way of a legal act. Such acts specify formal requirements for a unit to be defined as a town: a settlement having mostly concentrated housing and non-agricultural functions, possessing city rights or the status of a town by virtue of the law. Administratively, towns have the status of individual urban communes or, as in the case of smaller units; they constitute part of urban-rural communes.

³ In Polish there is only one term referring to an urban settlement - *miasto*. By convention, when translating it into English, British usage is employed, with 'towns' denoting smaller units and 'cities' larger ones.

Figure 1. Categories of communes in Poland



Source: Prepared by Emilia Jaroszewska

3.5. PORTUGAL

The main source of statistical data used for Portugal was the National Statistics Institute – Statistics Portugal (INE) (www.ine.pt). Data at the municipality level is available up to 2010. Portugal has around 10 million inhabitants; therefore NUTS-1-level corresponds to the Mainland Portugal as whole, plus the Autonomous Region of Azores and the Autonomous Region of Madeira, both archipelagos. NUTS-2 are 7 major (plan) regions, whereas NUTS-3 are 20 sub-regions or groups of municipalities. Portuguese municipalities are units of territorial division and administrative division. It is a territory with legal personality and a certain administrative autonomy which consists of administrative and political bodies, with considerable consistency throughout history. Almost the majority of the 278 municipalities in Mainland Portugal have over 5.000 inhabitants. While statistical data for cities is largely unavailable for time series, the NUTS-3 level is too broad for this kind of analysis, only highlighting the North-South and interior-coast divides.

Statistically, cities largely correspond to the adjustment of the urban perimeter, provided in land use plans and regulations, to the statistical subsections (smallest unit) used by Statistics Portugal in the Information Reference Geographical Database (BGRI). Whenever the urban perimeter was not defined, Statistics Portugal resorted to spatial classifications: urban or urbanized areas; “urbanizable” areas; and green spaces, whose proximity and social, recreational and landscape relationship with urban spaces justified its inclusion. When it was not possible to use these spatial classifications, the delimitation was based on the place whose designation in the census coincided with the delimitation of the cities, altering it

(together with the local government) according to the analysis of the territorial dynamics. Industrial areas, harbors, airports or other areas of economic relevance located in the surrounding regions have also been included by Statistics Portugal in the city perimeters, given their strong functional relationships with the city.

3.6. SPAIN

The spatial unit to which all data is referred in Spain is called *municipio* (municipality). Municipalities are the smallest politically independent units in Spain. The main data source is the *Instituto Nacional de Estadística* (National Institute of Statistic) which prepares the Spanish census every ten years and the Continuous census every year (www.ine.es). Total population data are available for years 1991, 1996, 2001, 2005 and 2010. Birth-death rates for 1996, 2001, 2005 and 2009. Finally, net migration data, is only available for the last two dates.

The main problem for obtaining the final data set has been the significant number of recently created municipalities. They usually come from the split of an old municipality into two new ones. That's why there are sometimes substantial disparities in population in some municipalities and no available data for the new ones before they were created. The second difficulty regards Spanish political organization. Spain is divided in seventeen *Comunidades Autónomas* (equivalent in spatial terms to NUTS-2), which have their own Regional Institutes of Statistics with no coordination among them. So that some regions may have some data for their municipalities while others do not. That's why; the availability of further social and economic indicators is very limited.

In Spain there are 1,303 *municipios* with a population of 5,000 inhabitants or more. That is equivalent to 16.06% of Spanish total municipalities. These are mainly located in more densely populated areas of the country (north and east coasts, Andalucía and Madrid metropolitan area). Together they gather 87.26% of Spanish population.

Their most important characteristic is that not all municipalities over 5,000 inhabitants in Spain can be considered «urban». Usually, National Institute of Statistic considers urban areas, municipalities over 10,000 inhabitants and in some researches, those larger than 20,000 inhabitants. Especially in the South of Spain, population is concentrated in large municipalities which, although high in population are mainly rural in their economical and

functional structure. That's why further research and new indicators (employment and economic ones) would be needed to analyze in depth urban shrinkage in Spain.

3.7. SWITZERLAND

The data for Switzerland is available on municipality level for every year since 1981 until 2010. The data is open for public on the Website www.bfs.admin.ch. This is the website of the Federal Department of Statistics of Switzerland. A special data base is available⁴. It is a so called interactive database, to find special samples with own choices and filters. Also available are the shapes from the Swiss Federal office of Topography: www.swisstopo.admin.ch

Because Switzerland is a small country with only 7.5 million inhabitants NUTS-1-level means Switzerland as a whole. NUTS-2 are 7 major regions and NUTS 3 are the 26 cantons. So the different NUTS-levels are very political and differ very hard in total size. Important for Switzerland are the municipalities, with a number of 2587. Within these 2587, there are 327 municipalities (in 2011, in 2012: 326) with over 5.000 inhabitants. Because of the federal political system in Switzerland and the big political influences of the municipalities (*Gemeinden*) it is better to have a look on them, than on the cantons (NUTS-3-level), because the cantons differ immense in size and population.

3.8. TURKEY

Turkey has a NUTS classification since 2002. NUTS 1 level consists of 12 regions. These regions are constituted of at least four provinces. However, Istanbul is an exception here. It is one province and one NUTS 1 level region. This first classification is made by considering mostly geographical characteristics of the land. NUTS 2 level is a division of 12 NUTS 1 level regions into 26 sub-regions which are also consisted of various batches of provinces. At this level, Ankara and Istanbul as the largest provinces stand alone constituting separate regions. NUTS 3 level represents 81 provinces. Province is the largest public administrative unit in Turkey. District comes next as the second ranked administrative unit after province, and total number of districts is 892 for whole Turkey. Sub-district is third ranked unit in the system

⁴ <http://www.pxweb.bfs.admin.ch/dialog/statfile.asp?lang=1>.

with a total number of 634 (www.illeridaresi.gov.tr). As administrative bodies these geographic units are divided into three. Special Provincial Administration is responsible for provinces. Urban areas within each province's boundary namely cities and towns are managed by municipalities. Turkey has 2950 municipalities in total (www.e-icisleri.gov.tr), and according to census 2010, 860 of them have population over 5000 inhabitants. The most populated municipality is Kecioren which is located within the boundaries of Ankara with the value of 817 262 inhabitants, and the least populated one is located in Eastern Turkey with a value of 5003. Besides, rural areas are managed by headmen.

Turkish Statistics on urban shrinkage are taken from Turkish Statistical Institute for this report. It is the official institution to collect and release national statistics on economic, social, demographic, cultural, environmental, scientific and technological issues periodically. It is one of the most reliable institutions in terms of wide-ranging data collection (www.tuik.gov.tr). Considering spatial coverage of data collection, the institution has the most detailed statistics on provincial level which is compatible with multi-dimensional definition of shrinkage. Therefore, if we consider range of variables to measure and map shrinkage, to make use of provincial level (NUTS-3) data could be a better option. However, as mentioned earlier, province is an operational unit which covers both urban and rural areas, and this may cause a conflict between definition of «urban shrinkage» and the spatial unit. Therefore, in this report municipality level is chosen as the spatial reference for statistics.

3.9. ITALY

The spatial unit to which all data is referred in Italy is called “comune” (municipality), the main local authority and in the same time administrative entity. The main data source is the Italian National Institute of Statistics (www.istat.it) which prepares the Italian census every ten years. The data of 1991 e 2011 are census data, available on web site of the Italian National Institute of Statistics (www.istat.it).

Data for the years 1995, 1999, 2000 and 2010 were found using the reconstruction of data sent by municipality to the National Institute of Statistics (<http://demo.istat.it/index.html>) every year, providing the latest official data on resident population in Italian municipalities. They arise from investigations carried out at the registry office; processing was performed on 8,100 municipalities. The Municipal registry office data are quite different from the census

data, because the first ones are simply declared by residents; the second ones are collected by detectors in the houses of residents.

In Italy in 2010 there are 8,004 municipalities and 8,100 in 1991; the analysis is on total of 7,991 municipalities, because in this period some municipalities were en-established while others cancelled. In Italy there are 2,378 municipalities with a population of 5,000 inhabitants or more that is equivalent to the 29.76 % of all Italian municipalities.

3.10. CONCLUSION

Data availability differs a great deal in each country represented in this Training School. There is generally available data from a national statistics office, especially for population. In some countries data collection is rendered more difficult because either it is available through different source institutions or only obtainable in a printed version.

First, there are differences regarding the definition of the geographic unit of analysis, especially when considering the cities and the so-called «municipalities» – some have a more administrative basis, other a stronger urban character, other merely have size in mind. When talking about size of cities and municipalities another problem arises, depending on the size (area and number of inhabitants) of the country, the scale of cities, municipalities and NUTS is quite diverse. Still the later have a more consensual definition, taking into account that they are an international nomenclature.

Second, the census reference year does not exactly correspond in all countries. In addition, some countries started making regular census long ago, other just had their first register based census in 2011. Times series are difficult to get hold of at lower scales, such as city and even municipality, but easily obtainable for NUTS.

Finally, not all countries choose to collect the same variables/indicators which help to portray and map urban shrinkage.

The maps shown in the appendix are evidence of a first result example. Further maps for different countries and different time periods will follow.

4. WORK PROGRESS

This chapter will provide an outlook on the remaining work and prospects for the further progress for «Mapping urban shrinkage in Europe». On main problem is the difference between countries with a good (and available) data base and other countries with a very poor database. But also next steps of data collections should be discussed in the following text.

4.1. WHAT COULD BE THE NEXT STEPS?

The participating countries in the first phase of the project «Mapping urban shrinkage in Europe» should complete their work to have maps and data from all 8 countries for annual growth rate, birth-death-rate and net migration. This provides a basis for future work and gives a first impression how the data collection and map production on shrinkage in Europe could look like.

4.2. WHAT OTHER INDICATORS COULD BE INCLUDED?

Next steps should be to find other additional data to produce the next maps or to have maps with more details in them. So ideas for further maps and indicators should be i.e.: GDP data (from the 1990s on), median age, rate of elderly, unemployment rate and proportion of single or family households. Like for all other indicators it has to be discussed what data is available in the different countries, on which level (NUTS 3 up to municipal level), and for what time slots.

But future work should not only include new indicators, but also more countries. So the question arises if it is possible to have more countries from the COST-Action in the map to have a better overview on shrinkage in Europe.

Also it has to be decided how the data from the different countries could be harmonized, in a way that the data is comparable, but also quite well understandable. Another big question in future should be to sum up all the data and indicators per country, to have an overview which kind of shrinkage in each country is predominant.

Finally technical and legal aspects have to be clarified. So in some countries the so far available shape files (maps) cannot be used officially, that means in any kind of publication or Online-Platform.

4.3. WHAT MAPS COULD BE POSSIBLY PRODUCED?

Not only because of legal problems, but also because of availability of data, some countries should go on as a core group (countries with good available data basis), to produce more maps on additional data. The other countries with more problems concerning the availability and access of data should go on to clarify the occurring problems to have them in publications or on an online platform later.

4.4. WHAT COULD BE THE FINAL OUTCOME?

The idea of a final outcome could be an online platform with interactive maps for shrinkage in Europe, but also a paper publication is imaginable. This final publication should be approached in a step by step process, to discuss the way of «Mapping urban shrinkage in Europe» in a wider context.

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6. APPENDIX

6.1. PARTICIPANTS LIST COST TRAINING SCHOOL: MAPPING URBAN SHRINKAGE

Name	Surname	Country
Avila de Sousa	Silvia	Portugal
Cottineau	Clementine	France
Dietersdorfer	Lisa	Austria
Fernandez Agueda	Beatriz	Spain
Gonul	Dilcu	Turkey
Hoemke	Maik	Switzerland
Jaroszewska	Emilia	Poland
Lella	Immacolata	Italy
Mykhnenko	Vlad	Great Britain
Prada Trigo	Jose	Spain
Schmitz	Sandra	Germany
Volkman	Anne	Germany
Wiechmann	Thorsten	Germany
Wolff	Manuel	Germany

6.2. TRAINING SCHOOL IMPRESSIONS



Picture 1: At the *Gasometer* in Oberhausen; Source: TU Dortmund, ROP

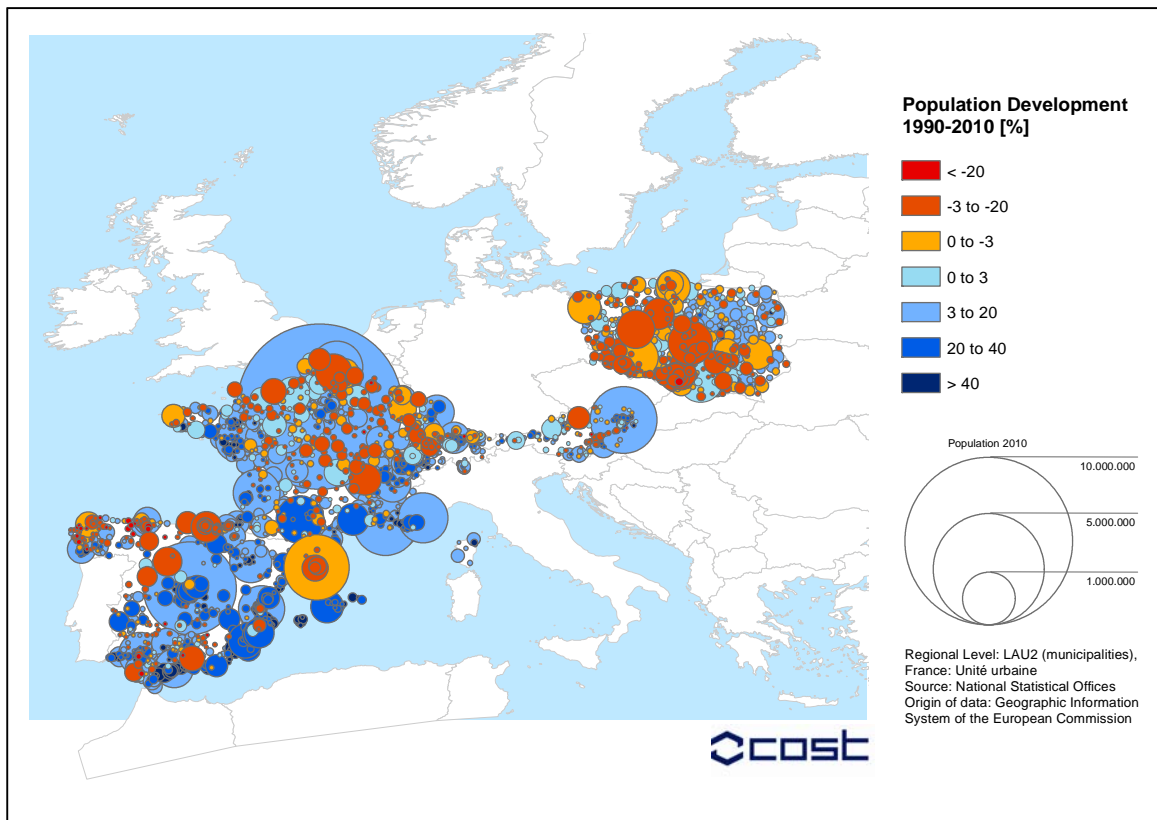
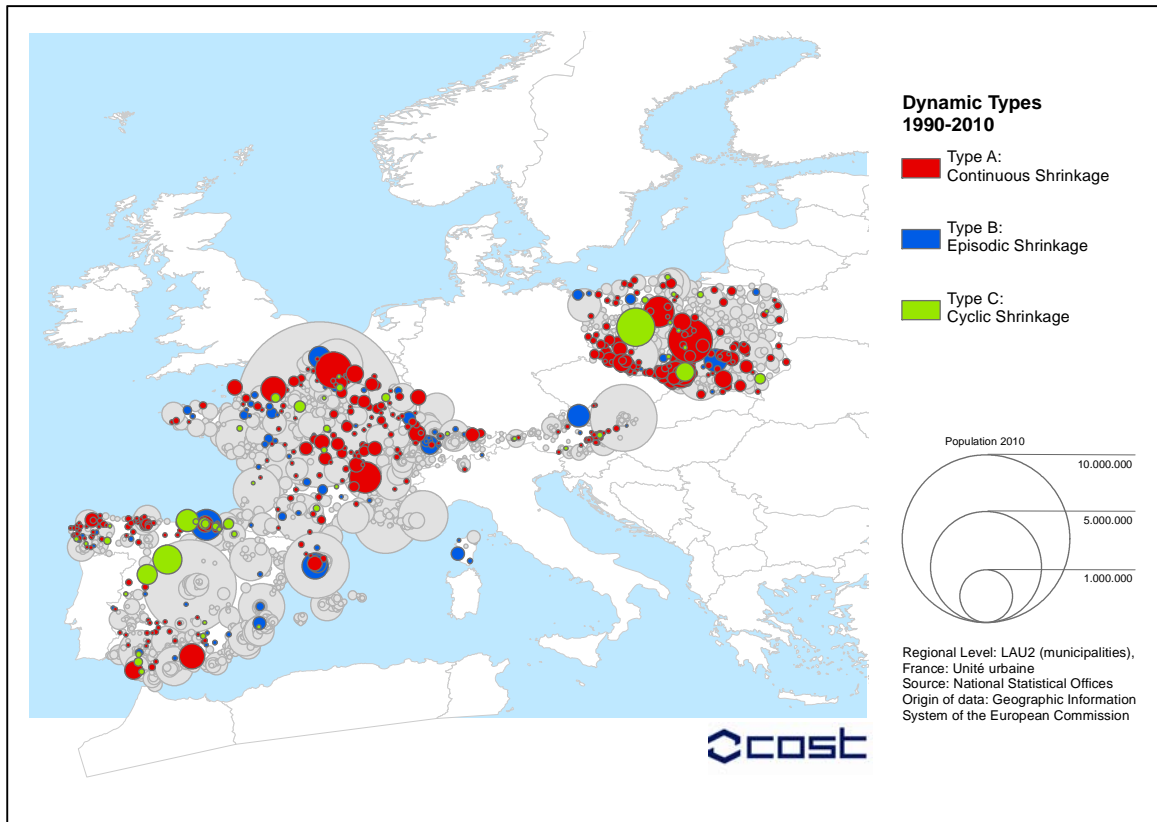


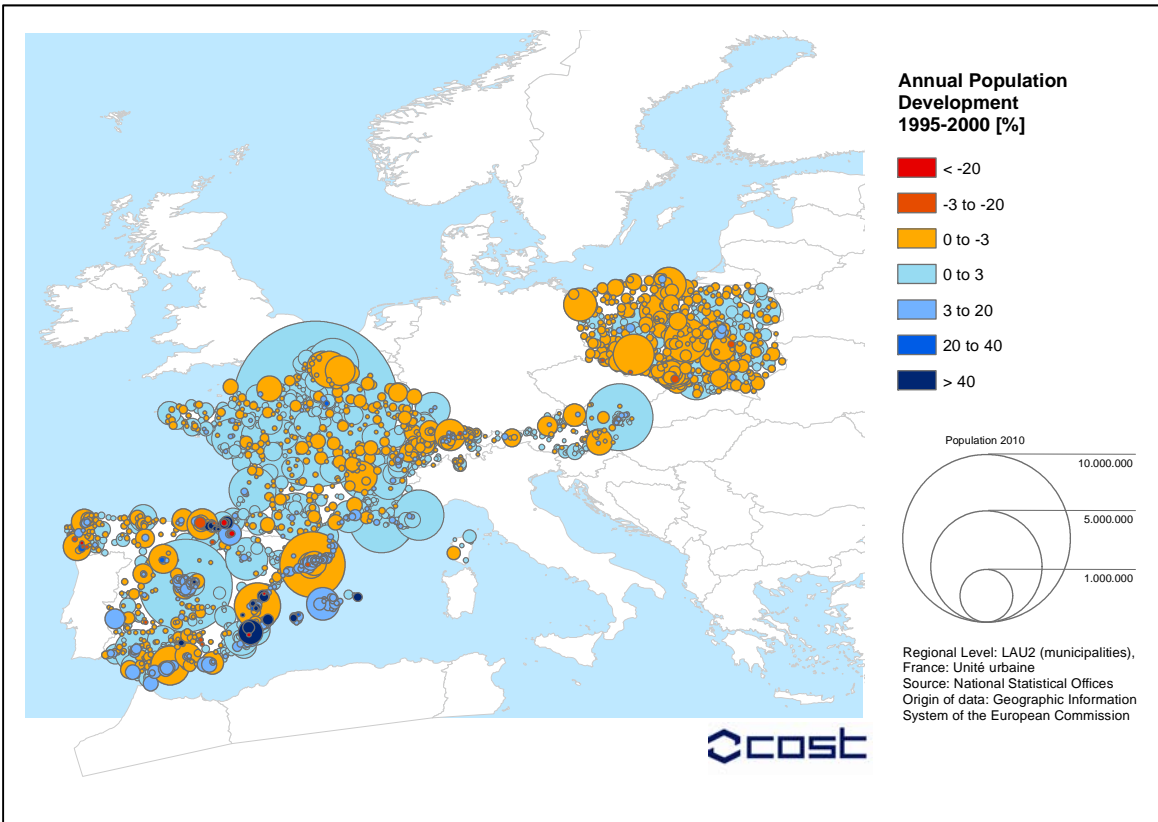
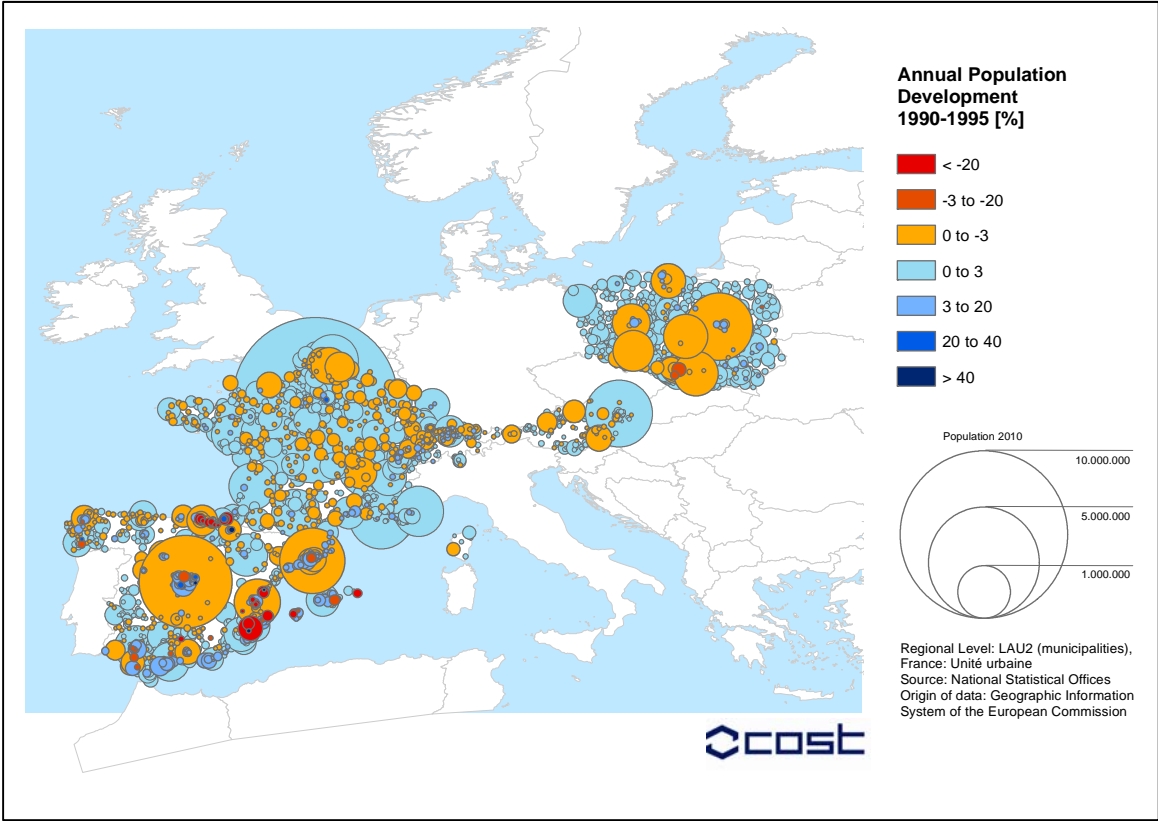
Picture 2: At the *Zeche Zollverein* in Essen; Source: TU Dortmund, ROP

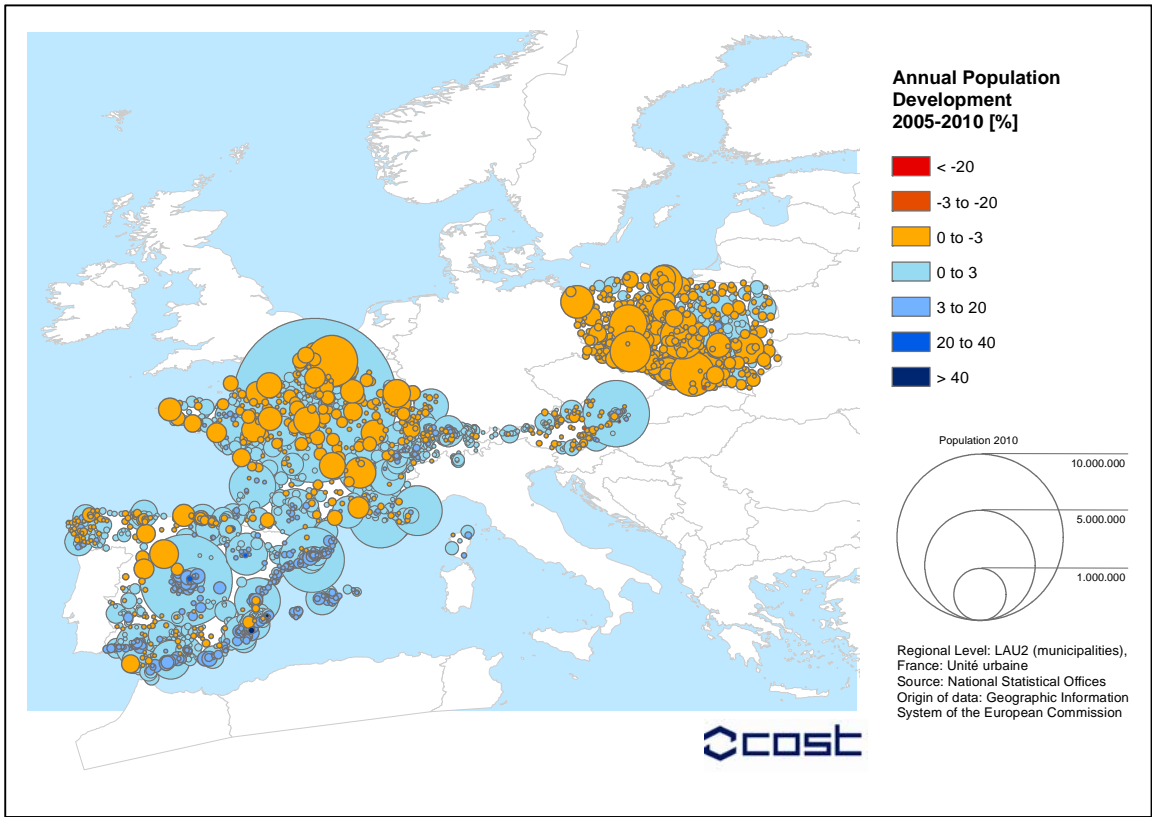
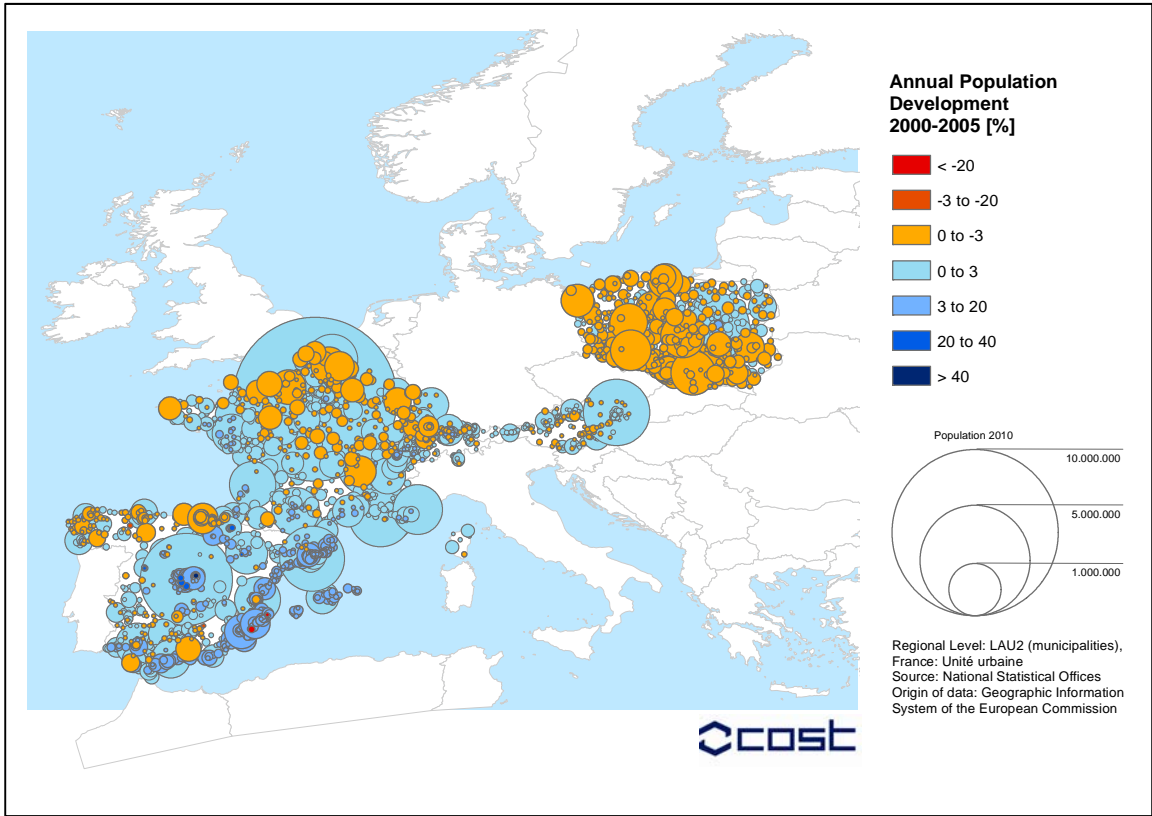


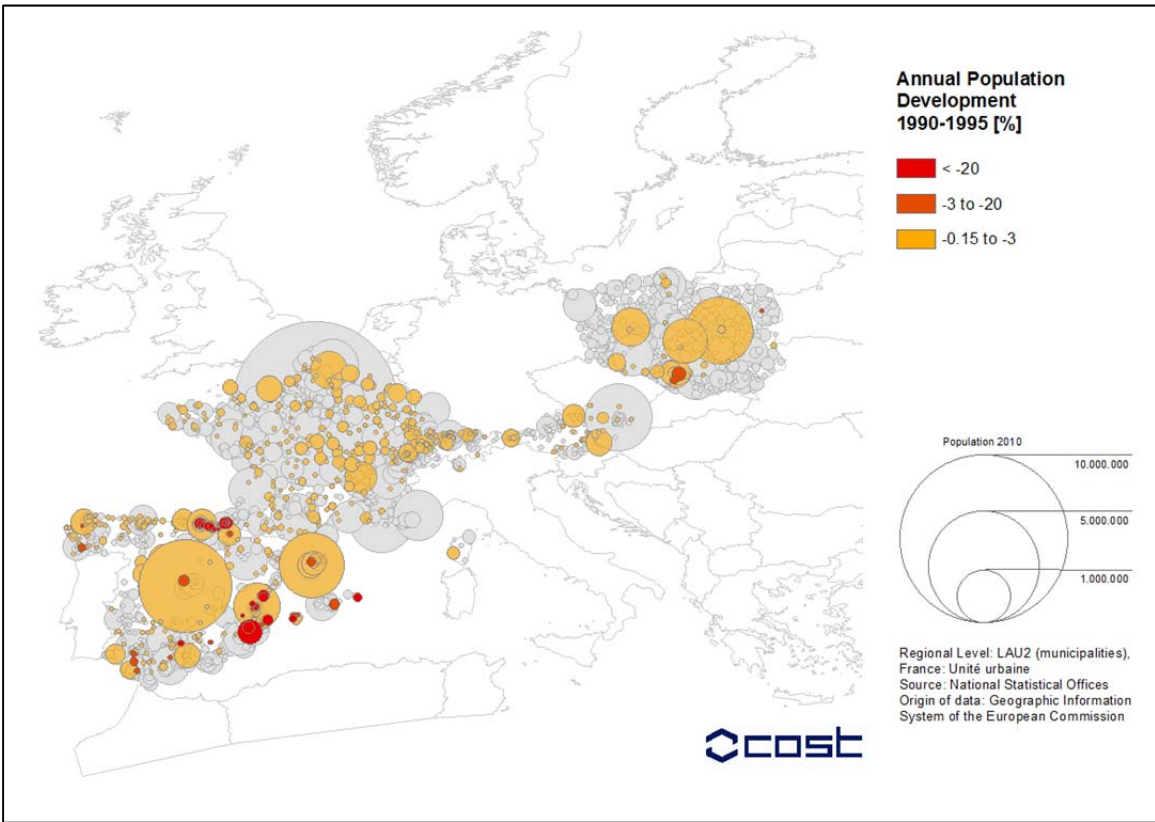
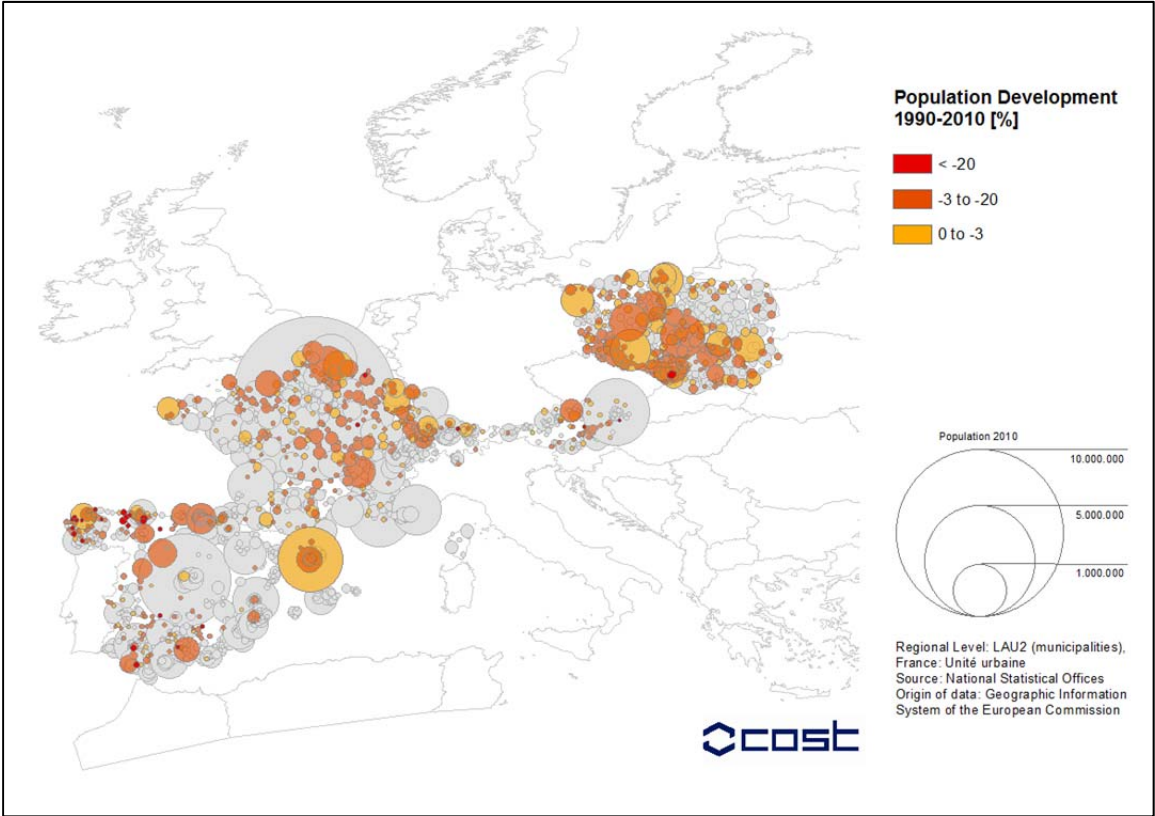
Picture 3: At the *Zeche Zollverein* Museum in Essen; Source: TU Dortmund ROP

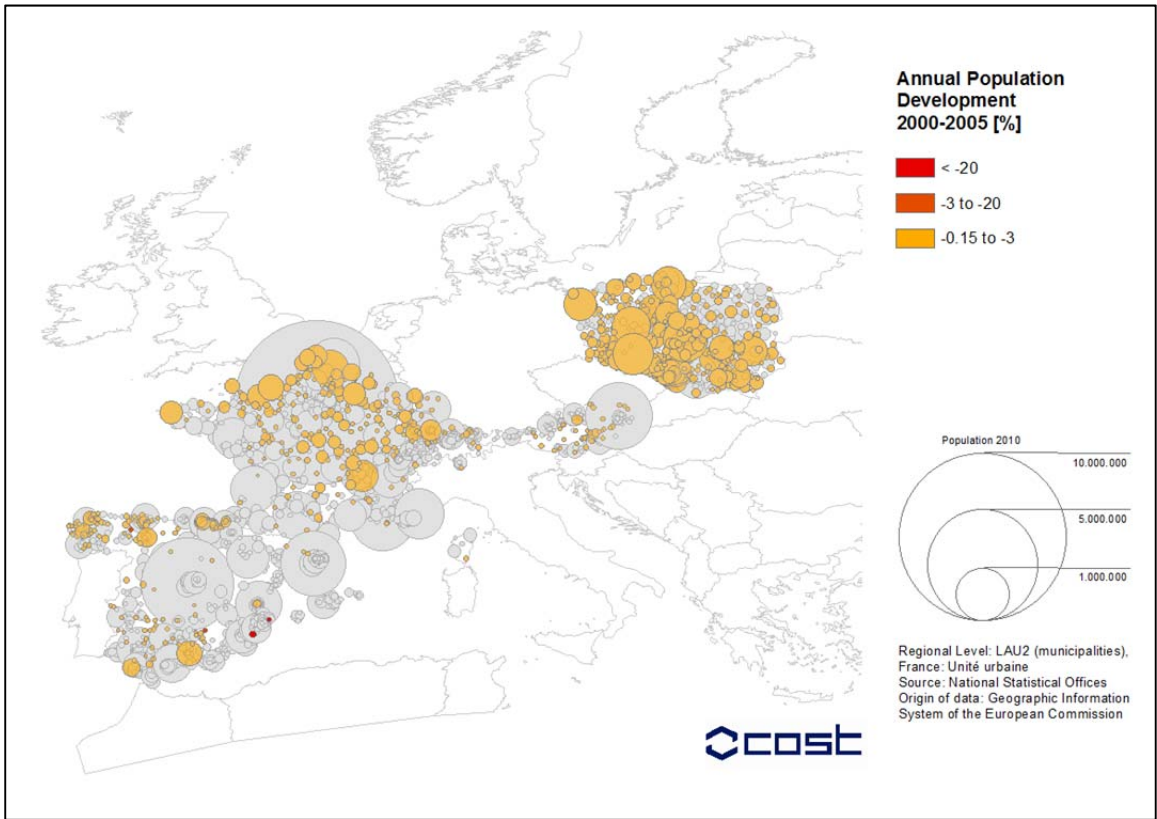
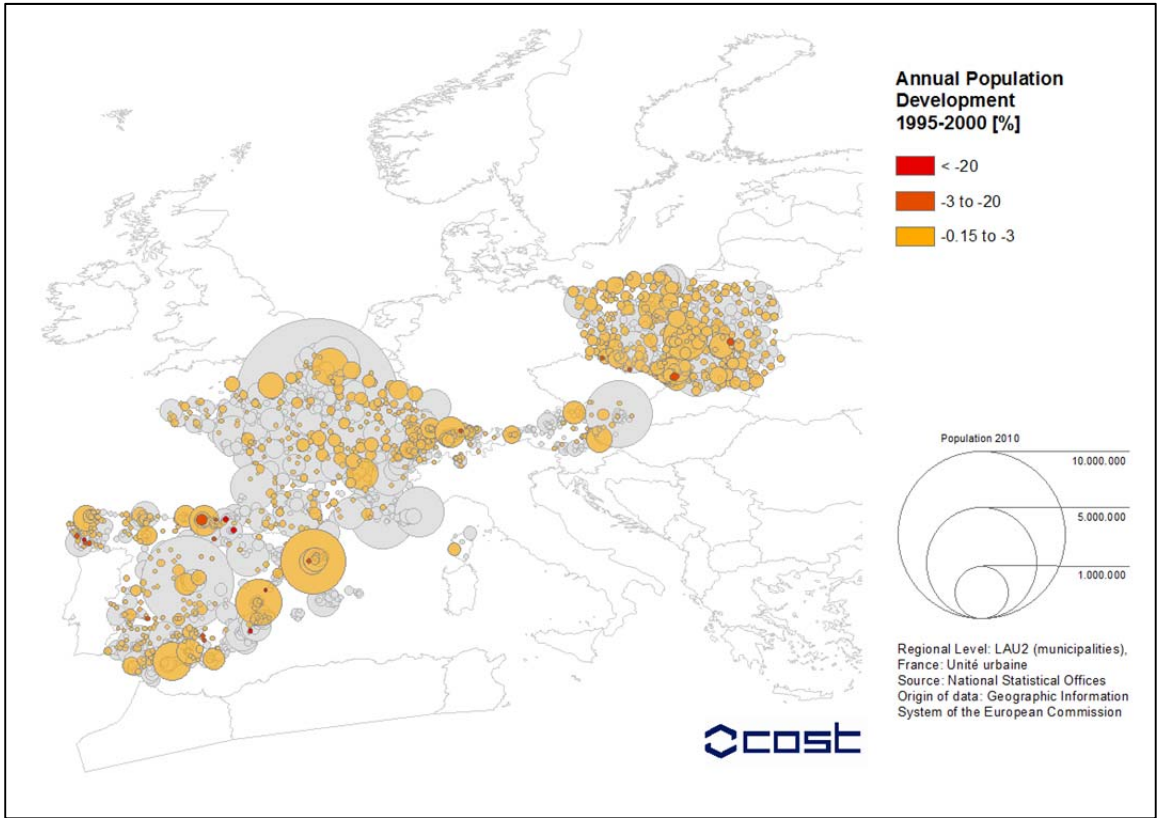
6.3. MAPS

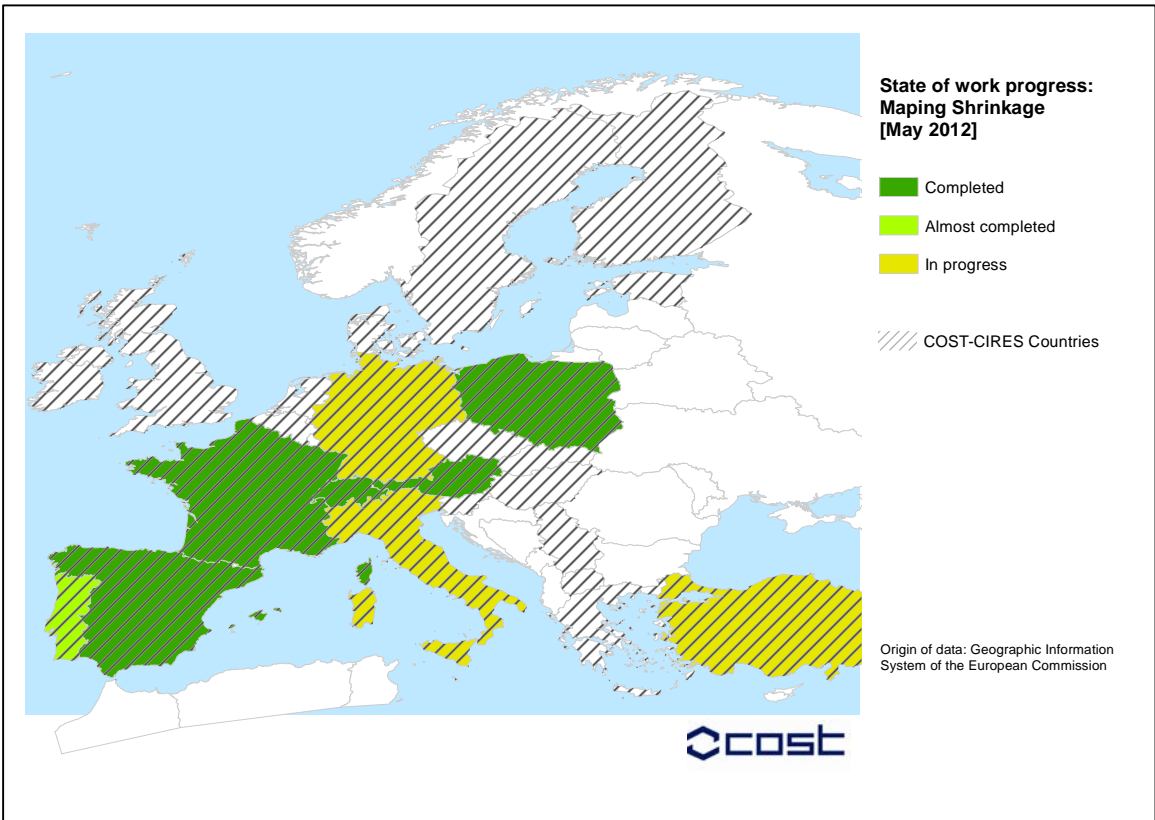
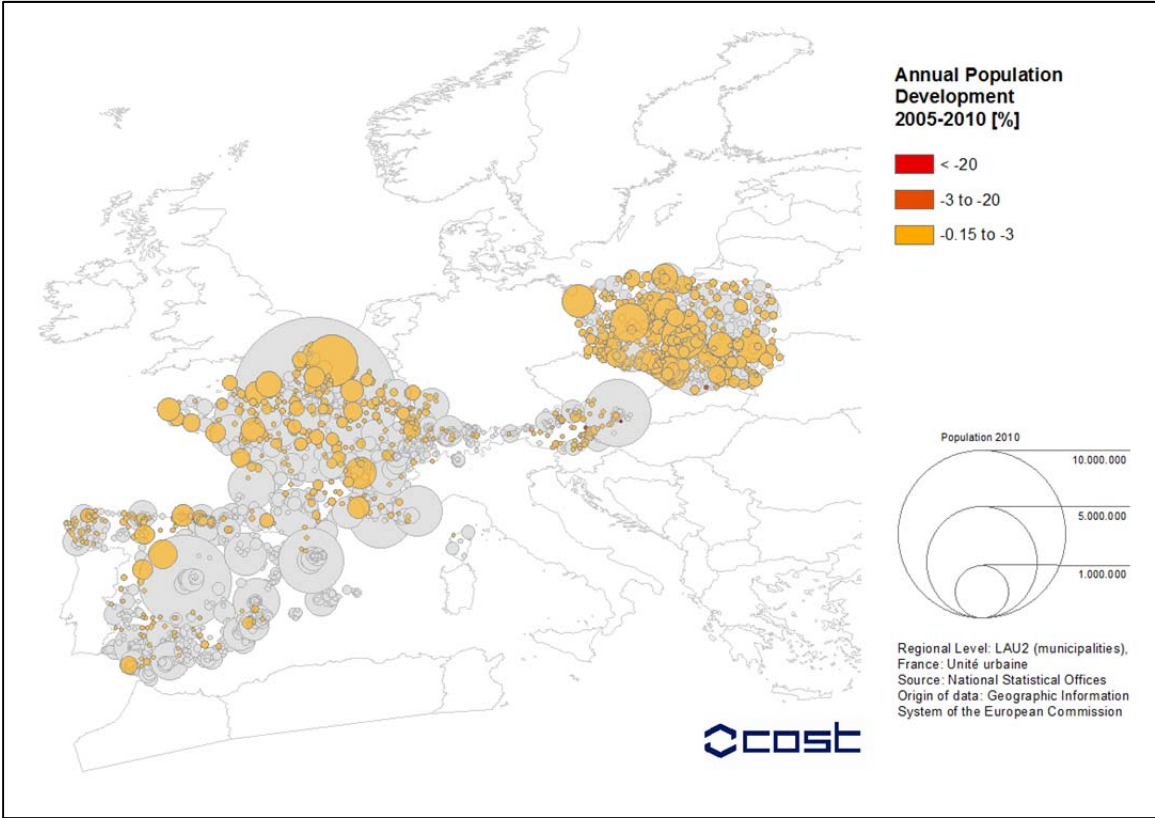












6.4. DATA SOURCES

Austria

Net-Migration

<http://sdb.statistik.at/superwebguest/login.do?guest=guest&db=def0873>

Birth-Death-Ratio

Statistisches Jahrbuch Österreichische Städte 1991, p.10, pp.66ff

France

Population of the municipalities for the years 2008, 1999 and 1990

<http://www.insee.fr/fr/ppp/bases-de-donnees/donnees-detaillees/base-cc-evol-struct-pop/base-cc-evol-struct-pop-08.zip>

Population of the municipalities for the year 2006

<http://www.insee.fr/fr/ppp/bases-de-donnees/donnees-detaillees/poplog-com/poplog-frm-09.zip>

Composition of the Urban Units in 2010

http://www.insee.fr/fr/methodes/zonages/unites_urbaines.zip

Population of the NUTS 3 for 2009, 2005, 2000, 1995 and 1990

<http://www.insee.fr/fr/ppp/bases-de-donnees/donnees-detaillees/estim-pop/estim-pop-dep-sca-1990-2009.xls>

Shape Files communes

Database GEOFLA;

<http://professionnels.ign.fr/ficheProduitCMS.do?idDoc=5323861#top>

Death and birth in 2009, 2005 and 2000

<http://www.insee.fr/fr/ppp/bases-de-donnees/donnees-detaillees/base-cc-evol-struct-pop/base-cc-evol-struct-pop-08.zip>

Germany

Italy

Poland

Net-Migration and Birth-Death-Ratio

www.stat.gov.pl

Portugal

Spain

Annual growth rate, Birth-Death-Ratio

www.ine.es

Net-Migration

<http://internotes.cajaespana.es/pubweb/decyle.nsf/datoseconomicos?OpenFrameSet>

Switzerland

<http://www.pxweb.bfs.admin.ch/dialog/statfile.asp?lang=1>
www.bfs.admin.ch

Turkey

Population Data
www.tuik.gov.tr