



**European Committee  
of the Regions**

**Commission for  
Territorial Cohesion Policy  
and EU Budget**

**COTER**

# **The impacts of metropolitan regions on their surrounding areas**

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Catalogue number: QG-01-19-812-EN-N; ISBN: 978-92-895-1030-1; doi:10.2863/35077



**This report was written by Erich Dallhammer, Martyna Derszniak-Noirjean, Roland Gaugitsch (ÖIR), Sebastian Hans, Sabine Zillmer (Spatial Foresight), and the case studies by Martyna Derszniak-Noirjean, Mailin Gaupp-Berghausen, Raffael Koscher (ÖIR), Sebastian Hans, Christian Lür (Spatial Foresight)**

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## Abbreviations

BMA	Barcelona Metropolitan Area
ERDF	European Regional Development Fund
ESF	European Social Fund
ESI	European Structural and Investment Funds
ESPON	European Territorial Observatory Network
EU	European Union
FDI	Foreign Direct Investment
FUA	Functional Urban Region
ICT	Information and Communications Technology
ITI	Integrated Territorial Investments
LAU	Local Administrative Unit
NO <sub>2</sub>	Nitrogen Dioxide
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organisation for Economic Cooperation and Development
PETR	Pôle d'équilibre territorial et rural
PM <sub>10</sub>	Particulate Matter 10
SGEI	Services of General Economic Interest
SO <sub>2</sub>	Sulfur Dioxide





# Executive Summary

A metropolitan region can be defined as a region with one or more densely populated urban cores in conjunction with the suburban zone. Metropolitan areas are the “engines” of development and can spread positive effects from the core city to the suburban zone as well as to their surrounding areas. However, they are also causing unintended negative effects.

The main spill-over effects of metropolitan regions to their surrounding areas are:

- Rural –urban migration: Metropolitan regions attract people. People are migrating from the rural peripheral areas to the metropolitan regions swelling the demand for affordable housing in urban areas as well as challenging the “shrinking” of rural areas.
- Societal links and multi-locality: People migrating from rural to urban areas keep social- and family ties to the area of origin. Multi-local lifestyles become important, challenging the transport systems.
- Access to facilities with the highest centrality: Metropolitan regions provide a mix of highly specialised facilities with relevance for the whole country, as e.g. universities, highly specialised hospitals, theatres with nationwide renown, research institutes, etc.
- Economic prosperity through agglomeration advantages: Metropolitan regions are the economic engines producing a high GDP per person employed driving a country’s economy.
- Linking the country to the world: Metropolitan regions are acting as “gateways to the world” of a country. Most international connections of a country as e.g. airports are rooted in metropolitan areas, a feature which is beneficial to the whole country.
- Cities as regional outlet markets: Metropolitan regions are the outlet markets for the surrounding areas. In particular, they are potential targets for short distance deliveries of agricultural products.
- Land take and soil sealing: Urban development in metropolitan regions stimulates land take and soil sealing. This does not only affect the suburban zone, but can also concern municipalities with a highly attractive landscape in the surrounding areas as targets for second home developments.

Unbalanced development within metropolitan regions and between metropolitan regions and their surrounding areas is challenged by a splitting of competences. Independent municipalities compete for influences, investments and inflow of residents. Their striving for individual advantages results in an overall unbalanced regional development. Solutions for achieving a more balanced development differ due to the different regional conditions and the government system. This calls for tailored approaches that pay attention to the following issues:

- A common perception of the challenges and shared goals by developing a common spatial analysis and a common urban-rural strategy;
- Development of a regional identity emphasising common history, values and goals strengthened by participatory processes at the level of citizens and public and private stakeholders.
- Finding the appropriate form of cooperation in relation to the needs and preconditions of the metropolitan region's governance system;
- Finding the cooperation themes that create added value, while leaving other development issues and administrative tasks to the municipalities;
- Implementing concrete metropolitan projects beginning with small steps first producing concrete results and showcasing cooperation;

ERDF funding can be an important tool for strengthening governance and implementing common "metro-regional" solutions. There are several different types of solutions to which EU funds can contribute; these are;

- Initial funding for less complex common projects which produce visible results, such as bicycle infrastructure, green infrastructure, metro-regional branding);
- Helping to strengthen institutional cooperation and institutional capacity building and thereby reducing administrative barriers to cooperation across metropolitan municipalities;
- Supporting common investments with projects of higher volumes, for example through tools such as ITIs, which should be made more visible and accessible (given the low interest for ITIs in the current period).

EAFRD can help explore cross-sectional issues in urban-rural links that contribute to both rural and metropolitan development. EAFRD can especially

support the establishment of regional value chains and direct marketing of agricultural products in metropolitan regions to create added value for the neighbouring rural regions as well as increase food supply in cities with lower transport distances. Moreover, the potentials for implementing EAFRD tools such as the community-led local development (CLLD) in the context of urban-rural cooperation should be explored.

Likewise, ESF can help finance actions that support metropolitan cooperation in social development.

Thus, ESIF funds can make cooperation more attractive and more accessible by offering financial means that make it possible to implement joint actions. As such, they can contribute to reducing the dangers stemming from competition and conflict in and between metropolitan areas.



# 1. Introduction

Urban areas are embedded in a wider territorial context. Metropolitan areas are the “engines” of development and can spread positive development effects throughout their regions. However, they are also causing unintended negative effects to the surrounding region.

EU policies should be designed to explore complementarities between urban and rural areas within metropolitan regions and with their surrounding areas, rather than to (unintentionally) encourage a competitive relationship which may be an obstacle to cooperation.

The file note will contribute to supporting policy-making by:

- Assessing the positive and negative spill-over effects of metropolitan regions on their surrounding areas (or on the country);
- Assessing the links between urban and rural areas through concrete examples of successful complementary relationships;
- Providing policy recommendations on how to better exploit the complementarity and encourage a fruitful relationship between urban and rural areas, avoiding the negative effects;
- Providing concrete examples of innovative ways of collecting statistical data on metropolitan areas in order to better assess their real situation (economical and societal situation).



## **2. Assessment of the spill-over effects of metropolitan regions on their surrounding areas**

### **What is a metropolitan region?**

Various definitions and delimitations of metropolitan regions exist. The OECD, in cooperation with the EU, e.g. uses the term “metropolitan area” which is defined as a Functional Urban Area (FUA) comprising a city with its commuting zone. It covers a minimum population of 250,000 (OECD 2019). This FUA approach focuses on the actual functional/economic links of Local Administrative Units (LAU). Eurostat applies the OECD typology at the NUTS 3 level for identifying metropolitan regions: in a NUTS 3 metropolitan region, at least 50% of the population lives inside a FUA that is composed of at least 250,000 inhabitants (EUROSTAT, 2019).

Yet, in practice there is no common way to delineate a metropolitan region. Especially the way stakeholders define “their” metropolitan region often differs from existing scientific definitions (ESPON SPIMA, 2018 p.1). Common ground for all definitions is the existence of one or more densely populated urban cores in conjunction with less-populated surrounding territories, which are functionally linked to the urban centres by sharing common infrastructure and facilities, opportunities and challenges. However, there is in reality no clear borderline between a city, its surrounding municipalities and the rural area in the hinterland: there is often a gradual transition between the urban and the rural areas.

Spatial planning science characterizes different types of land use patterns in the urban-rural context. They usually distinguish three categories of regions (Loibl, Piorr and Ravetz, 2011, p.25; Altmann et. al., 2012, p. 19):

- The urban area or city includes the city centre, the inner urban and the outer urban parts.
- The suburban/peri-urban zone includes a dispersed and non-contiguous fabric of built-up and open spaces surrounding the urban core areas. It comprises the villages in the direct neighbourhood of the cities under direct influence of urban sprawl.

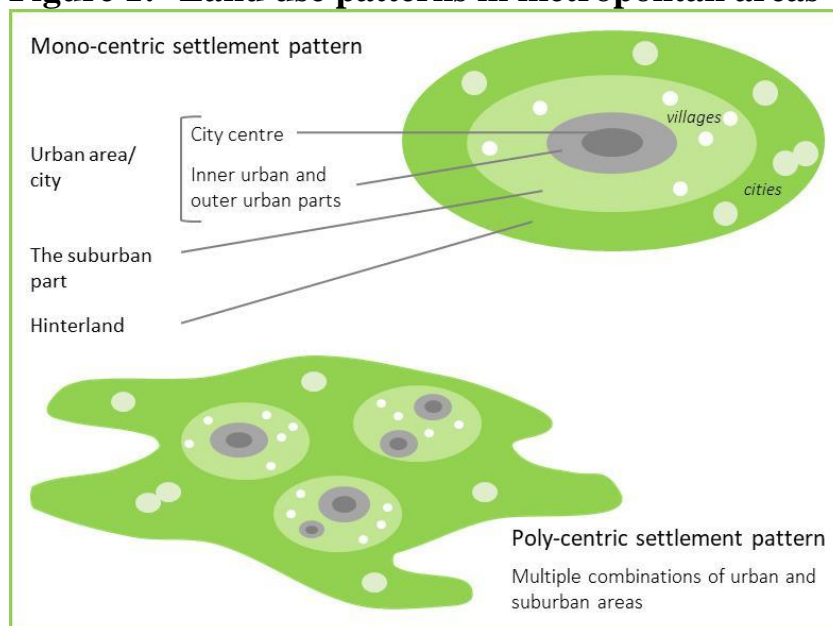


- The hinterland includes rural areas surrounding the peri-urban area as well as small and medium sized towns with potentials for linkages to the bigger urban centre.

## Working definition “metropolitan region”

In the file note, we understand the metropolitan region as a region with one or more densely populated urban cores in commuting-conjunction with the suburban zone. The hinterland is not part of it, though it is a part of the wider country which is influenced by a metropolitan region. Usually, a metropolitan region includes several independent municipalities.

**Figure 1: Land use patterns in metropolitan areas**



Source: ÖIR based on Loibl, Piore and Ravetz 2011 p. 25; Altmann et. al. (2012 p. 19).

## Relevant spill-over effects related to metropolitan regions

Cities and metropolitan regions generate spill-over effects on its surrounding areas. Spill-over effects can result in positive as well as negative impacts on the socio-economic development of the region, the environment and the quality of life. Many spill-overs are interlinked with each other. Based on existing work related to spill-over categorisation (Artmann et. al., 2012, Copus, 2013, Piacentini/Trapasso, 2010), the spill-over effects can be structured along the following categories (see

Table 1):

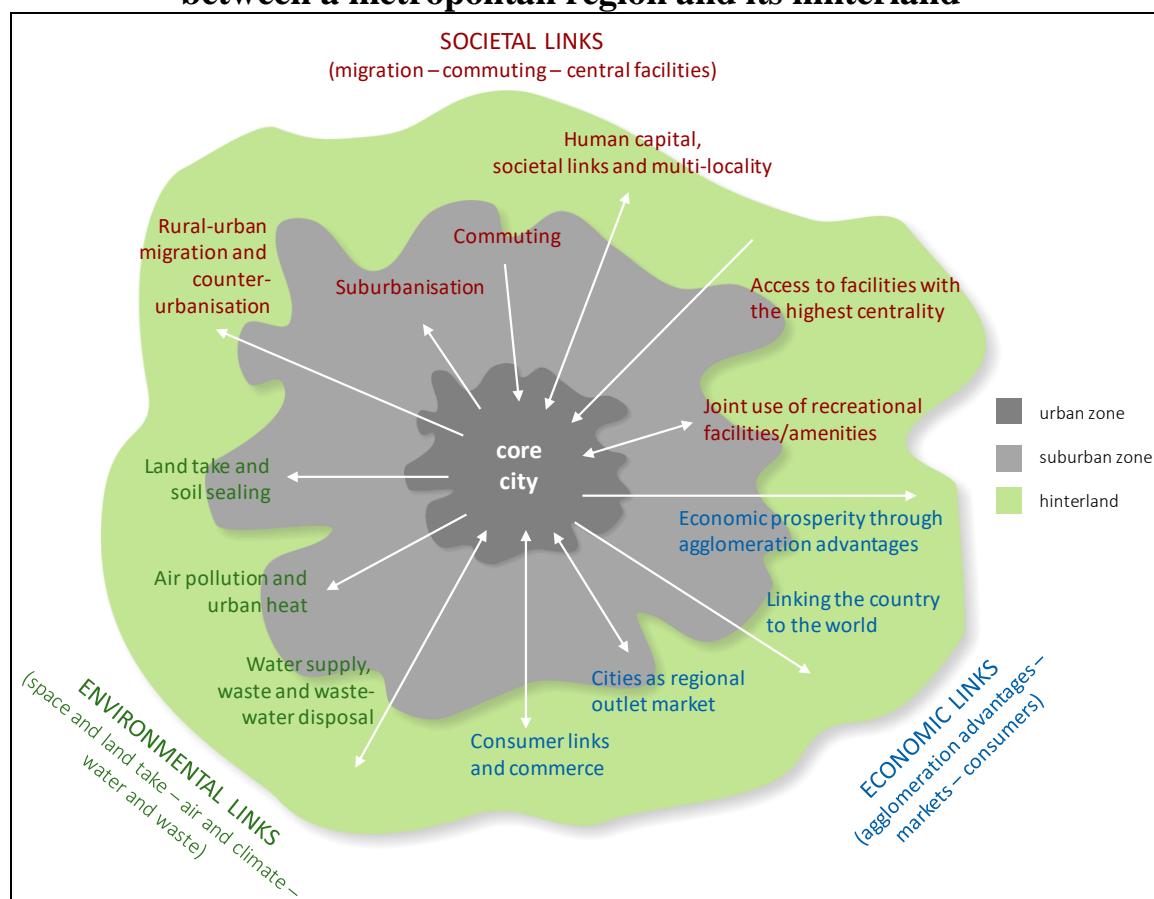
**Table 1: Categories of spill-over effects**

Main category	Observed effects
Societal links: migration – commuting – central facilities	<ul style="list-style-type: none"> <li>– Rural-urban migration and counter-urbanisation</li> <li>– Suburbanisation</li> <li>– Commuting</li> <li>– Human capital, societal links and multi-locality</li> <li>– Access to facilities with the highest centrality</li> <li>– Joint use of recreational facilities/amenities</li> </ul>
Economic links: agglomeration advantages – markets – consumers	<ul style="list-style-type: none"> <li>– Economic prosperity through agglomeration advantages</li> <li>– Linking the country to the world</li> <li>– Cities as regional outlet markets</li> <li>– Consumer links and trade</li> </ul>
Environmental links: space and land take – air and climate – water and waste	<ul style="list-style-type: none"> <li>– Land take and soil sealing</li> <li>– Air pollution and urban heat</li> <li>– Water supply, waste and wastewater disposal</li> </ul>

Source: ÖIR, 2019.

The figure below represents a general overview of the most important possible spill-over effects within a metropolitan region.

**Figure 2: Linkages of spill-over effects within a metropolitan region and between a metropolitan region and its hinterland**



Source: ÖIR, 2019.

The scope of the spill-over effects depends on the type of link, the size of the urban core and the transport infrastructure of the region. Usually, though not always, the intensity of a spill-over effect decreases with the distance to the urban core. For instance, the number of commuters decreases as the length of commuting distances increases<sup>1</sup>. Capturing these effects and their interrelations requires a characterization of the specific links and flows they relate to, their nature as well as their direction.

As the scope of spill-over effects varies due to the type of effect and the conditions of a metropolitan region, the file note describes spill-over effects from the metropolitan region to the surrounding areas as well as spill-over effects within a metropolitan region from the urban core to the suburban zone.

## **2.1 Societal links: migration – commuting – central facilities**

### **2.1.1 Rural-urban migration and counter-urbanisation**

Migration of people is caused by different opportunities offered within urban and rural areas. On the one hand, metropolitan regions provide a higher density of economic activities, more job opportunities and better access to services of general economic interest (SGEIs), whereas rural areas are often challenged by fewer job opportunities, fewer educational opportunities and more difficult access to public amenities. On the other hand, metropolitan regions are challenged by higher land prices and consequently less green and recreational areas and more pollution, whereas in rural areas land prices are lower and the environmental standards are higher. These factors lead to migration between metropolitan regions and their surrounding areas.

<sup>1</sup> However, in some cases, special urban-rural relations can cover very long distances. An example is the close touristic relation between Berlin and the island of Usedom at the Baltic Sea, which is a three-hour drive away. The nick name for Usedom as the bathtub of Berlin, dating back from the 19th century, shows this relation. (ARTMANN et al 2012 p. 33).

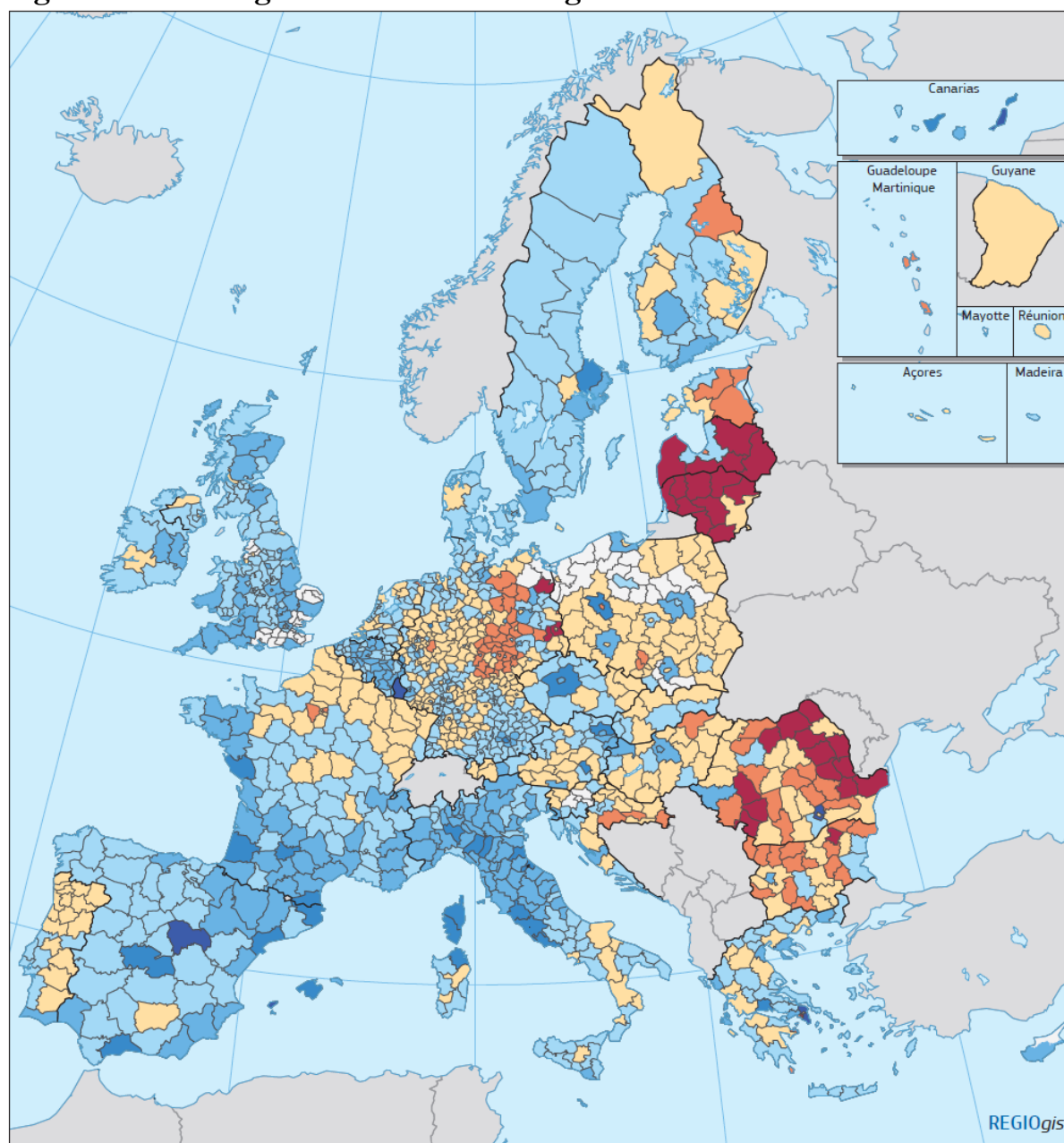
**Rural-urban migration** has been a significant trend since the beginning of industrialisation and has intensified in recent decades as opportunities have been increasing in cities. Estimates suggest that by 2050, an additional 24.1 million people will live in urban regions in Europe, while the number of people located in rural areas will decrease by 7.9 million (ESPON, 2018). The growing attractiveness of metropolitan regions to people is closely interlinked with the shrinking of rural areas and their marginalisation. As their residents have relocated, rural areas have become marginalised, economically underperforming, inaccessible and unable to provide SGEIs for remaining populations, which fuels further depopulation. Thus, the push factors of metropolitan regions cause the “shrinking” of rural areas. This effect can be observed throughout Europe. Most metropolitan regions show a positive net migration, even in countries where many regions face a negative net migration (see the following map).

**Counter-urbanisation** is the opposite trend to rural-urban migration. This concept refers to the migration of people from the metropolitan region to rural areas in the hinterland, keeping loose ties to the metropolitan region. The reasons for counter-urbanisation can be as diverse as new rural job opportunities, low land prices enabling more affordable space for residential use or the individual attractiveness of a rural lifestyle. Counter-urbanisation is often combined with commuting and/or home office work. Even if this phenomenon is minor, it could be an upcoming trend due to changing lifestyles and the opportunity of re-locating work in home-based office.

### ***Link to metropolitan policy***

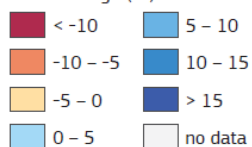
*In response to these spill-over trends, a policy dealing with rural-urban migration is challenged to keep job opportunities and public amenities within rural areas in order to improve the quality of life in and attractiveness of these areas. Furthermore, such policy needs to channel the rural-urban migration by providing living space in the cities to avoid a housing shortage leading to higher housing prices, which puts pressure on the inhabitants of the cities and entails out-migration.*

**Figure 3: Net-migration in NUTS 3 Regions 2005-2015**



**Map 2.2 Net migration in NUTS 3 regions, 2005–2015**

Total change (%)



EU-28 = 2.18

DK, DEA, DED, DEE: data before 2007 was extrapolated.

PLS2, UKD3, UKI3, UKI4, UKI5, UKI6, UKI7: NUTS 2

Source: Eurostat, DG REGIO

0 500 km

© EuroGeographics Association for the administrative boundaries

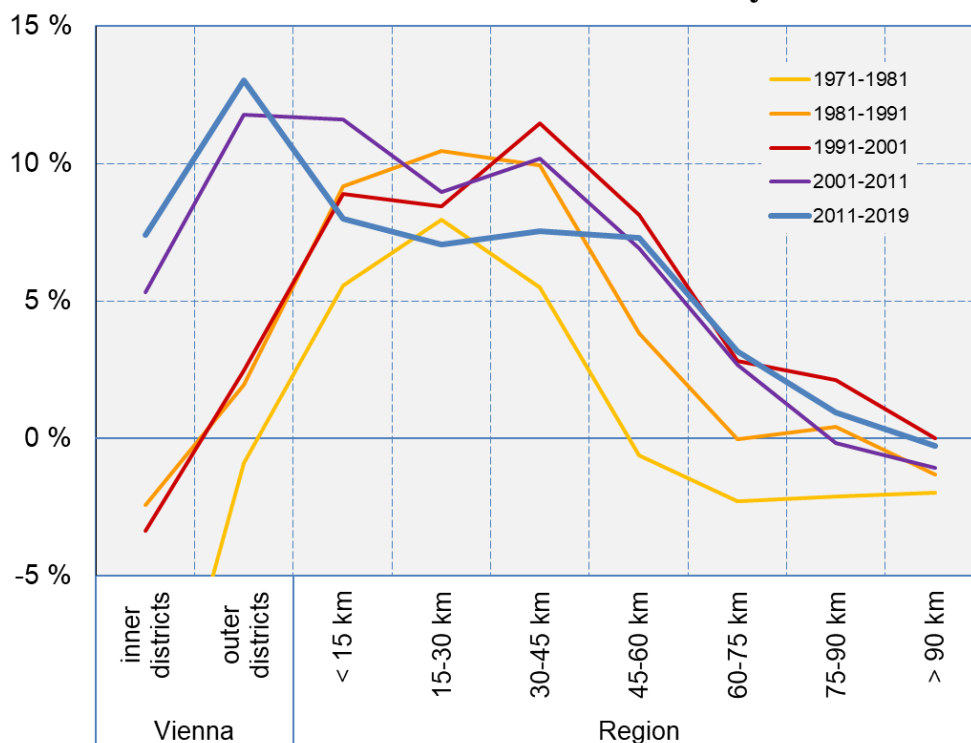
Source: European Union, 2017

## 2.1.2 Suburbanisation

Suburbanisation refers to migration within the metropolitan region. People are moving from the core city to the suburban zone within daily commuting distances. These more rural municipalities in the suburban zone of cities become an especially attractive residential alternative to the densely populated centres due to lower land prices and their proximity to open land. As more and more people migrate to these areas and commute to work, surroundings of urban cores are growing, land take is increasing and the originally rural municipalities become part of the suburban belt around the core cities leading to the (unwanted) effect of urban sprawl.

This process is not only concerning municipalities in the suburban zone. It reaches beyond the immediate neighbourhood into rural areas and towns well connected with urban centres and within a daily commuting distance (ESPON URUC, 2018 p.15f). The scale of suburbanisation is varying, as a closer analysis of population development in the Vienna region shows (see Figure 4). Between 1981 and 2001 the population within the city declined, whereas it increased in its surrounding area up to a distance of about 60 kilometres. Municipalities located further away from the city of Vienna experienced less population growth. Recent developments from 2001 show re-location tendencies to the city.

**Figure 4: Development of population in municipalities in the Vienna region related to the distance to the core city**



Source: ÖIR 2019.

### ***Link to metropolitan policy***

*A regional planning policy of a metropolitan region is challenged to manage sustainable spatial development by balancing provision of building land for enabling urban development in the city and its vicinity, while saving spatial resources, minimising land take and sustaining sufficient green space in the metropolitan area for ecological purposes, regional agriculture and recreational areas.*

### **2.1.3 Commuting**

Commuting describes regular travels for work- or education-related activities. Usually, it takes place between residential areas and city centres. The better commuting possibilities are, the more attractive relocation beyond the core city becomes. Indeed, the availability of means for commuting specifies the direction and extent of suburbanisation to a large extent. High speed transport systems to the core city fuels commuting along the transport axes. So, daily commuting is mainly going on within the metropolitan area.

The example of the region of Frankfurt Rhine Main in Germany highlights commuting intensities found in many highly interlinked metropolitan regions. In 2018, 58 of the 75 municipalities in the region had a surplus of out-commuters, in some cases of up to 60% of the total workforce of the municipality with most of them commuting to the core city of Frankfurt. Consequently, the core city of Frankfurt shows the highest surplus of in-commuters in the region (+ 267,000). Most municipalities with a surplus of in-commuters are direct neighbours of Frankfurt. Municipalities with lower shares of out-commuters to Frankfurt are located at the outskirts of the metropolitan region. This shows clearly the declining influence of the core city with increasing distance. (See case study in the annex).

Depending on the modal split and the share of commuting made by private cars, commuting causes environmentally negative effects as e.g. air and noise pollution as well as land consumption. For instance, traffic congestion in the Region Nantes arises from more than 35,000 daily transports towards Nantes and 11,000 into the opposite direction (Auran, 2019). About 60% of the daily commuting is made by car causing a high level of network saturation, high pollution levels and high individual transport costs (PETR<sup>2</sup> Pays de Retz and AURAN, 2017).

<sup>2</sup> PETR = pôle d'équilibre territorial et rural.



However, between the metropolitan regions and its surroundings, long distance commuting can be observed. Often this is taking place on a few days during the week and linked with the counter-urbanisation.

### ***Link to metropolitan policy***

*A transport policy for metropolitan regions is challenged to provide a private and especially public transport network to enable fast commuting in an efficient way. At the same time, it should ensure the minimisation of negative environmental effects caused by commuter traffic such as air pollution, noise and a progressive urban sprawl and land take. Such policies act not only as a means of providing adequate transport opportunities, but also greatly influence suburban development patterns.*

## **2.1.4 Human capital, societal links and multi-locality**

In 2016 almost 60 % of the population within the EU was living in metropolitan regions and in most metropolitan regions the population is growing. Thus, the metropolitan regions are the main sources of human capital and there is a continuously inflow of people due to the rural-urban migration (see chapter above).

However, even if people migrate from the rural areas to the metropolitan regions, social ties between them persist. Relatives and friends live in the rural areas, children living in the city visit their parents and grandparents in the rural areas, people inherit houses or properties when the parents pass away.

Through counter-urbanisation and suburbanisation people are living in the vicinity of a city, but are still connected to the life in the city through friendship, the use of cultural or educational institutions in the city and other social networks.

Multi-local lifestyles become increasingly important. More and more people live in more than one place and organise their everyday life in and between different homes. Often, there are only loose ties involving social relationships (Weichart, 2015). This multimodal lifestyle affects many spheres: housing, work, leisure, social relations etc.

Multi-locality is a chance for peripheral rural areas with a high environmental quality and considered as attractive places to live in, while enabling to keep ties to the economically strong cities. Consequently, mobility becomes more and more important as a determinant of daily life organisation. Furthermore, high

speed access to the electronic communication media, internet and mobile phone coverage throughout the country are preconditions for multi-local lifestyles.

### ***Link to metropolitan policy***

*A policy for metropolitan regions is challenged by the role of metropolitan regions as living place for the majority of the population. It will enable sustainable mobility and the high quality access to internet and mobile phone to enable multi-local life-styles that could increase the attractiveness of rural areas balancing rural-urban migration by supporting multi-local lifestyles.*

## **2.1.5 Access to facilities with the highest centrality**

Cities offer certain public and private services not only for the urban citizens, but also for people living in the surrounding area. These so called “central goods” require a sufficient demand base to be provided and maintained efficiently. Consequently, they are usually located in urban regions, which provide a sufficient number of potential consumers due to its high densities. The higher the “centrality level” of a “central good”, the more potential consumers are required within their catchment area.

Thus, high level goods are usually located in metropolitan regions, because they have the largest sphere of influence of a country. Their scope reaches far beyond the metropolitan region’s borders. Such goods with the highest centrality are e.g. higher education institutions like universities, highly specialised hospitals, theatres with nationwide renown, opera houses, headquarters of banks and insurance companies, highly specialised shops, research institutes, laboratories etc. Metropolitan regions offer a broad mix of these highly specialised facilities. They have a social function as providers of these goods for the whole country.

### ***Link to metropolitan policy***

*A policy dealing with the role of metropolitan regions as providers of highly specialised central goods for the country is challenged to support the urban regions financing these facilities. It needs to strive for a balance between the costs linked to the maintenance of these facilities while increasing the positive spill-over effects of these facilities to the whole region by enabling access also for people living in the surrounding areas.*

## **2.1.6 Joint use of recreational facilities/amenities**

In urban areas green space and recreation areas are limited, whereas the suburban area and especially the rural hinterland is usually characterised by

open, unbuilt areas with abundance of green space. They play an important role in satisfying recreational and leisure needs of residents of the core city. This can lead to the development of recreational areas such as golf courses, amusement parks etc., or the development of second homes (ESPON FOCI, 2010, p. 237).

Urban citizen benefit from the amenities offered in rural areas. The “within hinterland” tourism and leisure can be an economic opportunity for rural municipalities.

### ***Link to metropolitan policy***

*A policy dealing with urban-rural relations concerning recreation and leisure has to strike a balance between utilising positive spill-over effects from presence of green areas as recreational sites and mitigating potential negative effects, such as “over-tourism”, land consumption by second homes or traffic related problems. These negative effects could pose environmental problems, diminish the recreational value of areas and/or put pressure on rural inhabitants.*

## **2.2 Economic links: agglomeration advantages – markets – consumers**

### **2.2.1 Economic prosperity through agglomeration advantages**

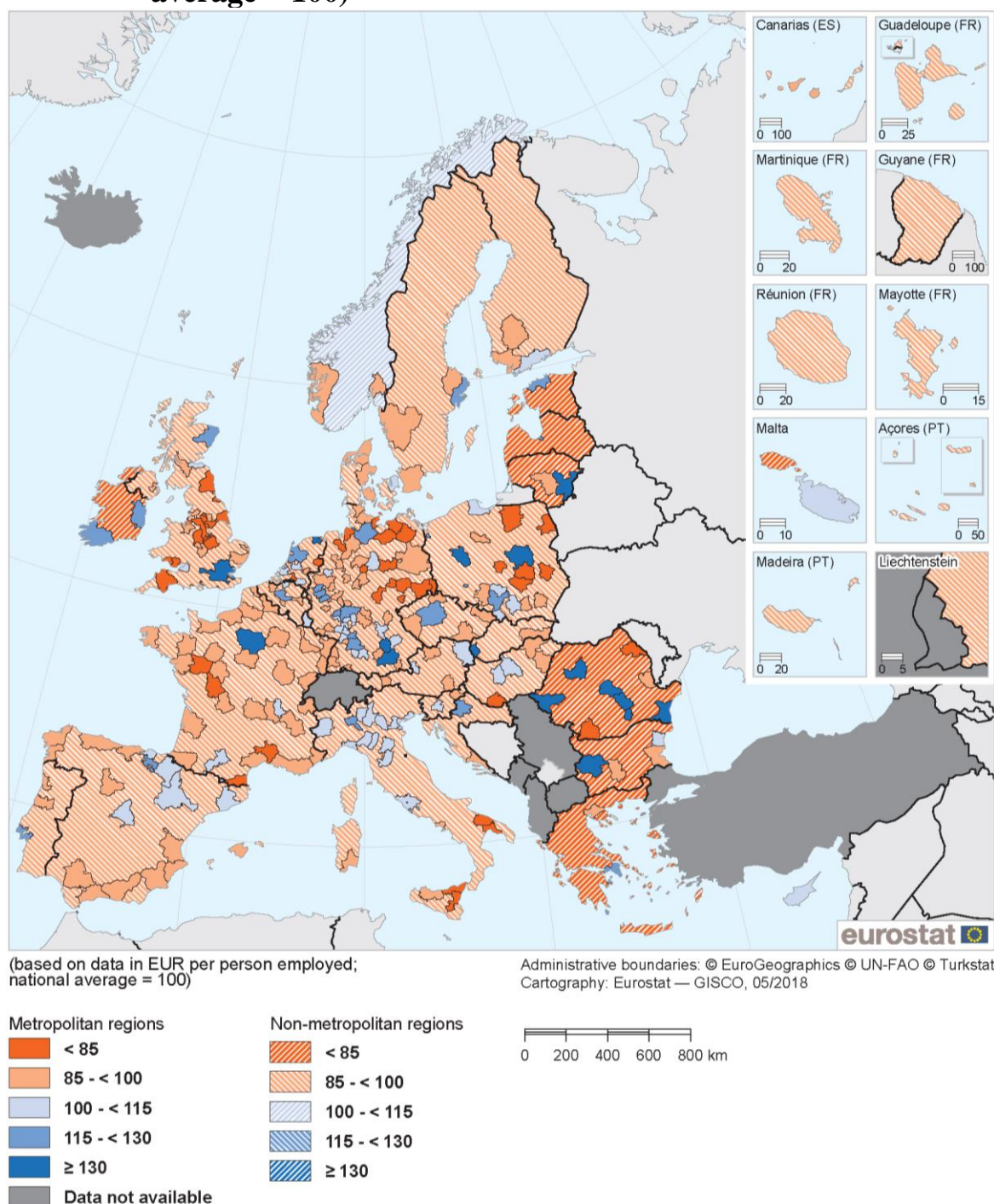
*“Cities are economic engines in every country because they concentrate the social and economic activities that allow existence of economies of scale plus economies of agglomeration.”* (Villamil, 2010). One reason for this economic power of cities is that they provide relevant infrastructure to enterprises such as transport facilities and educational facilities like universities. These facilities are attracting businesses clustering their economic activities, a phenomenon which then stimulates the establishment of other businesses in the region benefitting from agglomeration advantages.

Statistics show that economic activity is highly concentrated in metropolitan regions. In 2015 metropolitan regions contributed to almost 72% of the EU-28’s GDP, whereas just less than 60% of the total EU population is living in metropolitan regions (Eurostat 2019).

The following map contrasts levels of GDP per person employed in metropolitan and non-metropolitan regions in 2016 related to the national averages (which are set equal to 100). It shows that the average GDP per person

employed in non-metropolitan regions was consistently lower than the national average.

**Figure 5: GDP per person employed relative to the national average, by metropolitan and non-metropolitan regions, 2016 (national average = 100)**



Note: Germany, Greece, Spain, France, Croatia, Italy, Latvia, Lithuania, Hungary, the Netherlands, Austria, Poland, Portugal, Romania, Sweden, the United Kingdom and Norway, 2015. Ireland: 2014.

Source: Eurostat (online data codes: met\_10r\_3gdp, met\_10r\_3emp, nama\_10r\_3gdp, nama\_10r\_3empers, nama\_10\_gdp and nama\_10\_pe)

Source: Eurostat, 2019.

In 16 metropolitan regions the average GDP per person employed was at least 30 % higher than the national average (as shown by the darkest blue shade on the map). Several of these highly productive metropolitan regions were located in the eastern parts of the EU, as e.g. in Poland (Warszawa), Slovakia (Bratislava), Lithuania (Vilnius), Bulgaria (Sofia) and Romania (Bucuresti, Constanta (on the Black Sea), Cluj-Napoca (north-west Romania), Timisoara, Brasov and Ploiesti). Only the capital cities of France (Paris) and the UK (London) and two regions in the south of Germany (Ingolstadt and München) counted a GDP per person employed more than 30 % higher than the national average in 2015 (Eurostat 2019). This analysis shows clearly the importance of metropolitan regions for the economy of a country, especially in many Eastern European countries.

However, not only the core cities benefit from these agglomeration advantages. Rural regions located near the urban cores benefit as well and show higher GDP per capita levels than more peripheral rural regions (van Leuwen, 2015). This is a clear hint that surrounding municipalities in the suburban zone benefit from the agglomeration advantages. They are able to offer industrial development sites for lower prices and operating costs as well as better access to the motorway network for business and jobs. This leads to a competition for business developments within a metropolitan region and to a “suburbanisation of business”. A relocation of enterprises can be observed when sufficient space for further developments at acceptable price is lacking in the urban area.

This often results in sub-optimal settlement developments with high land take, the need for long distance commuting with potentially negative environmental effects. For instance, in the region of Nantes in the direct proximity of the core city spill-over effects have led to the creation of a considerable amount of industrial activity zones, depending mainly on motorised means of transport (AURAN, 2015).

### ***Link to metropolitan policy***

*An economic policy for metropolitan regions will try to maximise impact of the positive effects of the agglomeration advantages throughout the country using their strength for all regions within a country. Furthermore it will aim at avoiding competition between the municipalities within a metropolitan region that leads to negative external effects on the environment and land use.*

## **2.2.2 Linking the country to the world**

Metropolitan regions are acting as “gateways to the world” of a country, e.g. by operating an international airport. International airlines are seeking for a

maximum of potential passengers. Metropolitan regions with their high population numbers within a short catchment area fulfil the airlines' economic expectations better than less densely populated rural areas. Thus, the country's transnational-links to neighbouring countries and the rest of the world is often accessed through the air-transport links established by the metropolitan regions.

International connections are driving the regional economy through, among other things, spill-over effects which are linked to foreign direct investment flows (ESPON Territorial Review, 2017). The presence of an internationally established metropolitan region is a chance for the entire country to participate in international business.

#### ***Link to metropolitan policy***

*A policy for metropolitan regions will try to strengthen the international connection of metropolitan regions while establishing the metropolitan regions function as “gateways to the world” for the regions throughout the country.*

### **2.2.3 Cities as regional outlet markets**

The core city, other parts of the metropolitan region and surrounding areas benefit from the exchange of daily goods. There is a long tradition of delivering agricultural products and commercial goods from the surrounding areas to the city. They are crucial for food provision to the urban population.

For instance, in the Barcelona region agriculture and food industry play an important role. Consequently, trade between the rural areas and the metropolitan region is largely related to agriculture. In a similar manner, the city of Nantes is a major food consumer in the area while many firms and farms in the region are food producers. However, with the current procurement practices, there are limited possibilities to support short distance food supply chains. This limits the benefits possibly available from complementary production structures between metropolitan regions and their surrounding areas.

#### ***Link to metropolitan policy***

*A policy for a metropolitan region will especially try to strengthen the economic links between the metropolitan region and the surrounding areas. A special focus should be put on developing the city as a market for rural products grown in the municipalities nearby.*

## **2.2.4 Consumer links and commerce**

Historically, city centres hosted commercial and shopping centres. However, also shopping centres follow the suburbanisation trends. Suburbanisation and urban sprawl lead to the development of new infrastructure and capacities for provision of goods and services in the surrounding rural or urban areas.

Such developments can be observed in many European metropolitan regions. For instance, in the region of Warsaw increasing suburbanisation occurred along the local railway axis Warszawska – Kolej – Dojazdowa (WKD). Shopping opportunities were developed in towns located approximately 30 km away from Warsaw. This reduces travel distances for suburban residents while further enhancing suburban sprawl. These suburban facilities compete with the traditional shopping areas in the cities and the shops in the centres of the small towns and villages in the metropolitan region. This implies urban sprawl at the cost of economic development in small cities and city centres.

### ***Link to metropolitan policy***

*A policy for metropolitan regions is challenged to set the frame for securing the provision of goods to all people in the metropolitan region in a sustainable way. This has to accommodate for residents of outer areas of metropolitan regions without leading to urban sprawl and its negative environmental effects or decline in centres.*

## **2.3 Environmental links: Space and land take – air and climate – water and waste**

The ecological footprint of a metropolitan region goes far beyond the city borders. Metropolitan regions have a great impact on the environment due to land consumption for buildings and infrastructure, the consumption of natural and energy resources and the pollution they cause. In contrast, rural areas have less economic power but they provide natural assets of higher quality like water, clean air, open space, biodiversity etc.

### **2.3.1 Land take and soil sealing**

Urban development requires land. As the availability of land within the core city is limited, urban development usually spreads out into its surrounding area. Land prices are declining with the distance to the core city, whereas the agglomeration advantages are still relevant for the suburban population. Thus,

the municipalities in the suburban zone are targets for housing, industrial, commercial and transport infrastructure developments.

Furthermore, municipalities with a highly attractive landscape in the surrounding areas of a metropolitan region can be targets for the establishment of second homes. If second homes are focusing on the refurbishment of empty houses in the rural areas, they can contribute to reducing the decline of village centres. However, if the development of second homes takes place on green-field sites, land take will also increase in rural areas.

Land take leads to the loss of green areas, biodiversity and agricultural land. It increases soil sealing and reduces the infiltration of rainwater which can lead to a higher risk of flooding and higher temperatures within the settlement areas. Uniformed suburban development can reduce the quality of both the landscape and townscape.

Yet, cities require fewer roads and less land per resident. Rural areas have more than ten times the local road length per capita than cities. Per resident, buildings occupy four times as much land in rural areas per resident than in cities (European Union, United Nations Human Settlements Programme (UN-Habitat), p. 140, 2016). However, the way urban development is organised determines the amount of land required for it.

### ***Link to metropolitan policy***

*A policy organising urban development in a metropolitan region is challenged to enable development on adequate sites while reducing land consumption. This requires common spatial planning within municipalities in order to explore the most effective solutions for land use as well as integrative approaches considering spill-over effects in other areas that lead to suburbanisation and urban sprawl.*

### **2.3.2 Air pollution and urban heat**

Economic activities and private transport cause emissions and air pollution. Air quality is one of the major concerns in urban areas. Air pollutants, such as PM10, ozone, NO2 and SO2, all remain very significant health concerns for many urban residents (ESPON, 2013 p. 17). Air pollutants can migrate easily. Compared to cities, air conditions are better in rural areas.

Furthermore, during summer urban agglomerations with a high share of building areas are hit by heat waves that cause health issues. Management of green infrastructure can offer a solution since higher share of green space in rural areas contributes to lower temperatures. Green infrastructure networks linking the



metropolitan region to the rural areas can help to bring fresh air into cities, increasing the air quality and lowering the temperature in the city.

***Link to metropolitan policy***

*A policy for a metropolitan region targeting air and climate issues will ensure the development and protection of green infrastructure linking urban areas to its vicinity. This requires common spatial planning and appropriate management of land and other resources linked with the management of suburbanisation and urban sprawl.*

### **2.3.3 Water supply, and waste and wastewater disposal**

Urban areas require fresh water and room to deposit waste and wastewater. Due to the limited space in cities, often the hinterland is the source for delivery of water and energy to the cities. The water supply of a city for can be fuelled by sources that are located some 100 km away. For instance parts of the Vienna water supply is stemming from sources in the Eastern Alps located up to 150 km away from Vienna.

Moreover, waste it often treated and deposited outside the cities. Dumping sites for various types of waste are often located in rural areas. However, this does not hold true for all cities. In Vienna, collected waste is separated, burnt in the refuse incineration plant and the ash is deposited at the waste deposit within the city.

***Link to metropolitan policy***

*A policy for a metropolitan region dealing with water supply and waste treatment should coordinate the systems for collection and disposal of water and waste regionally. This includes the “importation” of natural goods from the hinterland to the city, but also the “exportation” of added value and jobs to the rural municipalities.*



### 3. Assessment of the links between urban and rural areas

The following chapter focuses on how the links between urban and rural areas linked in the spill-over effects can be managed. It provides concrete examples of successful complementary relationships from investigated cases.

#### Cooperation vs. competition

Cooperation within metropolitan regions as well as between metropolitan regions and their surrounding areas is challenged by the government structure. Independent municipalities compete for influences, including political influences as well as for investments and inflow of residents. They use various instruments in order to persuade potential investors and residents to commit to their area, hoping that their presence will lead to higher revenues, economic development and revitalisation. Among others, tools for promoting attractiveness of territories include improving of SGEI provision (ESPON, 2010), or environmental quality.

Both cooperation as well as competition requires management of spill-over effects. While it will not be possible to eliminate competition entirely, detrimental effects can be mitigated by adequate governance, exploring synergies and cooperation. Based on the literature review as well as case studies, we have identified four main areas in which effects in metropolitan areas are addressed by actions of authorities: *spatial development (including environment)*, *transport*, *economic development*, *services of general economic interest (SGEIs)*.

Cooperation on these topics takes place in various forms and intensities. It ranges from voluntary to legally binding action, which is performed either by independent cooperating municipalities or by a common administrative body. It includes the coordination of local and regional authorities regarding horizontal (between the same governance levels) and vertical (between different governance levels) relations.

#### Different governance constellations

Different constellations of forms and intensities of cooperation and cooperation themes are possible. There exists a wide variety of combinations as the case studies show (See the following table). The governance of metropolitan regions

and their relations to rural areas can be tailored to individual administrative and organisational settings.

**Table 2: Overview of case studies and different governance constellations between cooperation forms and intensities and topics**

Metropolitan area	Form and intensity of cooperation	Cooperation theme
Barcelona, ES	Common administrative body (Barcelona Metropolitan Administration) – centrally governed but with decision making involvement of municipalities	Overall territorial development
Frankfurt, DE	Common administrative body (Regional Association) – centrally governed	Spatial development
Katowice, PL	Common administrative body centrally governed	Transport
Nantes, FR	Voluntary action of municipalities (Reciprocity Agreement)	Transport and food supply
Rheintal, AT	Voluntary action of municipalities (Vision Rheintal)	Overall territorial development
Stockholm, SE	Common administrative body (County Administration)	Health care, public transport and regional planning and development

Source: ÖIR, Spatial Foresight, 2019.

### 3.1 Spatial development and environment

In many cases of metropolitan development, the primary challenge is the spatial steering of developments and effects of metropolitan growth. This is often the case with respect to phenomena such as suburbanisation and urban sprawl which, negatively impact on the environment.

The most evident case of such cooperation is Frankfurt where municipalities provide a mandate for a central body to steer common spatial development. The central body, organised as Regional Association, includes 75 member municipalities of the Metropolitan Region of Frankfurt which has been formally made responsible for the development of a regional land use plan using such a possibility as provided within German law. At the same time, municipalities are still responsible for development of legally binding local zoning plans which should be aligned with the regional plan. Moreover, their involvement in decision making is enforced through the general assembly (“Verbandskammer”) and the board (“Regionalvorstand”) as its two main bodies. National or state authorities do not play a role in this cooperation. However, they can be involved on specific tasks or projects, e.g. the state authorities responsible for spatial planning and development at state level.

In the Rhine Valley in the Austrian province of Vorarlberg, cooperation on a wider range of topics, including spatial planning, takes place via different venues. 29 municipalities of the Vorarlberg Rhine Valley have been cooperating on a voluntary basis towards a common Vision Rheintal. Among others, cooperation projects have addressed administration with regard to regional

building law or regional planning. Such projects included even cross-border cooperation with Switzerland in order to improve cross-border planning processes. One result of this cooperation was the establishment of the association “Agglomeration Rheintal”. In order to further promote sustainable development of the region until 2030, the spatial concept “Raumbild Vorarlberg 2030” was developed and implemented by the regional government as a follow-up of Vision Rheintal. This strategic document creates a framework for the sustainable spatial development of the Rhine Valley over the next 10 to 15 years. It, therefore, forms the basis for regional spatial planning and for the preparation of regional spatial plans as well as other spatial planning instruments and covers the following topics: open space and landscape, settlement and mobility, economy, tourism, agriculture and forestry, regional cooperation.

In Upper Austria small and medium sized towns were invited to develop a city region strategy under a common framework funded by ERDF. This was a first step of awareness rising on urban rural links at municipal level which was supported by the administration of the province government. Additionally, follow-up projects were funded by the ERDF for implementing concrete urban-rural infrastructure, like bicycle infrastructure or green infrastructure.

Stockholm and Barcelona represent yet another approach. The metropolitan governance in both cities deals with regional development in an integrative and holistic manner, given its wide range of competences of which spatial planning and various aspects of environmental protection linked to it. Spatial planning is addressed via links to land use, public transport, housing, international connections and resource efficiency. While the topics addressed by metropolitan governance are similar in Stockholm and Barcelona, the form of governance itself varies slightly. In Stockholm to a large extent cooperation recognises independent competences of different governance levels. Thus, in some aspects, metropolitan governance is limited to provision of common strategic framework and municipalities carry out various tasks in accordance with the strategy.

## **3.2 (Public) transport**

Transport infrastructure is an important issue for metropolitan areas given that it is crucial for accessibility, which in turn is related to various kinds of flows within and beyond metropolitan areas, such as flows of people (commuters or tourists), services and goods. Transport planning requires either cooperation of areas or an overarching body.

Transport planning includes both road and rail planning. This is especially important for commuting: Residents need to commute to work or educational

institutions. Transport planning is also crucial for mitigating negative spill-over effects from commuting and other sources of transport. Usually, with the proximity to the core city, public transport networks are denser, the quality, frequency and times of operations are higher. Municipalities benefit from their location in metropolitan regions becoming more and more connected into the metropolitan transport network, as authorities try to facilitate the various flows and exchange taking place. Increasing number of passengers warrants investments into public transport, which facilitates resigning from car use. Better accessibility also opens new opportunities not only for commuters but also for businesses.

The Silesian region with its core city Katowice provides an example for centralised transport planning and coordination. The area has a polycentric structure with many urban areas (13 out of 26 municipalities are urban municipalities). While the city of Katowice remains the core city, the urban character of the region, i.e. cities and towns neighbouring Katowice, retain their economic activity. This structure reflects the need for common transport planning. Moreover, the establishment of the transport policy is understood and expected to contribute also to other areas of the development of the metropolitan region including socio-economic and spatial development.

In this case, municipalities of the region have mandated a common administrative metropolitan body, the Centre for Transport Management of the Metropolitan Transport Administration. Its main task is planning, harmonisation and supervision of transport. The centre facilitates information flows and management of transport in the metropolis. It supervises traffic of over 1,000 transport vehicles (buses, trams and trolley buses), monitors and manages problems and communicates with and informs passengers. Thus, the establishment of a metropolitan administration has enabled overcoming important bottlenecks in transport management. For example, shortly after legally establishing the metropolis, it was possible to introduce a common ticketing system.

While the Silesian case is an example of an administrative body which has capacities for directly implementing technical solutions, transport-related issues in Nantes and PETR Pays de Retz are tackled on a voluntary basis. The cooperation between the metropolis and the hinterland focuses on exploration of solutions that could be commonly implemented. Within the framework of the cooperation, a first study on the potential of car sharing was launched. The procedure allows the PETR Pays de Retz to be closely involved in the design and development of different scenarios to allow for conclusions for later policy actions on car sharing. This will contribute to promoting innovative solutions to individual mobility networks and eventually fluidify traffic, develop car sharing,

promote inter-modality and multimodality and provide seamless access via bike paths between the rural and the urban area.

### **3.3 Economic development**

Efforts for strengthening the regional economy through enhancing exchange and flows can also be subject to metropolitan governance. This can refer to an exchange of goods and services in both directions between urban and rural areas and exchanges for strengthening regional value added chains and using spill-overs from FDI flows to metropolitan areas (ESPON, 2017).

Different types of metropolitan cooperation frameworks recognise the links between different fields of metropolitan coordination and economic (and social) development. Examples are the cases of integrative approaches of voluntary cooperation in Rheintal or administrative integration Barcelona and the transport-centred metropolitan body of Silesian Metropolis. While the metropolitan administration in the latter does not have direct competences regarding economic development, it uses other activities for regional promotion.

In Barcelona the redistribution of resources follows the aim of socio-economic cohesion and aims to finance projects that benefit the whole metropolitan area. Moreover, projects are funded with consideration of the proportion of population and the municipalities' socio-economic situation.

In Rheintal, Nantes and Stockholm economic linkages benefit from similar projects, which are based on voluntary action or are encouraged by regional development strategies. Such projects aim to strengthening regional value chains. For example, in Nantes-Pays de Retz, a project is planned in supplying school catering with regional products. The measures are prepared at the time of the analysis, requiring intense discussion and preparation among all involved partners. Major obstacles that need to be overcome, however, are related to public procurement law and the definition of short food chains. Linking food production with food consumption between PETR Pays de Retz and city of Nantes represents a development opportunity to induce a “win-win-situation” for the two partners.

### **3.4 Services of general interest**

Provision of services of general interest (SGEIs) is directly linked to socio-economic development. Thus, it is an element of regional and metropolitan development strategies and is encouraged and accounted for by strategic documents and orientations of many studied cases, irrespective of the form of pursuit of urban-rural linkages. This topic is linked to all cooperation themes described above.

Public services are important for accommodating local population and businesses and their availability depends on the presence of residents or other actors within an area. Strengthening territorial attractiveness and attracting people will result in demand and supply of SGEIs. Strengthening urban-rural linkages can help diffusing SGEIs toward outer borders of metropolitan regions. The “Economic Activity and Quality of Life stimulation plan” in Barcelona, aims at improving the situation related to housing.

A good example in dealing with SGEI provision, in connection to spatial planning, is Stockholm, one of Europe’s fastest growing metropolitan and capital regions. To meet the needs of this growing population, the Stockholm Region must build 16,000 new homes each year, a challenge it wants to take as an opportunity to promote sustainable urban development. To accomplish this, it is using Structural Funds to invest in a green, healthy, smart, attractive and inclusive city. The region has recently decided to invest in two development projects to a total of SEK 120 million to reinforce sustainable housebuilding: “Grön BoStad Stockholm” and “Sverige bygger nytt”. These two projects concern key elements of sustainable urban development.



## **4. Conclusions and recommendations**

Unbalanced development of metropolitan areas is reinforced by a splitting of competences for different development issues. In some cases, metropolitan municipalities do not put enough effort into coordinating their policies or even compete for residents or enterprises. Their situation is characterised by the prisoner's dilemma: the search for individual advantages results in an overall unbalanced development.

Based on the analysis of the existing intended and unintended spill-overs, four main areas of urban-rural cooperation in metropolitan areas have been identified: spatial development (including environment); (public) transport; economic development; Services of general interest. Moreover, case studies showed that the governance of metropolitan areas varies. Coordination of policies between the core city, the surrounding municipalities in the suburban area and the hinterland is strongly driven by overcoming common challenges.

### **4.1 Strengthening cooperation**

As the context and history in each case is different, there is no uniform way to address metropolitan issues. Whereas in some regions there is a tradition of cooperation and legislative tools for cooperation are present, in other regions urban-rural cooperation in metropolitan areas is a developing phenomenon. Moreover, cooperation needs vary considerably in each case. This calls for tailored approaches that pay attention to the following issues.

#### **A common perception of the challenges and shared goals**

Based on concrete existing linkages a common view on the challenges among involved municipalities has to be developed. Only shared awareness about the issues to be coordinated will lead to action. At the initiative of different policy-levels (local, regional, national or EU) and respective to their capacities and competences, metropolitan areas can be encouraged to set a frame for cooperation, development of a common spatial analyses and a common strategy. Nevertheless, the development-process of a common strategy should have a participatory nature and involve all administrative units. Consensus prevents political conflict and is a success factor for metropolitan cooperation. Once an appropriate governance framework is established, this process of institutional capacity building can be supported by the financing mechanisms of ERDF.

## **Development of a regional identity**

Next to the common perception of challenges, emphasising shared regional identity facilitates cooperation and contributes to the ownership of joint actions. It gives a “we are all in the same boat” feeling which reduces the trigger for competition, supports finding common solutions as well as building of trust. Development of regional identity is based on emphasising common history, values and goals; it can be strengthened by participatory processes at the level of citizens, public and private stakeholders, as in the case of Vorarlberger Rheintal. The participatory process in the Rheintal shaped citizens’ feeling of living in a metropolitan region, even if they were located in rural areas.

## **Finding the appropriate form of cooperation**

A legal act establishing a metropolitan administration formalises cooperation and can often be perceived as a considerable success. It means that the municipalities delegate parts of their power to the metropolitan region that can act as an independent body working on common solutions. As such, it is an administrative unit with technical capacity that is also capable of implementing solutions in a more flexible manner.

Nevertheless, this type of solution may not always be possible. If creation of a joint administration is not available, metropolitan municipalities should be encouraged to cooperate on an informal, voluntary basis. While different from and less formalized, this form of cooperation may be more suitable in certain circumstances and also effective. The change of governance organisation and administration in a metropolitan region could be supported by ERDF funding.

## **Finding the cooperation topic**

Metropolitan cooperation can have a broad thematic scope in regards to socio-economic development of metropolitan areas or be limited to certain topics. Especially in the field of public transport a common metropolitan administration can achieve more efficient transport management, as the case of the Silesian Metropolis shows. In Silesia, metropolitan transport administration is responsible for coordination of transport, while leaving the governance of other development issues and administrative tasks to the municipalities. In other cases, such as in Barcelona, the metropolitan administration is responsible for implementation of solutions related to a whole range of development issues.

## **Implementing concrete metropolitan projects – small steps first**

Co-operation of people and stakeholders needs to produce concrete results to show the advantages of cooperation. Thus, it is important to implement projects with visible results and benefits for municipalities in the metropolitan region. Where there is no long tradition of cooperation such projects, should focus on issues without strong conflicts of interests, such as bicycle infrastructure, green infrastructure, direct marketing for agricultural products. ERDF can be an appropriate source of funding for such projects which help set municipalities on the road to stronger cooperation by produce visible results which arouse interest for further cooperation.

## **4.2 Possible support through ESI funding**

ERDF funding can be an important tool for strengthening governance and implementing common “metro-regional” solutions. There are several different types of solutions to which EU funds can contribute; these are:

- Initial funding for less complex common projects which produce visible results (as mentioned above, such as bicycle infrastructure, green infrastructure, metro-regional branding);
- Helping strengthen institutional cooperation and institutional capacity building and thereby reducing administrative barriers to cooperation across metropolitan municipalities;
- Supporting common investments with projects of higher volumes, for example through tools such as ITIs, which should be made more visible and accessible (given the low interest for ITIs in the current period).

ERDF can help explore cross-sectional issues in urban-rural links that contribute to both rural and metropolitan development. ERDF can especially support the establishment of regional value chains and direct marketing of agricultural products in metropolitan regions to create added value for the neighbouring rural regions as well as to increase food supply of cities with lower transport distances). Moreover, the potentials of implementing ERDF tools such as the community-led local development (CLLD) in the context of urban-rural cooperation should be explored.

ESF can help finance actions that support metropolitan cooperation in social development,

Thus, ESIF funds can make cooperation more attractive and more accessible by offering financial means that make it possible to implement joint actions. As such, they can contribute to reducing the dangers stemming from competition and conflict in metropolitan areas.

## **5. Innovative ways of collecting statistical data for metropolitan regions**

The “information revolution” (Taniguchi et al., 2016) brings new opportunities for policy makers to understand and learn from flows and functional links. The ubiquitous availability of new types of information (e.g. movement data) trigger expectations to render the information useful for informed policy making. It is expected that this data overcomes the shortcomings of traditional data collection, which is considered to be lengthy and resource-intensive, being limited to static information and requires several validation steps before being available for policy making. This results in a significant time-delay between data collection and data provision to policy makers, limiting the data’s informative value. Innovative methods allow to collect data on flows more easily, providing auspicious insights in functional links between territories, compromising data about the “space of flows” into sound input to informed policy making. Innovative methods also enable new policy relevant insights into stock data.

To explain possibilities and policy dimension of innovative data collection methods, examples and their applications will be presented in the following sections. Conclusion and outlook will draw on the experience of the chosen examples.

### **5.1 Commuting and traffic flows based on cell phone data<sup>3</sup>**

Based on information about movements of people, tracked by cell phones, it is possible to monitor flows in metropolitan areas. Data shows actual transits and thus existing functional links between areas. Content of data arrays depends on the data collection method. Conclusions can be drawn on existing functional links of territories, their intensity, frequency and development over time.

#### **Strengths**

- Capturing position data and thus draw on mobility behaviour of people allows to create precise counts of flows. As these flows equal observed movements, it is highly reliable information, allowing observations over time.

<sup>3</sup> Allström et al., 2017, focus on Stockholm, Sweden; Kreindler, Miyauchi, 2019, analysis of Dhaka, Bangladesh and Colombo, Sri Lanka; Valk et al., 2018, Ahas et al., 2010, 2008 and Järv et al., 2012, conducted studies on Tallinn, Estonia; Rodríguez et al., 2020 analysed data for Valencia, Spain and Leduc, 2008, developed a general overview.

- Information on the location of cell phone users is already collected by network providers or through sensors and is relatively easy to obtain if cooperating with network providers.
- Depending on the methodology used, mobility behaviour of people can be identified up to the level of mobile phone grid cells or even more precise. It is thus possible to evaluate the importance of individual points of interest.

## **Weaknesses**

- Data arrays collected by cell phone location information show start, destination, time, intermediate halts, frequency and travel speed. What they do not show is the trip purpose and (to some extent) transport mode, limiting the explanatory value for recommendations on modal split and public transport.
- Different monitoring services retrieve different information and location data is not always collected continuously by network providers. Sometimes it is only collected when cell phones are used for calling or messaging or when moving between network cells. Low antenna density may also corrupt location data.
- Cell phone location data collected is not always precise. In order to increase reliability, collected data might need to be mirrored with additional information, increasing cost. Another cost increasing element is pairing the data with socio-economic information to increase informative value for decision makers.
- Despite the easy data collection process of mobile cell phone data on a technical level, access is not always guaranteed. Allowing to track home and workplace of individual users might be limited by data protection rules.

## **Policy recommendation**

At the centre of the possibilities cell phone location data bring to policy makers stand the aspiration to understand and predict individual travel-decision-making. Observing travel behaviour allows to forecasting future travel choices. This is key to influence transport policies to supply adequate transport solutions in view of reducing transport emissions, energy consumption and supporting a modal shift (Zhao et al., 2015).

With regards to traffic steering, cell phone data can provide opportunities for traffic management. “Floating cellular data”, paired with sensor data can be used

to determine fluidity and density of traffic to take corresponding decisions in a traffic management system, e.g. prioritise main access routes or identify bottlenecks.

Paired with socio-economic data, cell phone location data can provide further insights. If e.g. inhabitants from low-income districts must travel large distances to centres, travel data provides evidence for the possible need of social housing policies in cities.

## **5.2 City logistic flows based on GPS information<sup>4</sup>**

Similar as monitoring the flow of people, location data on the movement of goods can also be retrieved. Collected information showcases actual transits of delivery vehicles, usually equipped with GPS transponders. If this information is paired with other data such as tonnage, number of vehicle kilometres, type of vehicle etc. it can be used as input for logistics information systems.

### **Strengths**

- In GPS-based city logistics systems, information allows to determine necessity and frequency of logistical operations in districts. The collected arrays shape a full picture of an urban element that was so far too complex to assess. It thus provides policy makers the opportunity to shape city logistic systems more effectively.
- GPS data returns high accuracy values. Continuous monitoring can trace full movement profiles of delivery vehicles. Logistic providers already equip vehicles with GPS transponders as location data is used for routing or client information. Therefore, on a technical level the data is oftentimes readily available given the cooperation of logistics providers.

### **Weaknesses**

- Although access to data appears straightforward, city logistic systems require intense cooperation between several players, increasing complexity and cost (Allen et al., 2014).

### **Policy recommendation**

<sup>4</sup> Taniguchi et al., 2016, show experiences from Australia and Japan; Kiba.Janiak, Cheba, 2019, provide a review of several cities in Poland and Allen et al., 2014, focus on London, United Kingdom.

Urban authorities depend on up-to-date information on the type and quantity of flows of goods. Intelligent city logistic systems are a useful tool to reduce the environmental impact caused by the transport of goods. Having access to real time information can improve coordination of flows of goods as to when, how and where logistics are best provided.

Many of this is in the hands of logistic service providers. However, GPS-based road pricing schemes as demand management tool can influence effectiveness of logistics. Direct road charges can stimulate higher efficiency of logistics through joint delivery, warehousing, smart routing applications or co-modality services.

Logistics is associated with the distribution of land use activity, a causal relation often neglected by land use planning. With logistic suppliers moving to urban fringes, vehicle kilometres and subsequent congestions increase. Monitoring the flow of goods can improve understanding of logistic related suburbanisation.

### **5.3 Measuring communication flows<sup>5</sup>**

Less tangible than the movement of persons and goods is the movement of information. This type of data is more difficult to collect as it is not captured by a physical movement through space. Still, flow data on information can help policy makers to identify functional links between districts, based on call volumes or other geolocated information to identify ‘hotspots’ for information exchange. Such data can be retrieved from cell phone network providers or from location and content of posts on social media platforms.

#### **Strengths**

- The widespread use of technologies, reporting locations of users, allows policy makers to measure the extend of information exchange among individuals: frequency and intensity of call records and social media exchanges provide a direct measure for information flows.
- Such data is heavily disaggregated and can facilitate understanding of information flows, helping to understand urban systems and links better.

<sup>5</sup> Barwick et al., 2019, analysed flows in a non-specified large Chinese city with over 12 million inhabitants and Förster, Mainka, 2015, analysed several global metropolises.



## **Weaknesses**

- Not all individuals use social media and only few people in Europe share their location. The information is thus subject to biases from demographic and popularity characteristics.

## **Policy recommendation**

Measuring the level of exchange can be used as proxy for economic and social activity between areas. It allows a glimpse in exchanges between spatial and social groups to understand urban phenomena, as distance effects, cluster structures, labour markets, etc. in urban economies.

From a social perspective, data on information exchange, can be a mirror of the society using these communication means and their predominant linkages in space. This helps to see interconnection between districts and draw conclusions on social proximity.

## **5.4 Specific innovative approaches to stock data collection**

Complementing above examples, the following focuses on innovative stock data collection and analysis:

The provision of adequate urban services and amenities is crucial for the quality of life in cities. Linking location and accessibility data provides new ways to assessing this adequateness. Since more than ten years, the city of Antwerp, Belgium, is maintaining a platform allowing to collect and visualise data<sup>6</sup>. The purpose of the platform is not only to serve as geographical information system for citizens but to increase policy makers' awareness on undersupplied areas (green spaces, nurseries, sport, culture, commerce, etc.). Combining this information with different walking distance measures at neighbourhood, residential quarter and quarter level allows new insights. This innovative data combination helps policy makers to optimise their location decisions for new urban services (URBACT, 2017).

Mobility service providers in cities usually collect information on user behaviour and characteristics, such as locations in relation to points of time and durations of stay. In the city of Sydney, the data on movements, collected by a bicycle sharing service were processed and visualised in an online mapping tool.

<sup>6</sup> See: <https://www.antwerpen.be/nl/stadsplan/stadslagen>

The tool helps to inform policy makers on the spatial demand and the necessary supply for bike infrastructure (bike lanes and bike passages, bicycle garage) to improve the quality of urban infrastructure for bike users, promoting active transport modes and avoiding congestion (Pettit et al., 2016).

Hotspots of cell-phone use within metropolitan areas can inform on the presence of human activities. An example from Rome, Italy, has investigated the use of mobile phones (through absolute call time) in individual districts. This way, it becomes possible to compare human activities between districts during the day, at city as well as metropolitan area level. In comparison to established data this approach provides nearly real-time information on the location, intensity of human activity in time (Reades et al., 2007). This allows for more precise assessments of infrastructure needs including, for instance, public transport services during the day both, regarding the detail of locations within larger administrative areas and densities of services required.

The rapid growth of platform economies, such as Airbnb have triggered concerns about the pros and cons of such services in cities. Despite positive impacts on tourism development of the city of Vienna, Austria, the service is suspected of impacting local housing markets and established tourist accommodations negatively. However, data as basis for regulating the platform economy to avoid negative externalities or as input to the public debate, was missing. Through analysing data of Airbnb supply and demand data in Vienna in 2017, the city conducted a comprehensive analysis of different aspects of Airbnb supply such as income distribution, locations, durations and effects on the housing market. The analysis showed that the service has indeed a negative impact on the local housing market, the social structure of districts and the hotel sector. This information can be used to trigger policy measures in the field of housing, spatial planning of different housing zones or the regulation of such service platforms (Seidl et al., 2017).

Electric waste contains toxic but also valuable and scarce materials. These materials, e.g. copper, lead, silver and gold, can be recycled in specialised facilities in order to keep them away from landfills or incineration. An assessment of incidental Waste Electrical and Electronic Equipment (WEEE) is crucial to determine required recycling capacities and facilities for waste recycling strategies. Such an approach was applied for an analysis for the Brussels and Wallonia region in Belgium, based on material flow analysis. Data on ICT, business and household statistics, data on collection of electronic waste, lifetime characteristics etc. have been combined. The study determined that electronic waste is not yet adequately recycled in Brussels, hinting at the need for policy actions to comply to EU waste management regulations (Gonda et al., 2019).

## 5.5 Conclusion and outlook

A clear assessment on the informative value is prerequisite for a successful application of innovative data in urban policy making. A clear definition on the added value over conventional data collection methods helps to avoid situations where innovative methods do not deliver what was expected. This is rooted in an information gap (Cohen et al. 2002), resulting from language and cultural differences between policy makers and researchers. Possibilities provided by ICT-related data and analysis thereof can seem incredibly large at a first glance, but cannot always hold up in reality based on e.g. data availability, need for data protection etc. In the policy making process, this gap might lead to an overestimation of expected insights and usefulness of ICT-based data collection methods. An early and neutral assessment of what insights the innovative data might provide, is key.

Some other pitfalls come with innovative data collection methods. All datasets have to be validated and some might need to be corrected before further analysis, requiring time- and resource-intensive processing, outperforming cost of conventional data collection. Authorities must investigate in advance potential limitations of innovative ways of data collection; cooperation with respective ICT departments from an early stage is thus a necessity.

Currently, there are no universal standards on how to collect flow information. Depending on the approach, different innovative ways of data collection might return different results, which may affect conclusions in the policy making process. A clear criteria catalogue derived from the key question of the policy making process can help to retrieve tailor-made recommendations.

Smart city initiatives increase the amount of data produced and collected. This provides the opportunity to public administrations to assess whether data produced is of any value for a specific decision-making process. If so, administrations can thus seek pro-actively to collect data that fits the dedicated purposes. This way, future application of information can be defined a priori, avoiding that policy makers have to base decisions on sub-optimal data. The new methods will allow for continuous evaluation, providing new opportunities for performance-based policy cycle (Höchtel et al., 2016).



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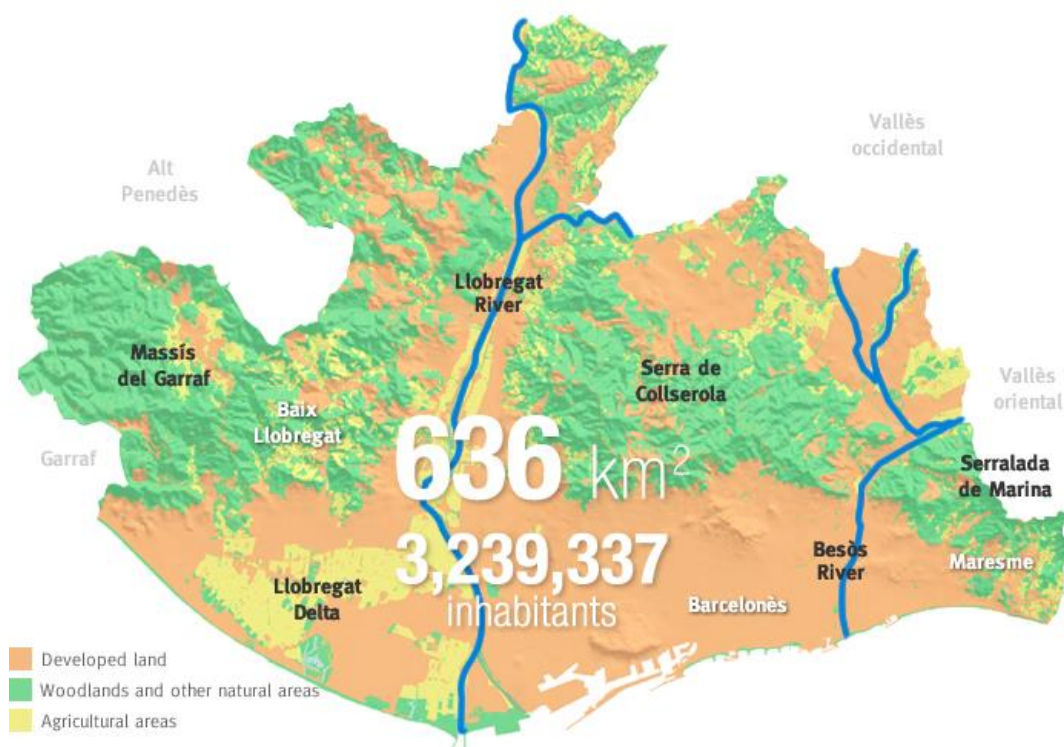
## A.1 Barcelona, ES

Barcelona Metropolitan Area (BMA)

### A.1.1 Location & Size

The Barcelona Metropolitan Area (BMA) is located in northeast coast of Spain the NUTS 2 region of Catalonia. The BMA encompasses 36 municipalities with total 3,239,337 people which constitutes 42,8% of the Catalanian population<sup>7</sup>.

**Figure A.1: Land use map of BMA.**



Source: BMA.

### A.1.2 Specific cooperation topic

Socio-economic development and governance

### A.1.3 Government/governance structure

◀ Independent municipalities	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Common administration ▶
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The BMA has a longer history of cooperation: early attempts at institutionalising the cooperation date to 1950s. From 1974 the Metropolitan Corporation de

<sup>7</sup> Data for 2012 from BMA.

Barcelona was the institutional body governing the metropolitan area until 1984 when it was disbanded due to political reasons and conflicting interests between municipalities as well as local and regional authorities and the authorities of the metropolitan institution (ESPON FOCI, 2010). Since then, metropolitan cooperation took place in form of three different institutions working on voluntary basis on fields of waste and water management, transport and spatial planning,

In 2010 the BMA was reinstituted as one institution with a new legal framework<sup>8</sup>. This measure resulted from finding a consensus among local policy makers and stakeholders and could be understood as a mitigation measure to the effects of the 2008 economic crisis which has significantly impacted the region as well as to support sustainable territorial development in the context of scarce resources. The creation of BMA was a result of a long dialogue that lead to overcoming differences which have in the past impeded the pursuit of a common vision.

While the BMA has significant tasks in managing the metropolitan area, the member municipalities play an important role in its governance as well as financing. The Metropolitan Council which supervises the policies of MBA consist of mayors and councillors of each municipality.

#### **A.1.4 Addressed spill-over effects**

Barcelona is a city of international importance not only in tourism but also economy, including knowledge economy. As such a strong player, it extends its influence over the whole of Catalonia and even beyond to the nearby city of Valencia. The main spheres of influence include services, industry, tourism and culture. The metropolitan region of Catalonia uses the international status of Barcelona metropolis to promote its own development. At the same time, due to the economic significance of the metropolis it developed more towards agriculture and food industry as well as tourism. The trends towards the wider region include suburbanisation as well as development of the region as a provider of certain simple services and goods (agri-food). Thus, while trade exchanges take place mostly within the metropolitan region, trade with the metropolitan region is related largely to agriculture.

Very pronounced are the numbers of commuting residents which is due to not only employment opportunities in the core area but also very high accommodation and living costs. This is further strengthened by the fact that

<sup>8</sup> Law 31/2010, 3rd August, about the Barcelona Metropolitan Area (AMB).

there are well established functional links with regional hinterland to the extent that in the past this has even resulted in slightly higher income in the hinterland.

The proximity of Barcelona within the wider region has led to a relatively small diffusion of development and has had a low impact on financial transfers from the metropolis to the region and vice versa.

Some spill over effects should be understood with consideration of competition with Madrid. In the context of the country, the competition between Barcelona and Madrid could be understood in terms of spill overs of the metropolitan development of both cities.

Another way to perceive the spill over effect is the BMAs holistic approach to territorial development. From this angle, spill over effects take place between different areas of intervention.

### A.1.5 Regional approach



The BMA has replaced three different metropolitan institutions and unified them into one body of 500 professionals whose is significantly less complex in administrative terms. It is responsible for management of wide range of matters related to land-use planning and transportation, waste management, water supply, and social housing as well as, in relation to previous institutions has increased authority in urban planning, territorial and social cohesion, economic development and territorial organisation.

### Design

The BMA has a very flexible and technically-oriented design that allows relatively swift and non-beauricratic allocation of resources. At the same time, it has an important role in land-use planning, provision of public services as well as is an actor with respect to negotiations with other territorial levels.

### Financing

The BMA has local funds at its availability which are higher than funds from single local units and thereby enable a more effective implementation of technical solutions. As such, the creation of the institution has enabled a “policy of financial support” (FMDV, 2018).

## **The actions undertaken**

Supporting economic development as well as building solidarity and territorial identity is an important aspect of BMAs work. The redistribution of resources follows the aim of socio-economic cohesion and aims to finance projects that benefit the metropolitan area as a whole. Moreover, projects are funded with consideration of the proportion of population as well as socio-economic situation of municipalities.

For example, the “Economic Activity and Quality of Life stimulation plan” was designed to foster economic recovery, job creation and quality of life. With € 160 m targeting leverage with private investments, it supports projects in municipal housing enterprises, building rehabilitation, neighbourhood and infrastructure improvement, and economic competitiveness.

## **A.1.6 Conclusions & recommendations**

### **Wide range of competences**

The BMA has been designed to carry out tasks in a wide range of fields that relate not only to spatial planning and transport (as is the case in, e.g., Silesian Metropolis) which are typical metropolitan issues, but also to a wider socio-economic development and quality of life. The integrative and holistic approach enables exploring synergies between various areas of intervention.

### **Flexible design with a technical orientation**

The BMA as an institution is perceived as a very effective tool in addressing metropolitan challenges commonly, with joined forces and more strength. This is because it has been designed to address many areas of economic and social development with technical orientation and with minimisation of hierarchies and bureaucratic dependencies.

### **The importance of consensus and trust**

While the design of its decision making involves municipal authorities and stakeholders, the weak spot of such a model is that in being technically oriented and flexible (non-bureaucratic and non-hierarchical), it requires a substantial consensus among administrative units. Without this consensus and trust in its decisions, political conflict may easily arise. For this reason, strengthening common vision by balancing cohesive local economic development with its internationalisation goals is essential to its further operation.

## **Importance of cooperation with private actors**

BMA is aware of the important leverage effect of investments that can mobilize private financing and complement public funds. This can result in a win-win situation in a wide range of spheres for all actors: private, public and citizens.

Based on the above conclusions, following recommendations can be made:

- Given the importance of trust and consensus with regards to the decisions of an institutions such as BMA, it is important that its actions are in accordance with the needs and wishes of municipalities. Thus, a closer link between decision makers, one which does not increase administrative burden, is necessary. This can be achieved through direct elections of the metropolitan direction as well as, possibly, municipal members of the metropolitan direction;
- In order to further strengthen trust and consensus, projects aiming at development of a common vision and common identity as well as projects targeting development of strategic development plan may help to set and cement the common vision as well as justify actions undertaken by BMA;
- A dialogue should take place not only between public stakeholders but also with private actors in order to contribute to the leverage effect of securing private investments and public-private partnerships that can further the goals of the metropolitan cooperation;
- Securing funding is important and each metropolitan set-up should explore most appropriate ways to do so from the diverse options available (direct taxes, municipal contributions, fees, EU funds).

### **A.1.7 Possible types of ESI funding**

ESIF can help exploit the opportunities stemming from metropolitan links through investments via the regional Operational Programme as well as national Operational Programmes. Both ERDF as well as ESF can contribute to the development of the metropolis, given the fact that BMA has competences in various spheres. Nevertheless, the eligibility for obtaining funds depends on the status of the metropolitan institution. This dependency should be clarified in each case.

In the current programming period, FUAs are also eligible to obtain ERDF funding via Integrated Territorial Investments.

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## A.2 Frankfurt, DE

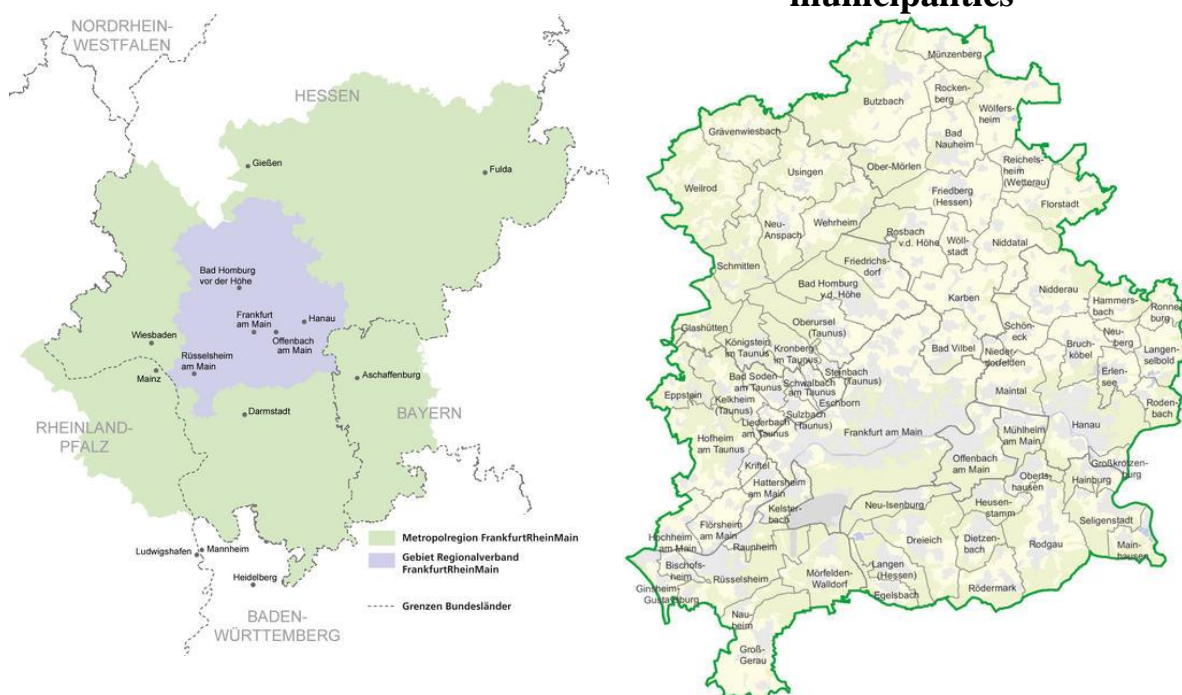
Regional Association/Regionalverband Frankfurt Rhein Main

### A.2.1 Location & Size

Being located in the centre of the Metropolitan Region of Frankfurt as one of eleven official metropolitan regions in Germany (see Figure A.2), the **Regional Association Frankfurt Rhine Main** has about 2.4m inhabitants (December 2017) who live on a territory of about 2,500 km<sup>2</sup> (960 inh/km<sup>2</sup>).

The Regional Association consists of 75 municipalities (see Figure A.3): the cities of Frankfurt and Offenbach, all 38 municipalities from three neighbouring counties (Landkreise Hochtaunus, Main-Taunus, Offenbach) and 35 municipalities from the counties of Groß-Gerau, Wetterau and Main-Kinzig.

**Figure A.2: The Regional Association and the metropolitan region**      **Figure A.3: The territory of the Regional Association and its 75 member municipalities**



### A.2.2 Specific cooperation topic

The Regional Association cooperates on different topics, e.g. housing, energy/wind power, regional cycle highways and spatial planning. The Regional

Association has a particular role in the formal planning system. On behalf of its members, it elaborates the regional land-use plan (“Regionaler Flächennutzungsplan”). In the German spatial planning system, land-use plans are to be developed by municipalities at local level and need to be adopted at regional level, i.e. for the state of Hesse on the level of three administrative districts (“Regierungsbezirke”) which are part of state administration. Regional plans (“Regionalplan”) on the other hand, are to be developed by the administrative districts. German planning law, however, allows neighbouring municipalities that have common preconditions and needs, to develop a regional land-use plan (article 204, National Building Code (“Baugesetzbuch/BauGB”). This plan fulfils the function of both a municipal land-use plan and a regional plan. The Regional Association is in charge of elaborating this plan for its territory.

The other topics mentioned above (i.e. housing, mobility, energy) play a particular role for the regional plan. In the field of housing, the Regional Association analysed the regional need for new housing and developed an online GIS tool to support its member municipalities in assessing the local potential for inner development. In cooperation with the district administration, the Regional Association developed a sector plan for renewable energy with a particular focus on suitable areas for wind power plants. This sector plan supplements the regional land-use plan. The Regional Association furthermore developed a regional master plan for energy as an informal instrument with analyses, guidelines, targets and suitable implementation measures at regional level. With regard to regional cycle highways, the Regional Association supports the municipalities through coordination and feasibility studies.

### **A.2.3 Government/governance structure**

The cooperation between the 75 municipalities is based on a particular law which was adopted at state level in 2011 (“Gesetz über die Metropolregion Frankfurt/Rhein-Main; MetropolG”). This legal act defines the preparation and modification of the regional land-use plan and the landscape plan (“Landschaftsplan”) as the core tasks of the Regional Association (article 8), and furthermore mentions regional sports, leisure and recreation facilities, cultural facilities, marketing, economic development, nature parks, regional transport planning and management, housing, drinking and industrial water, and energy and climate protection as fields of intermunicipal cooperation (article 1).

As the regional plan is usually prepared by the district administration, i.e. at state level, the position of the municipalities became stronger as they have more power in regional planning. The regional land-use plan, on the other hand, which is now prepared by the Regional Association, replaces their local land-use

plans. So, on the one hand the municipalities have created a common administration that plays a specific role in the statutory planning system of Hesse. On the other hand, they remain independent as they are in charge of legally binding local zoning plans (“Bebauungsplan”).

◀	Independent municipalities					X	Common administration	▶
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## A.2.4 Addressed spill-over effects

Decision makers in the Frankfurt region show a high level of awareness for the interlinkages and interdependencies in the functional area. The Regional Association regularly publishes a “Regional Monitoring” report that presents facts and figures for different thematic fields, e.g. demography, economy, building and housing, mobility, public services, land use and finances (Regionalverband FrankfurtRheinMain, 2019).

Mobility and commuting patterns as a result of distances between places of working, living and other important functions play a particular role. In 2018, 58 of 75 municipalities had a surplus in out-commuters, most of which travel to Frankfurt which consequently shows the highest surplus of in-commuters in the region (+267,000). In some municipalities, even up to 60% of all out-commuters head for Frankfurt. Municipalities with lower shares of out-commuters to Frankfurt (< 20%), are located at the outskirts of the territory of the Regional Association. On the other hand, only 17 municipalities showed a surplus in in-commuters, most of which are direct neighbours of Frankfurt. Nevertheless, also for Frankfurt the number of out-commuters has been increasing for the past years, from fewer than 60,000 in 2001 to about 95,000 in 2017 (+58%).

That state authorities and legislators share this awareness for the functional area is proven by the fact that they adjusted the planning system through a legal act in 2011 and allowed the municipalities to prepare a joint regional plan bottom-up. Adjusting the formal planning system is a suitable way to make sure that spill-over effects, i.e. challenges and opportunities in the functional area, are better addressed in both spatial and land-use planning.

## A.2.5 Regional approach

◀	Voluntary action					X	Legally binding act	▶
Contractual basis								

As mentioned above, the cooperation of the Regional Association is based on state law. The legal act defines the municipalities which are members of the

Regional Association and, thus, the territory for which the regional plan has to be prepared and is valid. Further municipalities can join the Regional Association if they are neighbouring municipalities and if the assembly approves their membership.

With regard to the regional land-use plan, the cooperation is hence legally binding. For the other fields of cooperation (i.e. housing, energy, mobility), it depends on shared objectives between the members of the Regional Association and the decisions and agreements of the bodies of the Regional Association.

The Regional Association has about 120 staff members and a total annual budget of about € 15 m, which is mainly financed through membership fees. In average, each municipality pays an annual fee of € 5.66 per inhabitant. This underlines the bottom-up character of the cooperation and that it strengthens the role of local authorities in regional planning.

The bottom-up character is also reflected by the organisational structure of the Association, i.e. the general assembly (“Verbandskammer”) and the board (“Regionalvorstand”) as its two main bodies. Member municipalities send representatives to the general assembly. The general assembly elects eight of its members as members of the board. In addition, the mayors of Frankfurt and Offenbach, six county commissioners (“Landräte”) and the director (“Verbandsdirektor”) and the deputy director (“Erster Beigeordneter”) that are in charge of the office (“Geschäftsstelle”) and its staff, are also members of the board. The board is complemented with five advisory members from economic and environmental associations and nine guest members representing the interest of the wider metropolitan region. National or state authorities do not play a role in this cooperation. They can however be involved on specific tasks or projects, e.g. the state authorities responsible for spatial planning and development at state level.

## **A.2.6 Conclusions & recommendations**

The role of the Regional Association in the formal planning system relies on the provisions of the national law. In countries that do not have similar legal provisions, it will therefore be difficult to implement similar concepts. Hence, the following recommendations address rather general advantages of intermunicipal cooperation in the field of spatial planning. Depending on the specific legal framework, this cooperation might also be voluntary.

First of all, preparing one joint plan allows for actual coordination of spatial development from a wider regional perspective and a more integrated

perspective in spatial planning than bringing together various local plans. This benefits the entire region.

Second and especially for municipalities with very limited resources and capacities, joining forces and developing a joint land-use plan in a wider context and with more resources might result in better quality than preparing fragmented single plans. This benefits especially smaller municipalities.

### **A.2.7 Possibly types of ESI funding**

The Regional Association makes use of ESIF for different projects. This is however more relevant for implementation measures and specific projects in the abovementioned thematic fields than for the preparation and adjustment of the joint regional land-use plan. Hence, funding that is related to the abovementioned topics is of particular interest, e.g. Connecting Europe Facility (CEF) in the field of mobility and transport, Interreg B for transnational cooperation or ERDF for energy measures.

One specific example is the Interregional Alliance for the Rhine-Alpine Corridor, which focuses on transport and spatial planning along the TEN-T Rhine-Alpine Core Network Corridor. This cooperation roots in an Interreg B project (CODE24). Making use of the EGTC legal instrument (European Grouping of Territorial Cooperation), the Interregional Alliance is now a permanent structure with an own office which is located in Mannheim and conducts projects, e.g. financed through the CEF budget line. The Regional Association was a project partner in the CODE24 project and has been an active member of the Interregional Alliance ever since its establishment in 2015.

### **A.2.8 Sources**

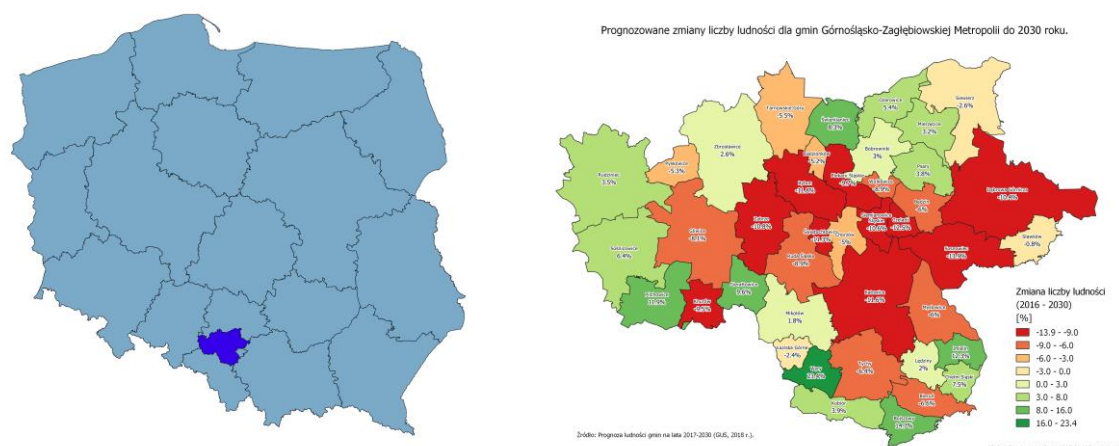
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## A.3 Katowice, PL

The Metropolitan Association of Upper Silesia and Dąbrowa Basin, also referred to as Silesian Metropolis.

### A.3.1 Location & Size

**Figure A.4: Location of the metropolis in Poland.**



Source: Info GZM, 2019.

The metropolis is located in southern Poland, near the border with the Czech Republic, in the Silesian Voivodeship (NUTS 2). Its core city is Katowice. The total surface of the metropolitan area is 2554km<sup>2</sup>.

The total number of inhabitants of the metropolis is 2,266,308 and the average density is 887/km<sup>2</sup><sup>9</sup>. The right map above shows projected population change until 2030. Red-coloured gminas, which include the city of Katowice, are mostly urban gminas; these are the ones with negative population growth. Surrounding rural and urban-rural gminas marked green are ones with expected population growth.

### A.3.2 Specific cooperation topic

The specific cooperation topic of the example is common transport planning and management.

### A.3.3 Government/governance structure

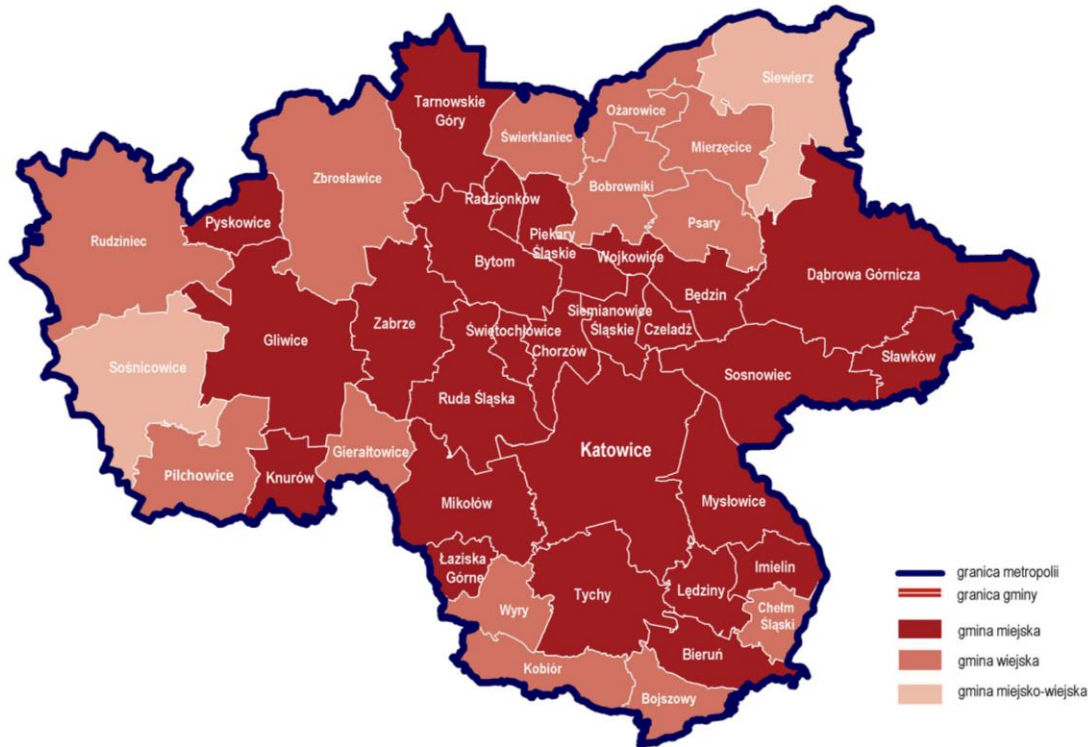
◀	Independent municipalities					X	Common administration	▶
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<sup>9</sup> Data for 2017, Statistical Office Katowice, 2018.



The metropolis consists of 26 urban gminas, 2 urban-rural gminas and 13 rural gminas (municipalities). 13 out of the total of 26 urban gminas are classified as cities. The map below shows the typology of gminas within the metropolitan region.

**Figure A.5: Map of gminas constituting the metropolis; the colors, descending in intensity stand for urban gminas (intensive red), rural gminas (less intensive red) and urban-rural gminas (pale red).**



Source: Info GZM, 2019.

The metropolitan administration, which has been established by a legally binding act, is responsible for *common transport planning*.

### A.3.4 Addressed spill-over effects

Urban centres of the metropolis have traditionally been specialised in the mining industry, however, nowadays more and more focus is placed on diversification, especially in automotive, IT and medical industries. Due to the proximity and special history between different urban gminas and urban and rural gminas in the metropolitan area, there are different spill over effects which are difficult to pin down precisely.

Nevertheless, it is clear that the economic and residential interlinkages within the metropolis are reflected in the need for common transport planning. This can be explained by the movement of persons across the area (not necessarily to the core city) where working places (previously mines) and homes were located.

While the city of Katowice remains the core city, nowadays the urban character of the region, i.e. cities and towns neighbouring Katowice, retain their economic activity despite the dominance of Katowice. Thus, the establishment of the transport policy is understood and expected to contribute also to other areas of the development of the metropolis including socio-economic development as well as spatial development.

### A.3.5 Regional approach



The metropolitan area consists of urban, rural and urban rural gminas as shown on Figure A.5 above. It is a special metropolitan region in Poland: it has a legal basis establishing the Silesian Metropolis and metropolitan administration with a regulation of March 9, 2017<sup>10</sup>.

Metropolitan cooperation in the Silesian Metropolis has a long history. The area is characterized by a dense network of urban areas which developed as a result of mining industry in the Silesian region. This long-standing cooperation history as well as urban characteristics of the region have contributed to a sense of identity and closeness that has facilitated cooperation and enabled its legal recognition.

The regulation establishing the metropolis has provided institutional tools for certain aspects of the common management of the metropolitan region, mostly related to transport policy, thereby considerably facilitating common management. The main task of the metropolitan management is coordination and planning of the transport policy within the metropolis. However, the metropolitan administration also contributes to planning of national transport, as well as to promotion and support of socio-economic and spatial development.

The metropolitan administration overtakes some tasks of gminas, especially connected to transport planning. Moreover, the national government may delegate tasks to the metropolitan administration; although, its primary focus is local governance. Gminas may delegate further tasks to the metropolitan administration, including budget management, as long as they are corresponding to its intervention areas. Thus, the governance set-up of the metropolitan area is close to common administration, especially in regards to transport planning, which has moved from voluntary action to a legally binding set-up.

<sup>10</sup>Ustawa z dnia 9 marca 2017 r. o związku metropolitalnym w województwie śląskim. Dz.U. z 6.04.2017, poz. 730.



## **Common transport planning actions**

The establishment of metropolitan administration has enabled overcoming important bottlenecks in transport management. For example, shortly after legally establishing the metropolis, a common ticketing system was possible to be introduced.

In 2019, for purposes of facilitating common transport planning, a Centre for Transport Management of the Metropolitan Transport Administration (ZTM) has been opened. The centre facilitates information flows and management of transport in the metropolis. It supervises traffic of over 1000 transport vehicles (buses, trams and trolley buses), monitors and manages problems and communicates them to passengers and employees as well as provides further support and information to passengers.

### **A.3.6 Conclusions & recommendations**

#### **Importance of the historical and territorial context**

The (legal) establishment of metropolitan administration responsible for the common transport policy has been a long process conditioned by the tradition of cooperation as well as common history and proximity of urban centres in the metropolitan region. As such, it is a special case of cooperation and the conclusions and recommendations directly derived from the Silesian Metropolis can be ideally applied to similar metropolitan areas.

#### **The benefits of common administration as a tool to manage metropolitan functions**

Nevertheless, the legal act establishing the metropolitan administration is a precedent and should be perceived as a considerable success. The decision of rural and urban municipality authorities to concede their decision-making in the field of transport to a common metropolitan administration has resulted in almost immediate achievements in regards to more efficient transport management.

Thus, the study of the example shows that common administration between urban and rural municipalities in one intervention field can result in overcoming important bottlenecks, in this case with regards to transport.

## **An example of a solution tailored to the specific background and needs of the metropolis**

The example of the Silesian Metropolis also shows that metropolitan administration can be designated to be responsible for only most relevant aspects of cooperation, while leaving the governance of other development issues and administrative tasks to gminas. This shows that there is a possibility for tailored solutions and regulations that establish which specific aspects of territorial development are to be centrally governed by metropolitan administration and which ones remain within the individual tasks of municipalities.

## **Recognition of important spill over effects**

While the common metropolitan administration is responsible for common transport planning, its establishment has recognized also the interlinkages with socio-economic development and promotion of the region which are additional tasks of the metropolitan administration. This is an example of an integrative and cross-cutting approach to development, where other kinds of benefits of common transport management are recognized.

Based on the findings, following recommendations on supporting the development of metropolitan areas and their impact on the surrounding areas can be made:

- The management of metropolitan relations should consider historical and territorial context of the involved municipalities; as well as spill over effects which may determine, or influence, which actions are most pressing; this should create the basis for tailor-made actions;
- Actions should be designed with consideration of not only the specific level of intensity of cooperation but also the specific intervention area which should be supported; tailored solutions can allow for formalizing or strengthening cooperation in only selected intervention areas (such as transport) and not necessarily in others;
- Management of metropolitan relations should have an integrative character; there are important spill overs which can be exploited from directly addressing one issue.

### A.3.7 Possible types of ESI funding

ESIF can help exploit the opportunities stemming from metropolitan links through investments via the regional Operational Programme as well as national Operational Programmes which target integrated transport development.

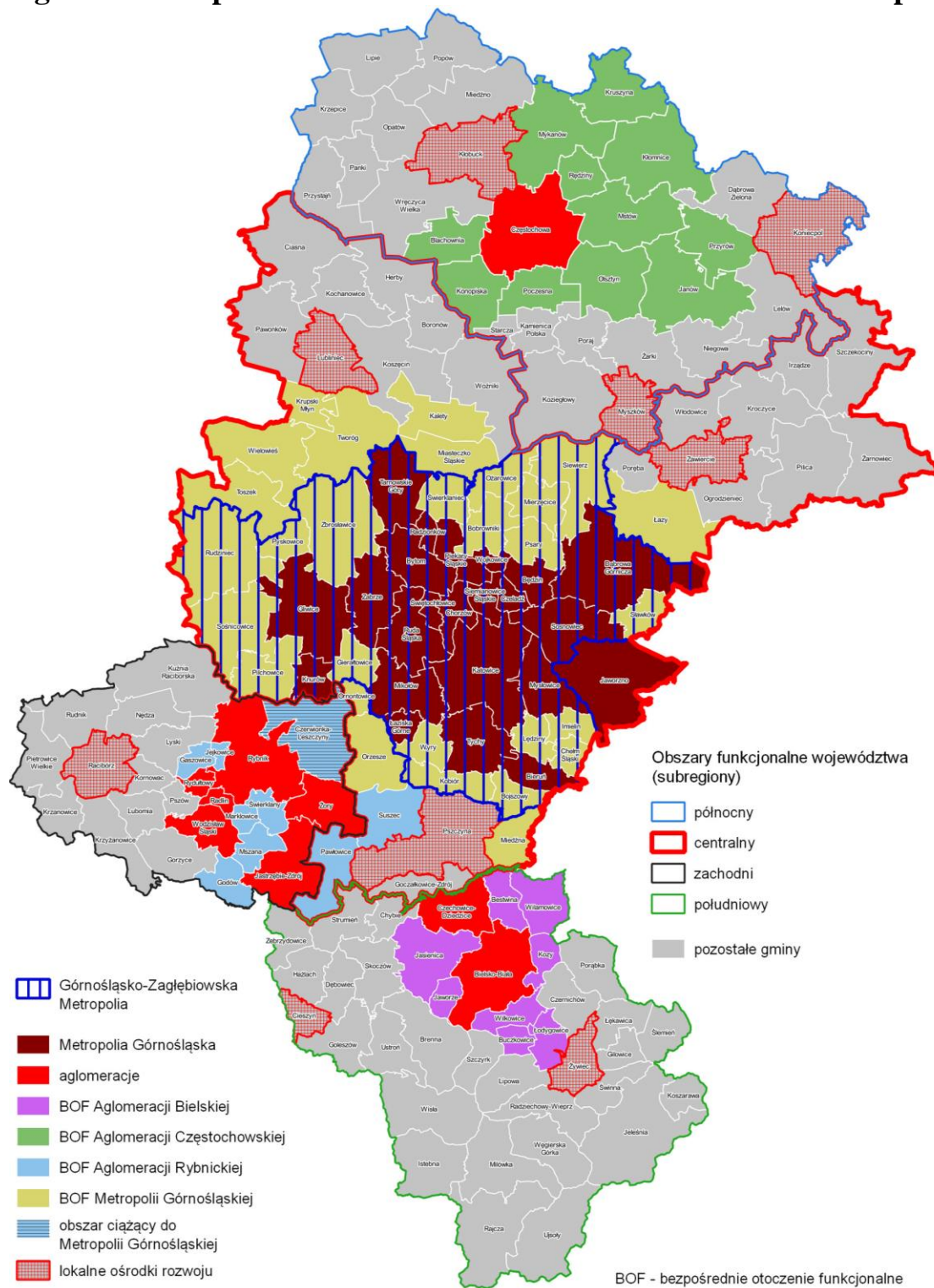
In the current programming period, FUAs are also eligible to obtain ERDF funding via Integrated Territorial Investments.

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## A.3.9 Appendix: Map of functional links within the Silesian Voivodeship

Figure A.6: Map of functional links within the Silesian Voivodeship.



Source: Info GZM, 2019.

## A.4 Nantes, FR

Nantes métropole – PETR Pays de Retz

### A.4.1 Location & Size

The case study lies in Western France, at the estuary of the Loire river to the Atlantic sea. The cooperation was agreed between two governance structures each representing groupings of municipal authorities. The metropolitan member is the Metropolitan area of Nantes (“*Nantes métropole*”), consisting of 24 municipalities. The rural area is the “*PETR Pays de Retz*”<sup>11</sup>, consisting of 6 groupings of municipalities with a total of 41 municipalities.

The cooperation area is home to 780,000 inhabitants and provides 385,000 jobs. It covers ~28% of the region “*Département Loire-Atlantique*” and is about 1,900 km<sup>2</sup> in size (AURAN, 2019).

### A.4.2 Specific cooperation topic

So far, there are two main topics that define the cooperation between *Nantes métropole* and *PETR Pays de Retz*; transport connections and food supply. The agreement also introduced a cooperation platform for the topics of economic development and tourism development between the partners, with measures under both of these strands currently under development.

Because of the proximity of *PETR Pays de Retz* to Nantes, there are many flows and relations between the areas. In turn, regional policy and planning documents already address dimensions of urban-rural links. An example is the regional *SCoT*<sup>12</sup> a planning strategy for groupings of municipalities. The monitoring exercise of the *SCoT* for *PETR Pays de Retz* takes stock on existing links and bottlenecks towards Nantes, laying the ground to identify synergies, complementarities and development potentials between the territories (PETR Pays de Retz, 2013; PETR Pays de Retz and AURAN, 2017).

<sup>11</sup> PETR: ‘*Pôle d’équilibre territorial et rural*’, French denomination for a public body (syndicate) grouping several subordinate public bodies.

<sup>12</sup> SCOT: ‘*Schéma de Cohérence Territoriale*’, French denomination for territorial coherence programme (regional planning document).

### A.4.3 Government/governance structure

The cooperation between *Nantes métropole* and *PETR Pays de Retz* is structured through a so-called “*contrat de réciprocité*”<sup>13</sup>. This instrument is a contractual agreement between at least two groupings of municipalities, responsible for administering an urban/peri-urban/rural area. The instrument was introduced to overcome opposing territorial interests by enabling signatories to cooperate on synergies and complementarities to leverage “win-win” situations, providing benefits for all involved partners (Banque des Territoires, 2019).

The contract is the expression of a political interest to cooperate on issues that go beyond the administrative borders of individual municipalities or groupings of municipalities, and thus require cooperation between several territorial entities. The contract creates a cooperation interface between partners, on political and technical level by mobilising necessary technical, financial and staff resources to realise joint projects.



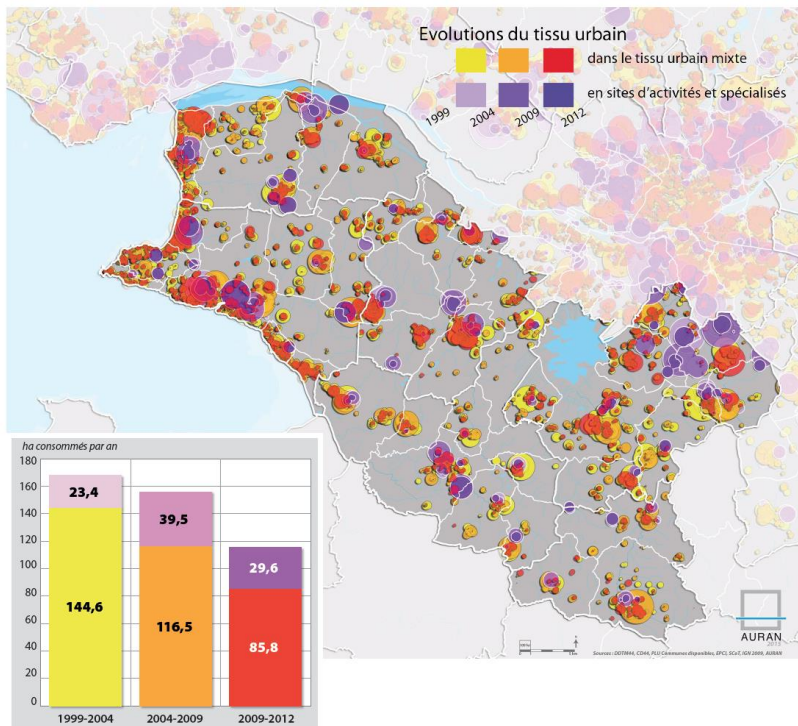
### A.4.4 Addressed spill-over effects

Decision-makers have been aware for a long time on the urban-rural linkages in the case study area. For this reason, the relations and flows between *Nantes métropole* and *PETR Pays de Retz* were repeatedly assessed and monitored in the framework of policy documents.

Commuter relations are one of the elements addressed by the cooperation. Between 2015 and 2019, more households have moved from *Nantes métropole* to *PETR Pays de Retz* than in the opposite direction. Despite decreasing trends in the annual land consumption in Pays de Retz, the suburbanisation causes additional land to be sealed, that would otherwise be left vacant (see Figure A.7). In direct proximity to Nantes, the spill-over effects have led to the creation of a considerable amount of industrial activity zones, which is intensive in space and depending manly on motorised means od transport (PETR Pays de Retz and AURAN, 2015).

<sup>13</sup> *Contrat de réciprocité*: French denomination for ‘reciprocity agreement’, see: <https://www.cohesion-territoires.gouv.fr/contrats-de-reciprocite>

**Figure A.7: Land consumption (hectares of new sealed land) for *PETR Pays de Retz* from 1999 until 2012**

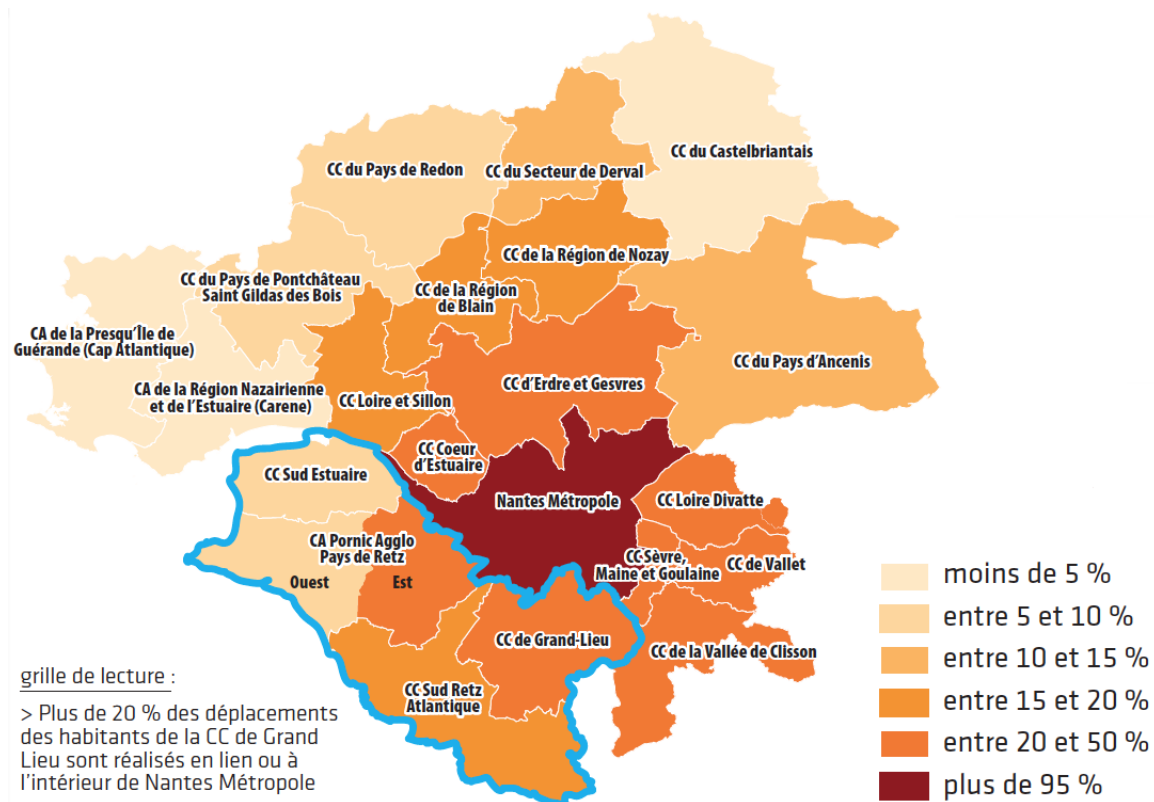


Source: (PETR Pays de Retz and AURAN, 2015).

In conjunction with the suburbanisation trend, many people commute from *PETR Pays de Retz* to *Nantes métropole*, being the main economic centre within the region. Today, more than 35,000 transports occur towards Nantes and 11,000 into the opposite direction on a daily basis, resulting in traffic congestion (see Figure A.8) (AURAN, 2019). The majority of the transits in pays de Retz (~60%) are made by car and the average daily distance driven is 34 km, speaking for the higher dependency on individual modes of transport of the inhabitants. This has lead in Pays de Retz as well as towards Nantes to a higher level of network saturation, higher pollution levels, higher costs and higher levels of risks of social exclusion because of energy poverty of marginalised population groups (PETR Pays de Retz and AURAN, 2017).



**Figure A.8: Share of travel in relation with *Nantes métropole*, *PETR Pays de Retz* is marked in blue**



As consequence of the relations, potentials for cooperation regarding remittances due to salaries paid between the territories are currently discussed within the sectoral departments of the cooperation partners. Each year, about € 500 m are distributed in the form of salaries from firms in Nantes to workers living in Pays de Retz, € 100 m in opposite direction (AURAN, 2019). Future cooperation measures will go as far as to decide jointly on the location of new economic activity zones and enterprises in the cooperation area (Banque des Territoires, 2019).

Food supply and consumption is also one of the spill-over effects addresses. *Nantes métropole* is a major food consumer in the area while many firms and farms render the *PETR Pays de Retz* a food producer. With the current procurement practices, there are limited possibilities to support short food systems, i.e. it cannot be guaranteed that food produced within Pays de Retz is also consumed within Nantes. However, short food systems allow to increase sustainability of food production, limit the environmental impact related to the transport of foodstuff and also helps to support local economies by avoiding intermediaries. With increasing awareness on origin and quality of foodstuff, another cooperation topic between Nantes and Pays de Retz deals with matching



consumers with producers with the purpose of promoting regional alimentation networks.

### A.4.5 Regional approach



The contract established cooperation between *Nantes métropole* and *PETR du Pays de Retz*. Currently, the administrations meet once a month to discuss possible ways forward. The political representatives meet once a year. Cooperation is based on the commitment of individual partners and on the partners to find consensus on the objectives and means for cooperation projects. The example can thus be seen as a rather loose form of cooperation, depending on the willingness of partners to collaborate on individual topics. The contract mobilises necessary resources, e.g. financial allocations from the partners. Apart from designing and implementing the legislative framework for the reciprocity agreement, the national state is not involved in the cooperation.

Within the framework of the cooperation, a first study on the potential of car sharing was launched. The procedure allows the *PETR Pays de Retz* to be closely involved in the design and development of different scenarios to allow for conclusions for later policy actions on car sharing (France Urbaine, 2019; PETR Pays de Retz, 2019). This will contribute to promoting innovative solutions to individual mobility networks and eventually fluidify traffic, develop carsharing, promote intermodality and multimodality and provide seamless access via bike paths between the rural and the urban area. As first measure, car sharing lanes will be introduced on two major roads, connecting *Nantes métropole* and *Pays de Retz* (francebleu, 2019). As consequence, flows between the metropolitan area and Pays de Retz are expected to fluidify, increasing accessibility between the two areas (France Urbaine, 2019).

As for regional alimentation networks, a project is planned supplying school catering with regional products. The measures are currently prepared at the time of the analysis, requiring intense discussion and preparation among all involved partners. Major hurdles that need to be overcome as result of the project is relevant public procurement law and the definition of short food systems (PETR Pays de Retz, 2019). Networking food production with food consumption between *PETR Pays de Retz* and *Nantes métropole* represents a development opportunity to induce a “win-win-situation” for the two partners. Through the project, Nantes will be able to advance a little further on its objective to supply the 630,000 inhabitants with locally produced food. The more than 1,000 producers of *PETR Pays de Retz* will benefit from higher stability of demand

and prices for agricultural goods. The project represents the first cooperation agreement the metropole has signed with one of its neighbouring regions (Nantes métropole, 2018).

#### **A.4.6 Conclusions & recommendations**

The reciprocity agreement between *Nantes métropole* and *PETR Pays de Retz* is only the fourth signed in France. In the case study area, it provides the contractual framework to mobilise resources and to identify cooperation topics to address issues that go beyond the area of responsibility of individual municipal administrations. The example shows that the instrument can be used for local development issues, enabling a bottom-up approach with local stakeholders and thus enabling place-based policy making. The example also shows that important territorial measures (e.g. introducing a carsharing lane) do not require complex governance arrangements. If consensus on necessity and layout of measures is found between cooperation partners, they can also be easily implemented with only small contributions from partners by coordinating the individual sectoral departments between administrative structures

#### **A.4.7 Possibly types of ESI funding**

Whether the example is eligible for ESI-funding depends on the willingness of cooperation partners to develop an EU-funded project. It also depends on the thematic cooperation of the individual projects as well as the stakeholder structure. In case the project on food supply is implemented by creating networks among economic operators from the rural and urban part of the area for example, the action could use ERDF and EAFRD funding.

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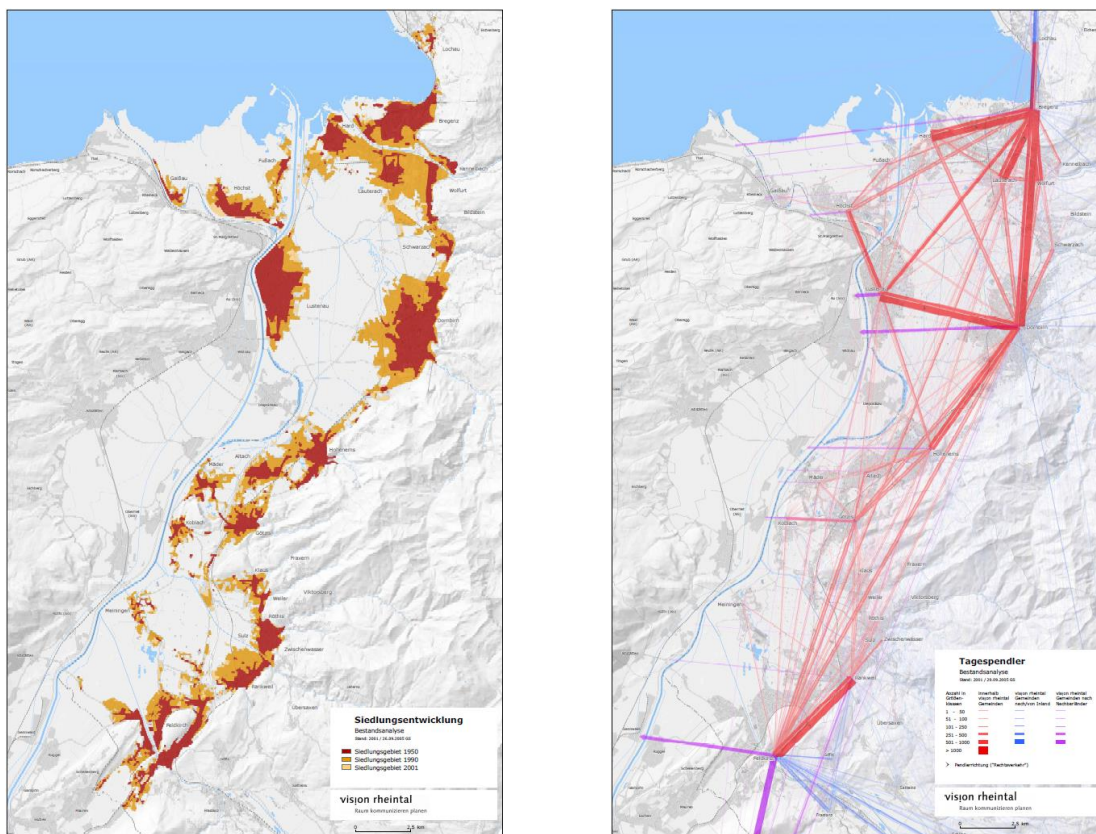
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## A.5 Rheintal, AT

The polycentric-regiopolitan area of the Rhine Valley in Vorarlberg (Austria)

### A.5.1 Location & Size

The area of the Vorarlberg Rhine Valley does not correspond to the standard FUA definition. However, as the region and the three main urban centres (city of Bregenz – 29,845 inhabitants, Dornbirn – 49,451 inhabitants and Feldkirch – 33,861 inhabitants)<sup>14</sup> generate a similar attraction at smaller scale for the region it can be defined as a polycentric-regiopolitan area. The area is a section of the Alpine Rhine Valley and is divided into the Upper and Lower Rhine Valley based on the direction of the flow of the Rhine river. The total surface of this area is 45,574 ha. The total number of inhabitants of the area is 240,000. The Valley is characterised by a fairly dense urban ribbon stretching from Bregenz to Feldkirch and covers 29 different municipalities (Vision Rheintal, 2006a).



Source: Vision Rheintal, 2005.

The left map above shows settlement development between 1950 and 2001. The right map above shows daily commuting flows. The most important commuting

<sup>14</sup> Data for 2018, Vorarlber chamber of commerce.

flows are to the three main urban centers (Bregenz in the top, Dornbirn in the upper-middle and Feldkirch at the bottom of the map).

### A.5.2 Specific cooperation topic

From 2004 until 2016, the Vorarlberg Rhine Valley established a collaboration between all 29 municipalities, also known as the “Vision Rheintal”. This cooperation provided the basis for more than 75 different cooperation projects. The projects range from childcare, care of elderly, mobility or nature conservation to regional building law administration or regional planning.<sup>15</sup>

During the main time frame in which the intervention was active and also as a follow-up project, cooperations occur with the neighboring countries – especially with Switzerland. On both sides of the Rhine river (Vorarlberg and Switzerland) processes and strategies were elaborated to improve cross-border planning. One result of this cooperation was the establishment of the association “Agglomeration Rheintal”. In order to promote sustainable development of the region until 2030, the spatial concept “Raumbild Vorarlberg 2030” was developed and implemented by the federal state government. It consists of a strategic document that creates a framework for the sustainable spatial development of Vorarlberg over the next 10 to 15 years. It, therefore, forms the basis for regional spatial planning and for the preparation of regional spatial plans as well as other spatial planning instruments and covers the following topics: open space & landscape, settlement & mobility, economy, tourism, agriculture & forestry, regional cooperation.

### A.5.3 Government/governance structure

Administration in Vorarlberg is traditionally organised on a decentralised basis. The mayor is the authority competent for zoning and as such can use a number of legal instruments and procedures primarily deriving from the regional development plan. In 2007, however, the Governor and the 29 mayors of the Rhine Valley signed the so-called “Rhine Valley Contract”. On signing this they declared their willingness to cooperate and recognize the jointly developed model as a guide to their actions (Vision Rheintal, 2013).



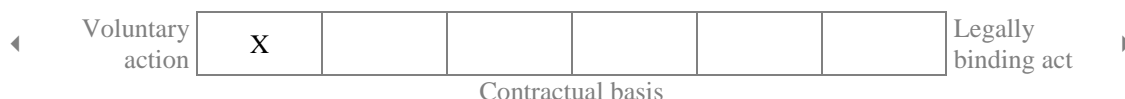
<sup>15</sup> A full list of all projects can be found on the project website: <http://www.vision-rheintal.at>

#### A.5.4 Addressed spill-over effects

As a polycentric area, it can combine different characteristics of urban and countryside areas. Different services are distributed across various municipalities but can be used by the entire region. With regard to social spill-over effects a focus is set on childcare and support of elderly people across municipalities. In addition, social housing construction projects are one of the main priorities. *“The aim of residential building support is to provide the use of several usage forms. Working and living will, therefore, move closer together in the future – even within the buildings themselves. This creates settlement structures that help to avoid unnecessary traffic.”* (Vision Rheintal, 2006b, p 44). Further the needs of young people and of people from other cultures are addressed by providing open spaces across the region. Economic spill-over effects are driven by an even distribution of commercial facilities i.a. the development and the assessment of new industrial sites in the Rhine Valley Center, Rhine Valley South and Rhine Valley North. One key focus of the area is that open spaces are linked to a green network for agriculture, ecology and leisure time. The area offers a comprehensive supply of open and green spaces within the settlement areas. Inhabitants live close to green spaces in order to receive products and recreation from the landscape.

#### A.5.5 Regional approach

- The cooperation “Vision Rheintal” was a voluntary act. When the state governor of Vorarlberg and the 29 mayors of the Rhine Valley signed the “Rhine Valley Contract” they declared their willingness to cooperate.



One of the main characteristics of the Rhine Valley Vision was the extensive involvement of diverse people. *“Particular attention was paid to the regular exchange of information in the Rheintal Vision project: As many participants as possible should be informed as much as possible”.* (Vision Rheintal, 2006b, p 20).

The contract itself covers the following articles: (1) The state of Vorarlberg and the 29 municipalities will jointly continue the Vision Rheintal project, (2) the developed mission statement is the guiding principle of all actions, (3) in terms of spatial development and community cooperation, the Rhine Valley is a learning region, (4) the state of Vorarlberg and the communities openly strive to participate in non-exclusive processes, and (5) the Rhine Valley Conference is engaged in cooperation. The rules are agreed jointly (Rhine Valley Contract, 2007).

- Vision Rheintal was initially financed exclusively by the state of Vorarlberg. Starting in 2008, the 29 Rhine Valley communities also contributed one euro per inhabitant to the expenditure. Furthermore, a part of the project was retroactively approved for EU funding (Vorarlberg Court of Audit, 2012).

Together with citizens, experts and municipalities the municipal and state politicians worked on the development of the Vision since July 2004. A central aim was to break existing hierarchical structures so that the project was part of the state and the municipalities. During the regular Rhine Valley Conferences members of the state government, the state parliament of the Rhine Valley as well as the mayors of the Rhine Valley municipalities met to discuss jointly the results and the next steps of the ongoing projects (Vision Rheintal, 2013).

### **A.5.6 Conclusions & recommendations**

Regions in which all facilities are concentrated in one center are struggling with problems such as congestion and urban sprawl.

The principle of polycentric development brings, on the other hand, spatial balance. Important institutions of the economy, culture, education, and administration are distributed to the best locations and can be used by inhabitants of the entire region. However, to boost such cooperation, the commitment of all involved parties is needed.

### **A.5.7 Possibly types of ESI funding**

ESI Funds could support the development of research facilities in the Rhine Valley. Even though the area is characterised by a good transport network and well-developed industry, the region is lacking enough educational facilities (i.a. universities). For this reason, a lot of young people move to other cities in Austria or the surrounding countries (Switzerland or Germany) for receiving an (academic) education. Since not all of these people return, the region lacks suitable workers (i.a. doctors). Especially the ESF (European Social Fund) could help young people to find an adequate education within the region.

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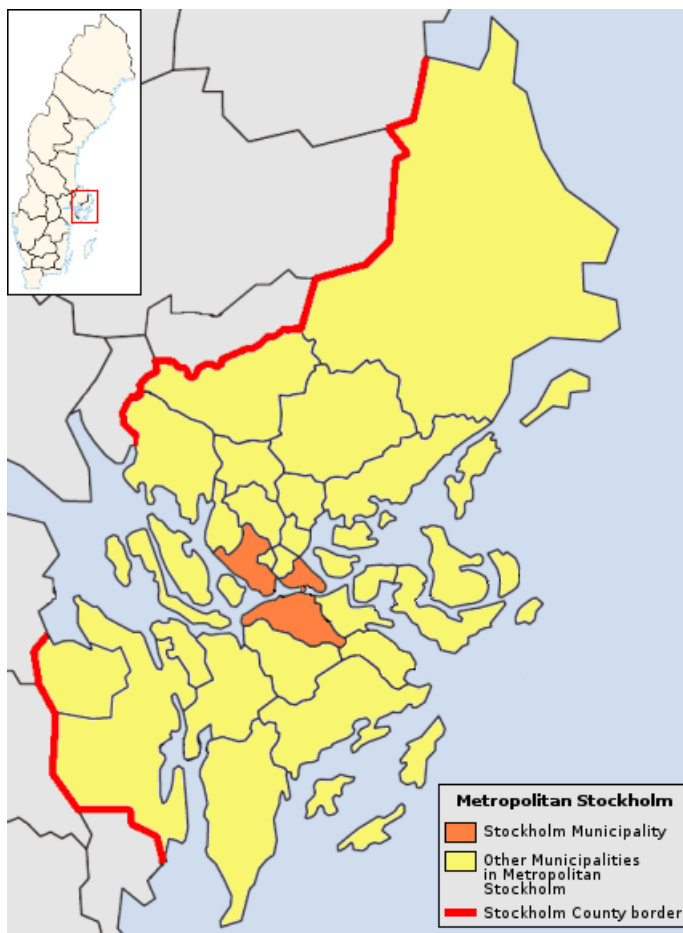
## A.6 Stockholm, SE

### Region Stockholm

#### A.6.1 Location & Size

Region Stockholm is located in Eastern Central Sweden on the Baltic Sea coast and corresponds to the NUTS 2 region Stockholm (SE11) as well as the NUTS 3 region Stockholm County (SE110). It consists of 26 municipalities with a total of 2.3 million inhabitants and spreads around 6,519 km<sup>2</sup>.

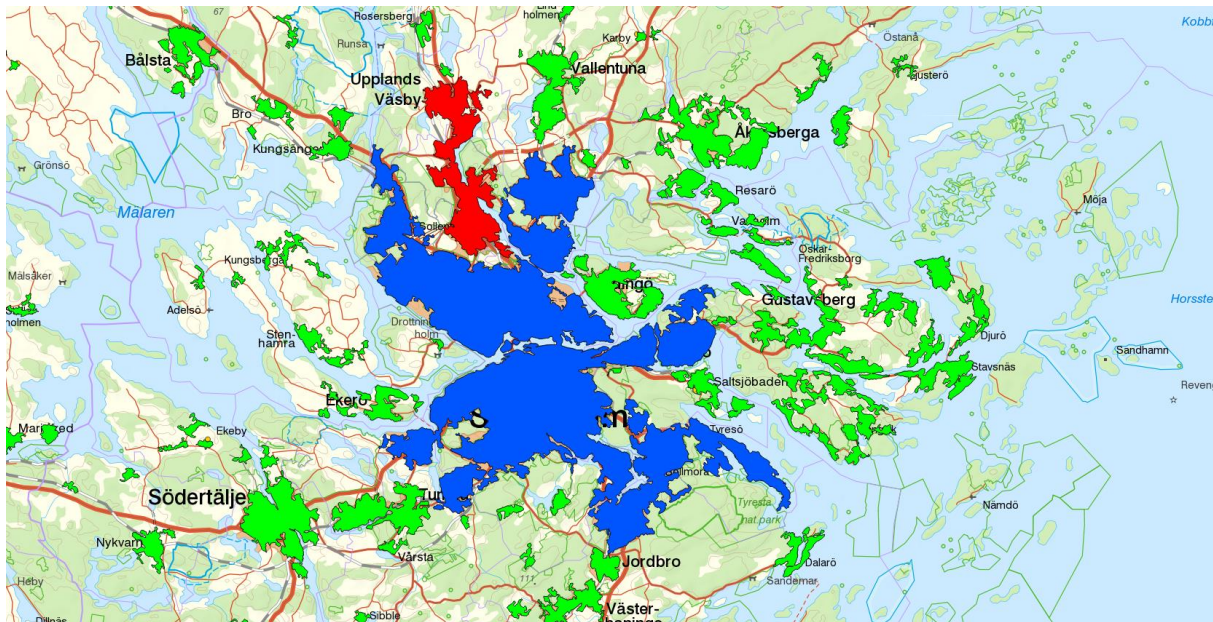
**Figure A.9: Region Stockholm (yellow) and Stockholm Municipality (orange)**



The City of Stockholm as a municipality has 970,000 inhabitants on 187 km<sup>2</sup>, while the Stockholm urban area (Stockholms Tätort) extends into 11 municipalities with a total of 1.5 million inhabitants and 380 km<sup>2</sup> (see Figure 2). The functional urban area extends over Stockholm County, Uppsala County as well as some more municipalities.

Eastern Central Sweden (Östra Mellansverige) is the Swedish macroregion consisting of 7 counties (Stockholm County, Uppsala County, södermanland County, Östergötland County, Örebro County, Västmanland County and Gävleborg County) in which spillover effects from the metropolitan area are perceptible. Nevertheless, its influences range further across the Baltic Sea macroregion.

**Figure A.10: Stockholm urban area (blue)**



## A.6.2 Specific cooperation topic

The County of Stockholm is the responsible authority for health care, public transport and regional planning and development. The latest Regional Development Plan (Regional Utvecklingsplan för Stockholm) RUFS 2050 addresses six challenges the region is facing:

- (1) To facilitate population growth and simultaneously improve the region's environment and the health of the inhabitants;
- (2) To tackle capacity deficiencies at the same time as needs continue to grow;
- (3) To be an internationally leading metropolitan region in growing global competition;
- (4) To reduce negative climate impact and, at the same time, enable greater accessibility and economic growth;

- (5) To continue to be an open region and, at the same time, strengthen inclusion;
- (6) To increase security in the region at a time when the world is seen as unsafe.

Another level of cooperation is addressed in the Eastern Central Sweden region (Östra Mellansverige) as coordination of common interests in the macro region:

- (1) Integration of labour market, education and housing market;
- (2) Work for a concentrated, dense and cohesive built-up area in the best locations for public transport;
- (3) Link the major regional node cities with Stockholm and with each other through cross-links;
- (4) Strengthen East Central Swedens international connections with other metropolitan regions as Helsingfors, Oslo and Öresund;
- (5) Secure a resource-efficient and sustainable supply of goods.

### A.6.3 Government/governance structure



Regional planning has been carried out since 1958 in the Stockholm region, and it plays an important role in dealing with the overarching, long-term issues that are difficult for individual municipalities to handle.

Stockholm County has 26 municipalities with many interconnected functions, such as the labour market, housing market and infrastructure. Stockholm County defines the administrative border of the regional plan. Regional development work does, however, take place through interaction between different players and surrounding counties in Eastern Central Sweden.

The municipalities are responsible for legally binding spatial planning in form of land use and zonal planning, whereas the regional plan acts as guidance but is not compulsory. The regional plan is approved by the political board of the region. However, public transport and health care are directly operated by the region, and are therefore used to implement the goals stated in the regional plan.

**A.6.4 Addressed spill-over effects**

The spatial range of the Stockholm Region, in terms of labour market region, has been constantly and rapidly expanding since the 1970s. This development took place out of demand for labour and was possible through development of transport systems throughout the region.

The metropolitan area of Stockholm nowadays is a highly interconnected region with the core city as a transport hub, research and development centre (academic institutions as well as technology parks) and generally an attractive labour market with an innovative and internationalized economy, high levels of FDI and top quality human capital. On the other side, the city suffers from high real estate prices and housing shortage.

The region aside from the urban area scores with high quality of life, lower real estate prices, the awareness of using proximity of Stockholm in advantage and the close cooperation with the city. Nevertheless, the hinterland is characterized by a distinct economic dependency of the metropolitan economy and typical hinterland economic sectors (industry, manufacturing, logistics...). Furthermore, local human capital is subject to brain-drain and the most talented people tend to move to the city area leaving less skilled and educated workforce structure. As a consequence, there is a strong pressure on the housing market of the core city and the urban area due to regional and especially international migration and consecutive a trend for sub-urbanization to meet the exceeding demand.

**A.6.5 Regional approach**



Regional planning is carried out in accordance with Chapter 7 of the Swedish Planning and Building Act. Stockholm County Council observes the Swedish Act on Regional Planning for Municipalities in Stockholm County, under which the County Council is the regional planning body responsible for carrying out regional planning in accordance with the aforementioned Chapter 7 of the planning and Building Act.

The regional development plan addresses the forecasted trends for the region with a spatial vision for Stockholm County. This vision was developed in a broad participatory process including regional and local representatives, however its legal status is of a strategic memorandum of understanding and not compulsory for the more detailed land use planning in the municipalities. The spatial vision encompasses a polycentric structure with several node cities

around the metropolitan core to ensure service provision as well as attractive local labour markets throughout the region.

The tasks of the regional local government (County Council) include administration of the health care system, public transport (including transport of people with disabilities), regional planning, and to some extent higher education, while the sphere of regional planning and public transport rests with the Office for Regional Planning and Transport. It is financed by taxes on regional level.

### **A.6.6 Conclusions & recommendations**

Stockholm Region is a fast growing metropolitan region, not only in terms of inhabitants in the region, but also, as a consequence, in terms of physical size. Improvements in transport networks lead to a rapidly growing functional area since the 1970s. To meet these developments, regional planning is carried out in the Stockholm Region since 1958. The regional plan as a strategic instrument provides the spatial vision for the region as guidance for the detailed land-use planning on the municipal level. The most powerful instruments on regional level are their direct fields of action in providing public transport and health care services.

### **A.6.7 Possibly types of ESI funding**

The Stockholm Region is Europe's fastest growing metropolitan and capital region. Over the last decade, the county's population has increased annually by 35,000 to 40,000 people.

To meet the needs of this growing population, the Stockholm Region must build 16,000 new homes each year, a challenge it wants to take as an opportunity to promote sustainable urban development. To accomplish this, it is using Structural Funds to invest in a green, healthy, smart, attractive and inclusive city.

The region has recently decided to invest in two development projects to a total of SEK 120 million to reinforce sustainable housebuilding: "Grön BoStad Stockholm" and "Sverige bygger nytt". These two projects, half of which is financed by the European Regional Development Fund and European Social Fund, concern key elements of sustainable urban development.

The Stockholm Region aims to benefit from the expertise found in environmental technology companies and to promote innovation and sustainable growth. Furthermore, it believes there is untapped potential for labour among

recently arrived immigrants and non-native citizens, which the growing construction sector should take advantage of.

Through the Grön BoStad Stockholm project, the Royal Institute of Technology, among others, will develop test beds for innovation in environmental technology companies. The objective is to create openings for the development and use of new energy efficiency and low-carbon technology in construction projects in Stockholm County's municipalities. Efforts will both involve and strengthen the environmental technology sector, as well as engaging clients, such as municipalities, district administrations and property owners, etc., and helping to raise awareness in the area.

In the Sverige bygger nytt project, the Swedish Public Employment Service, together with several municipalities, district administrations, industry associations and trade unions, will promote wider recruitment and strengthen the provision and matching of skills in the construction sector by making use of the competences of recently arrived immigrants and non-native citizens. Work on core values, validation of skills, language support and workplace-based learning will be strengthened and better matched with jobs in occupations facing shortages in the construction sector.

Development projects underline the desire in the Stockholm Region that the European Structural and Investment Funds should contribute to coherent strategic initiatives. This is achieved by concentrating resources, focusing on business and labour, creating synergy through the funds and by using "the Stockholm model" – a new model for the implementation of funding.

This new governance model means that Cohesion Policy is more closely linked to overall regional growth policy and its resources in the county, and contributes to greater interaction and support among regional players to create coherent strategic initiatives whereby they take both the initiative and ownership of their efforts. In this way, although the Structural Funds' budget in the Stockholm Region is among the lowest in Europe, the region will still be able to launch and implement large and important projects.

The Swedish Agency for Economic and Regional Growth is responsible for the management and distribution of funding from the European Regional Development Fund. For the 2014-2020 programming period there are eight regional structural fund programmes, one of them in the Stockholm Region and one in Eastern Central Sweden.

The thematic objectives and priority axes are:

- strengthening research, technological development and innovation,
- enhancing the competitiveness of SMEs,
- supporting the shift towards a low-carbon economy in all sectors.

The Stockholm Regions program is funded with € 37 m while the Eastern Central Sweden's is funded with € 70 m.

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ISBN 978-92-895-1030-1  
doi:10.2863/35077

QG-01-19-812-EN-N



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