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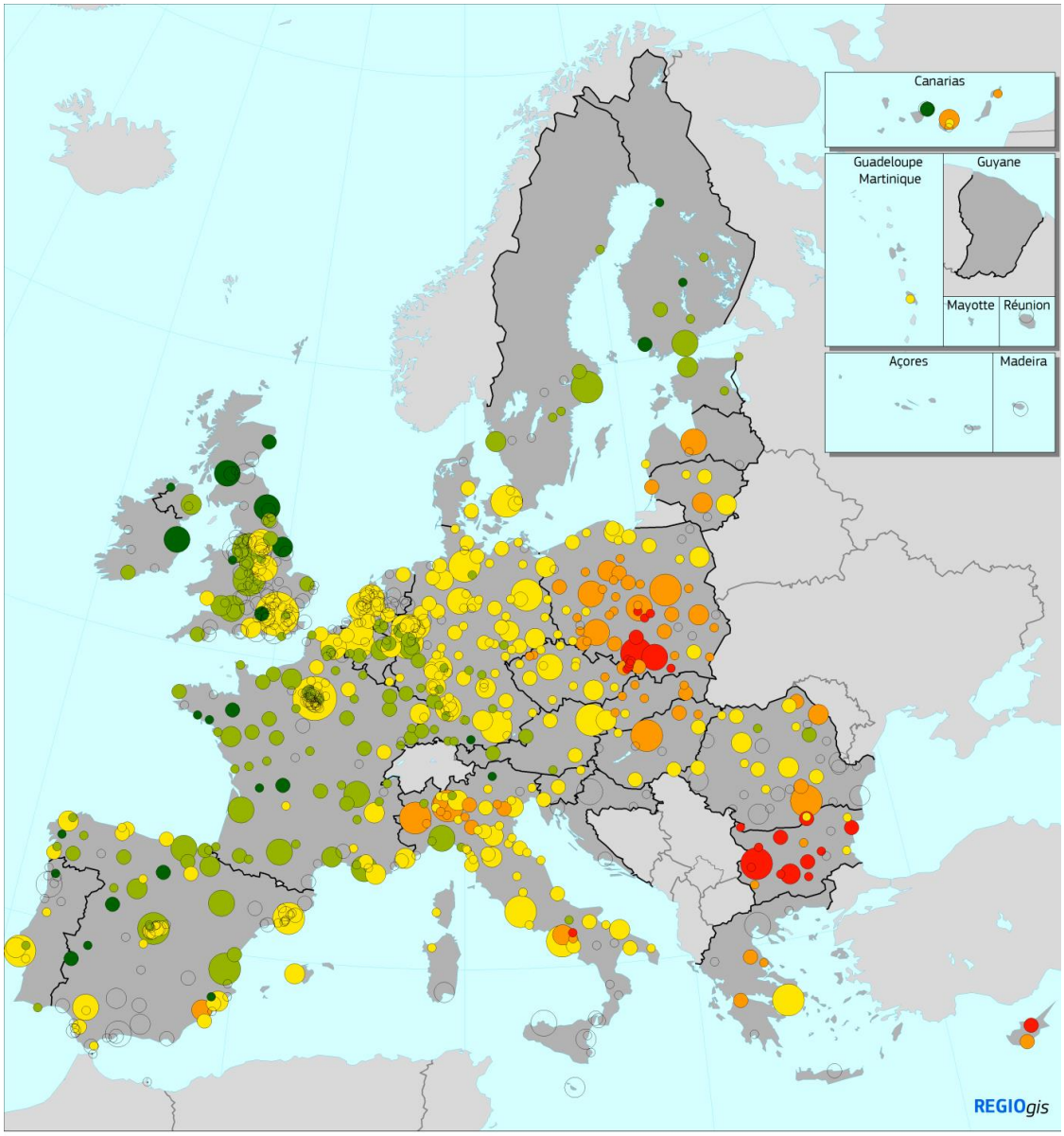
REPORT FROM THE COMMISSION TO THE EUROPEAN PARLIAMENT, THE COUNCIL, THE EUROPEAN ECONOMIC AND SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS

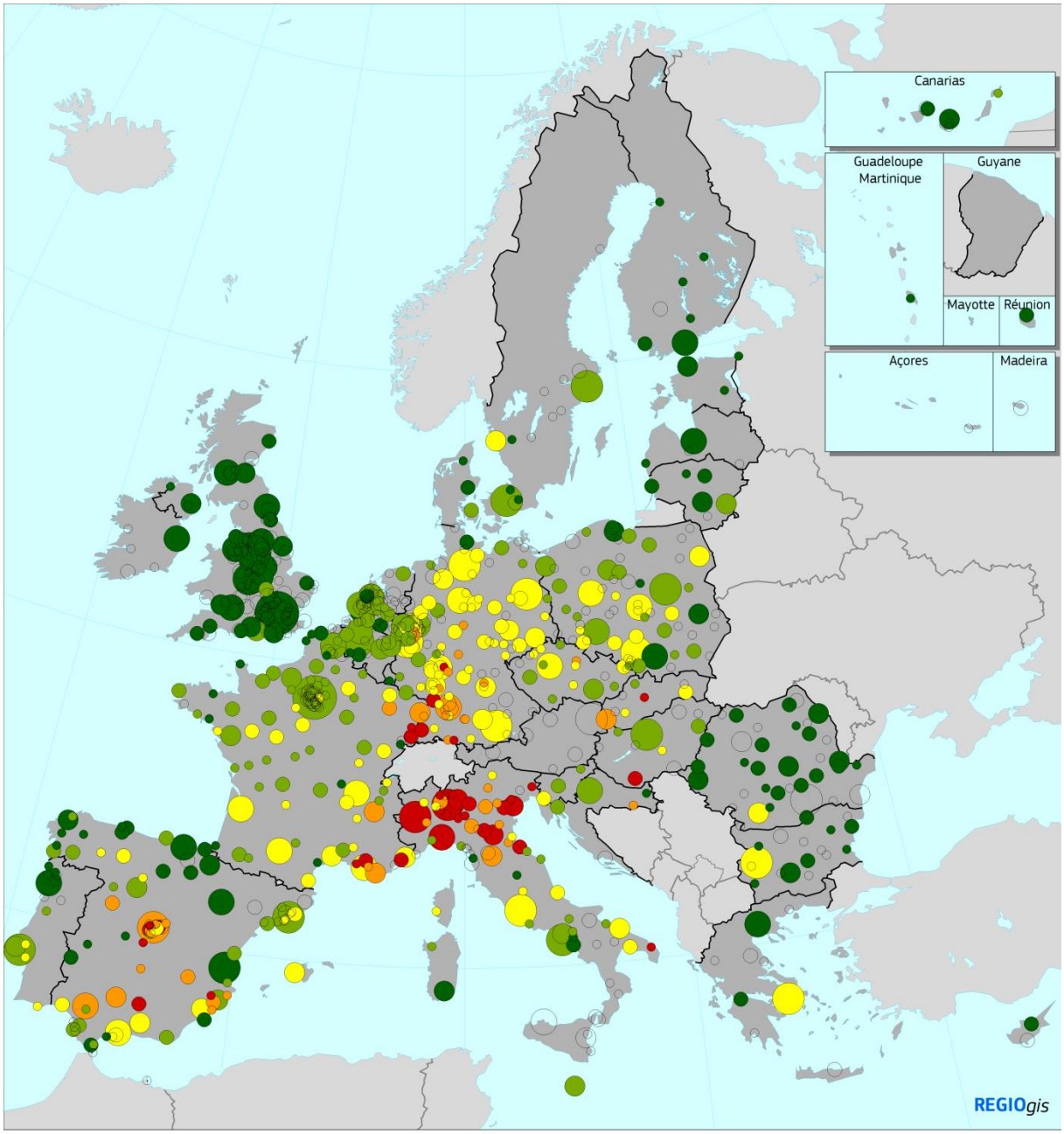
My region, My Europe, Our future:
The seventh report on economic, social and territorial cohesion

{COM(2017) 583 final}

Map 3-8 Concentrations of airborne particulate matter (PM10) in cities, 2014



Map 3-9 Concentration of ground-level ozone (O3) in cities, 2014



Concentration of ground-level ozone (O_3) in cities, 2014

Number of days with more than 120 µg/m³
- < 2
- 2 - 8
- 8 - 15
- 15 - 25
- >= 25
- No data

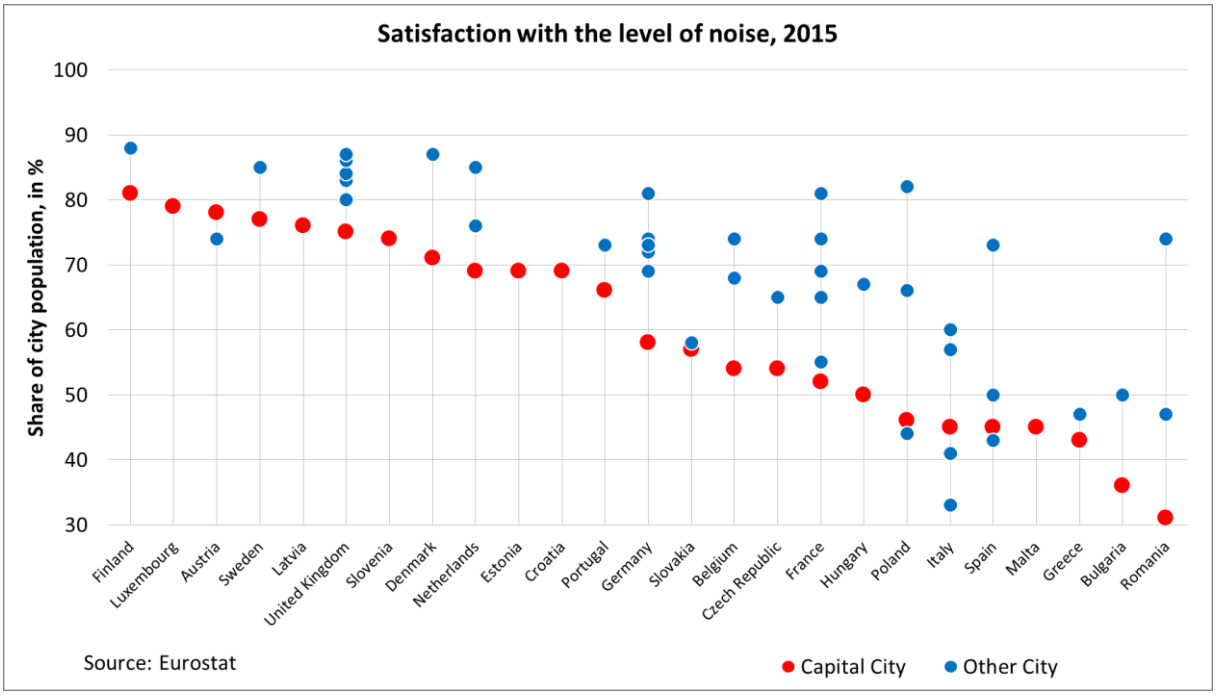
Urban centre population
- < 100000
- 100000 - 250000
- 250000 - 500000
- 500000 - 1000000
- 1000000 - 5000000
- >= 5000000

Average recorded by measuring stations within city boundaries.
EU target value of 120 µg/m³ should not be exceeded more than 25 days per year (averaged over 3 years).
Sources: EEA, DG REGIO

0 500 km

Other types of pollution are also important in an urban environment, including noise pollution. A perception survey on the quality of life in 79 European cities conducted in 2015[37] suggests that in most cities, the level of noise is not a major problem (Figure 3-12). In 62 cities, less than half of respondents reported a problem with noise levels, though the proportion was generally larger in capital cities than in others. The proportion was particularly small in the Nordic Member States (Oulu, Finland, 12%; Aalborg, Denmark, 13%) and the UK (Tyneside and Belfast, 14%). However, in a number of other cities noise pollution seems to cause discomfort and stress, particularly in Bucharest, Palermo and Athens, in each of which around two-thirds reported problems.

Figure 3-12 Proportion of people who are satisfied with the level of noise in their city, 2015



3.4.5. Access to green spaces

Green Infrastructure (GI) is a strategically planned network of natural and semi-natural areas with other environmental features designed and managed to deliver a wide range of ecosystem services. Ecosystem services are the contributions of nature to human well-being, such as the provision of clean air and water, pollination of fruit and vegetables by bees and the recreation provided by natural areas.

The EU Habitats and Birds Directives have given rise to Natura 2000 areas, the EU network of protected areas, which is the backbone of EU Green Infrastructure deployment, and is designated to protect the most threatened habitats and species. Natura 2000 also provides opportunities, for the development of tourism, recreation, agriculture, forestry, sustainable fisheries and aquaculture as well as nature-based means of controlling floods, mitigating and

[37] European Commission, Directorate-General for Regional and Urban Policy (2016), *Quality of Life in European Cities 2015*, Publications office of the European Union, Luxemburg.

adapting to climate change and producing other ecosystem services. Recent studies have shown that the economic benefits generated by the Natura 2000 network can be substantial[38].

The establishment of Natura 2000 is to a large extent complete on land (with more than 18% of the EU's landmass protected as a result). Progress in designating of marine areas for protection has been slower, though 6% of EU seas and oceans are now covered.

Improving the environment in less favoured regions increases their attractiveness for external investors and tourists and helps to strengthen their regional identity, but there remain shortcomings in the implementation of the Directives concerned, partly as a result of a lack of adequate funding[39].

Deploying Green Infrastructure in rural areas in the EU can give rise to a wide range of ecosystem services, but more investment is needed in it in and around urban areas in order to increase the beneficial effects of the services it produces, even though the costs are likely to be higher for a given level of nature protection[40].

Green urban spaces are a good example of this general principle. Green urban spaces can mitigate pollution problems and help to absorb carbon from the atmosphere as well as rainwater. They also offer shade and so help to limit temperature increases, as well as being important places for social interaction and for the quality of life in general. Access to green urban areas varies widely across EU cities (Map 3-10). In many cities in Western, Central and Northern Europe, people have access to vast areas of green space. In Chomutov-Jirkov in the Czech Republic, for example, over 13 000 hectares of green space can be accessed in less than 10 minutes walking. On the other hand, such spaces are less present in many Eastern and Southern EU cities, partly because of the climate which often makes it costly to maintain them, given the need for extensive watering systems.

[38] European Union (2013), *The Economic benefits of the Natura 2000 Network*, Publications Office, Luxembourg.

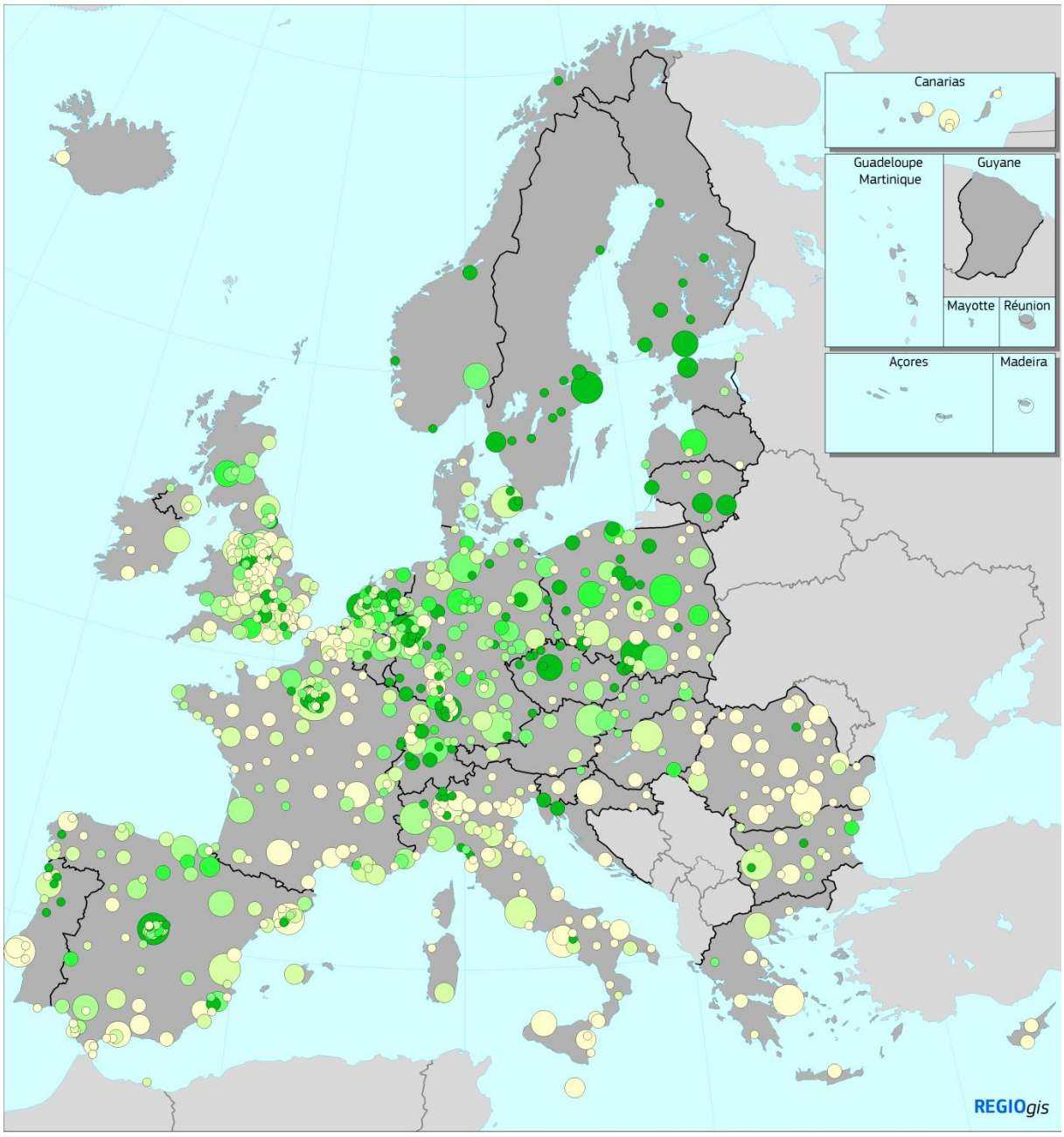
[39] Special Report No 1/2017: More efforts needed to implement the Natura 2000 network to its full potential, the European Court of Auditors.

[40] Vallecillo, S., Polce, C., Barbosa, A., Perpiña Castillo, C., Zulian, G., Vandecasteele, I., Rusch, G. and Maes, J. (2016), Synergies and conflicts between the delivery of different ES and biodiversity conservation: Spatial planning for investment in green infrastructure and ecosystem restoration across the EU, OpenNESS Deliverable D3.3/WP3.

Urban ecosystems and GI

Cities have high concentrations of people who could profit from nature to improve health and well-being. They have limited space which needs to be better used in a multi-functional way; they suffer from air, soil and water pollution and from the effects of climate change such as heat waves and flash floods - all of which have effects on the economy and social security in cities. Improving biodiversity and the provision of multiple ecosystem services though GI would help to improve the quality of life, health and well-being, protect against the negative effects of climate change and natural disasters, regenerate cities and diversify local economies and create new businesses and innovative and sustainable jobs in a cost-effective way. Implementing GI and nature-based solutions in urban areas would also create a greater sense of community and help combat social exclusion and isolation.

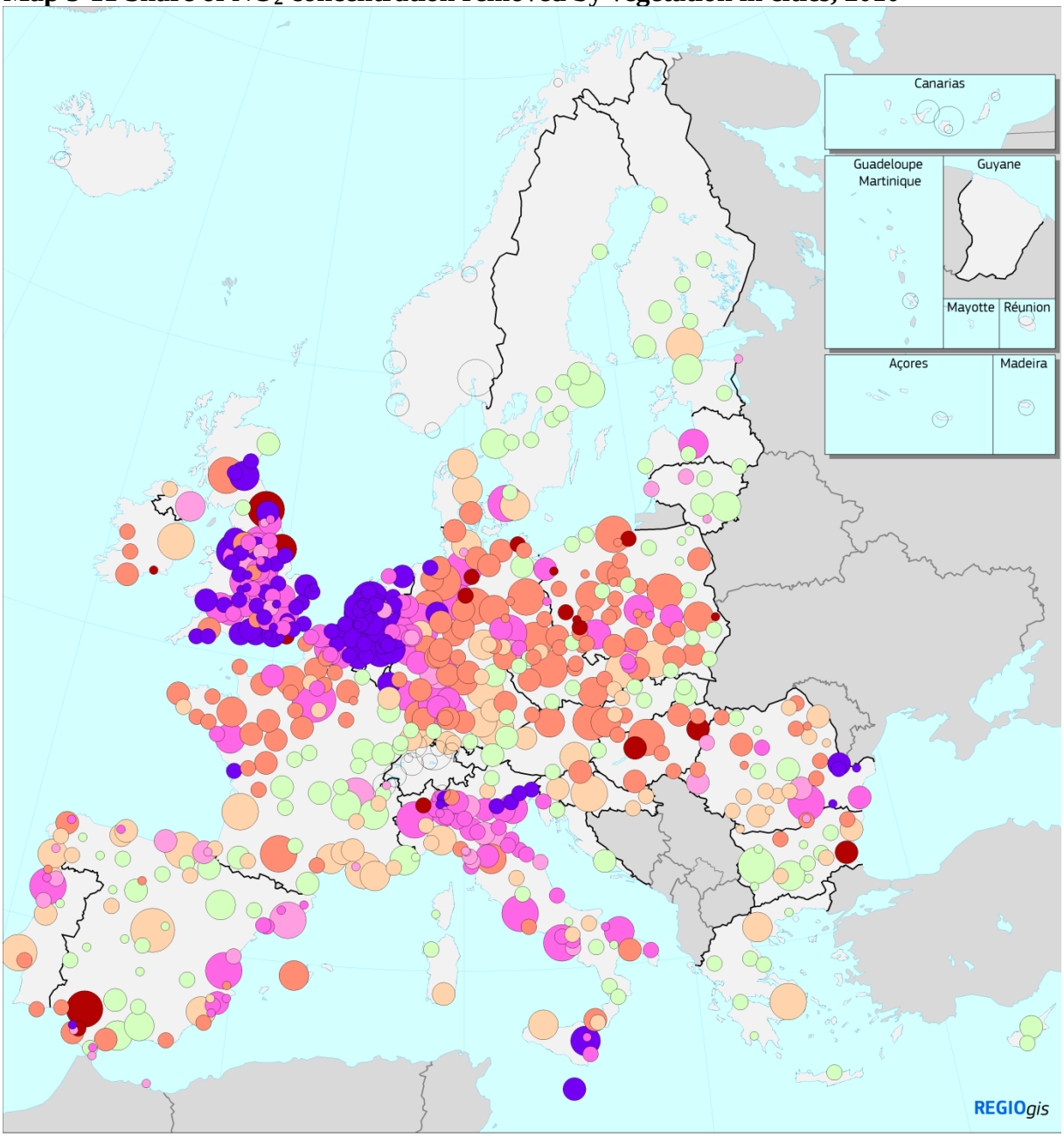
Map 3-10 Access to green urban areas in cities, 2012



Urban green spaces also play an important role in regulating air quality, as evidenced by many studies (Escobedo and Nowak. 2009, Litschke and Kuttler, 2008, Nowak et al. 2006, Nowak et al., 2013). The latest (Vizcaino et al., 2017), which focuses on European functional urban areas (FUAs)[41], finds that the contribution of green urban spaces to reducing NO_2 concentration varies widely across the EU. In a number of Swedish cities (Gothenburg, Uppsala, Umeå, Örebro and Jönköping), Târgoviște in Romania, Vilnius in Lithuania and Ioannina in Greece, more than 50% of NO_2 concentration is removed by green spaces (Map 3-11). By contrast, in many cities in the Southern UK, Belgium, the Netherlands and Northern Italy, because of low levels of vegetation, only a small fraction is removed.

[41] The functional urban area consists of a city plus its commuting area; see the EU-OECD FUA definition at http://ec.europa.eu/eurostat/statistics-explained/index.php/European_cities_%E2%80%93_the_EU-OECD_functional_urban_area_definition .

Map 3-11 Share of NO_2 concentration removed by vegetation in cities, 2010



Share of NO_2 concentration removed by vegetation in cities, 2010

- Low for NO_2
- Low removal capacity and medium for NO_2
- Medium removal capacity and medium for NO_2
- High removal capacity and medium for NO_2
- Low removal capacity and high for NO_2
- Medium removal capacity and high for NO_2
- High removal capacity and high for NO_2
- No data

- < 100000
- 100000 - 250000
- 250000 - 500000
- 500000 - 1000000
- 1000000 - 5000000
- >= 5000000

Sources: JRC-ISPRA, DGREGIO

0 500 km

3.4.6. River flooding

There is a significant risk that large parts of Europe will be confronted with an increase in the occurrence and frequency of floods as a result of climate change. Effective water management, as required by the WFD, will help Member States to prepare for extreme weather events which can cause substantial damage[42].

Since the WFD, the Floods Directive[43], adopted in 2007, is intended to create a pan-European framework that can support Member States to identify, assess and tackle flood risk. Since its introduction, the management of flood risk has been strengthened and new models and methods for assessing and/or managing the risk have been developed. A more systematic, coordinated and holistic implementation of management plans has been achieved with a better understanding of priorities, along with a more focused discussion and improved awareness of the risk and the development of partnerships, involving spatial and land use planning and civil protection, to reduce it.

River flooding is a frequently occurring natural hazard in Europe. It is of particular concern in urban areas, where physical and human losses can be high. The flood impact indicator developed by Lund et al. (2013)[44] enables the impact of flooding at both regional and urban level to be assessed. The methodology takes account of both the estimated natural risk and the capacity of the region or city to mitigate the event and recover from it. When applied to Europe's major FUAs, it shows that, though the degree to which areas are affected varies greatly depending on its location and the hydrological characteristics of its surrounding (upstream) area, the risk of flooding exists in many cities right across the EU (Map 3-12). In a large number of FUAs in the Netherlands, Italy and Hungary, over 50% of the population is at risk in the event of the biggest flood in the last 100 years reoccurring. There is also a high risk in FUAs in Southern Germany, Poland, Romania, Spain and France.

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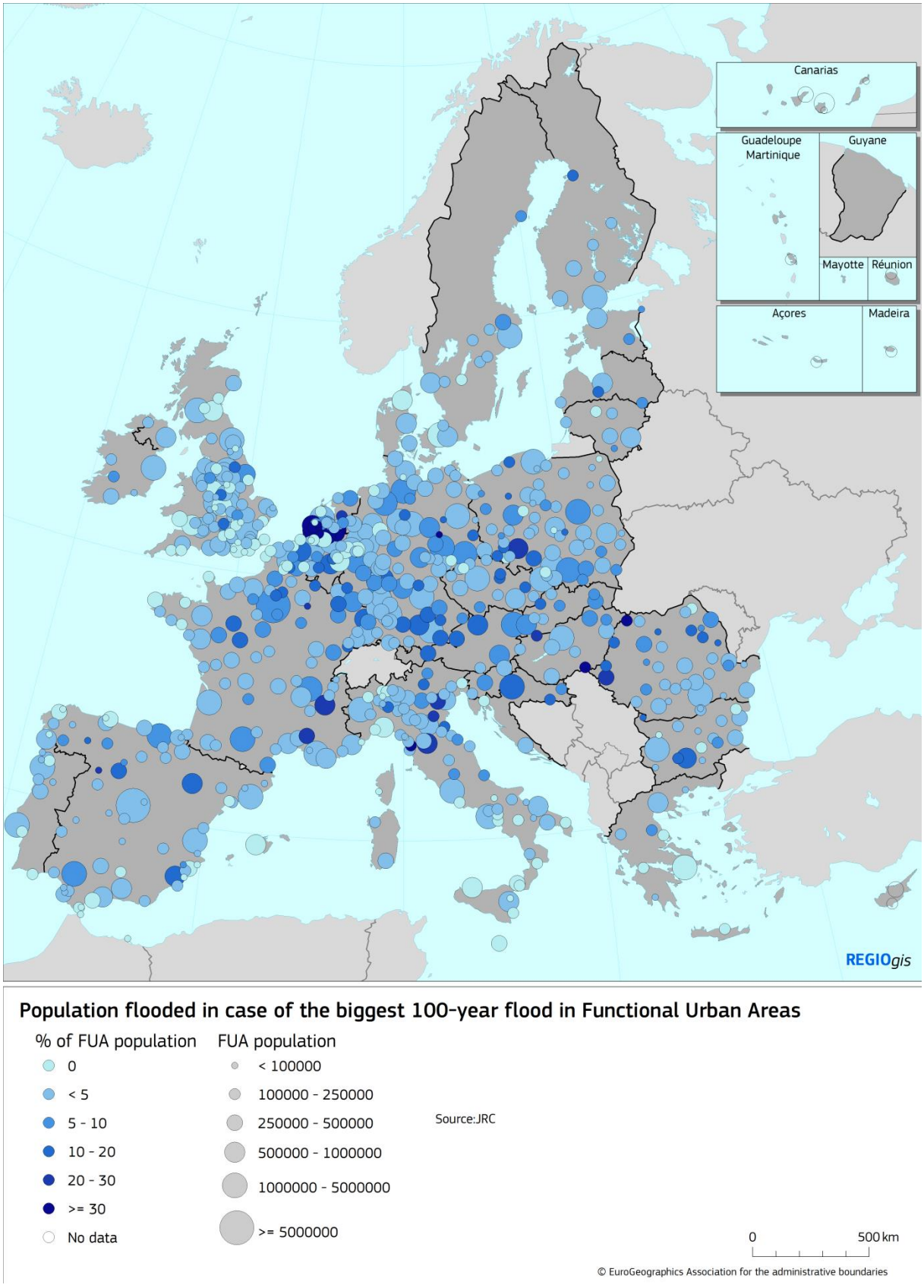
42 Under a no-adaptation scenario (i.e. assuming continuation of the current protection against river floods up to a current 100-year event), EU damages from the combined effect of climate and socioeconomic changes are projected to rise from EUR 6.9 billion a year to EUR 20.4 billion a year by the 2020s, EUR 45.9 billion a year by the 2050s and EUR 97.9 billion a year by the 2080s. See Rojas et al. (2013) Climate change and river floods in the European Union: Socio-economic consequences and the costs and benefits of adaptation, Global Environmental Change 23, 1737–1751: http://www.sciencedirect.com/science/article/pii/S0959378013001416# .

43 Directive 2007/60/EC of the European Parliament and of the Council of 23 October 2007 on the assessment and management of flood risks, OJ L 288, 6.11.2007, p. 27.

44 Lung T., Lavalle C., Hiederer R., Dosio A. and Bouwer L. M. (2013), A multi-hazard regional level impact assessment for Europe combining indicators of climatic and non-climatic change, *Global Environmental Change*, 23, p. 522-536.

Map 3-12 Population flooded in the case of the biggest 100 year flood in FUAs reoccurring

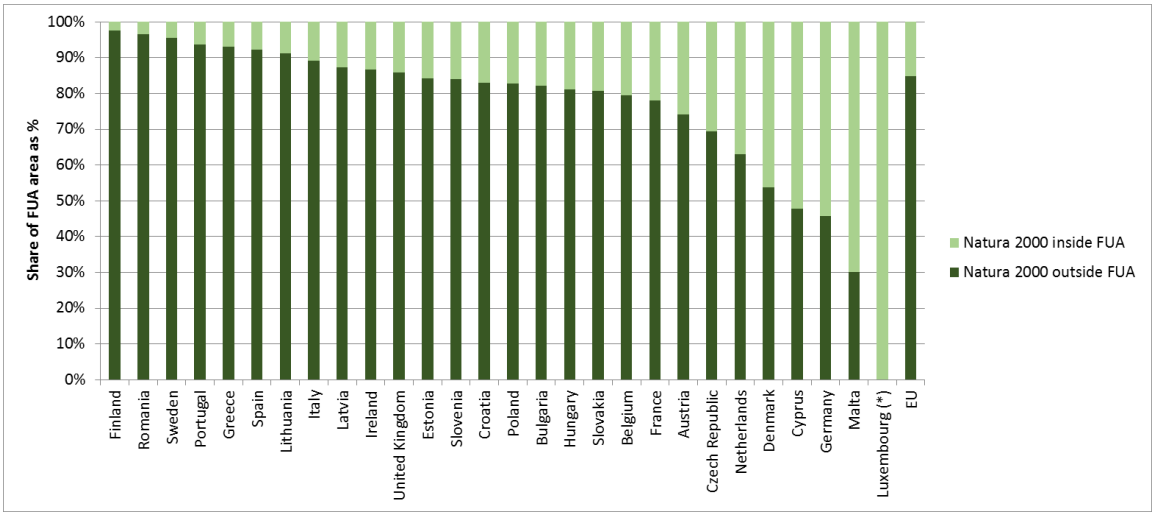


A significant part of the Natura 2000 network lies within functional urban areas

Urban green infrastructure - trees, parks, green roofs, gardens and urban forests – helps to improve air quality, reduce noise and mitigate extreme summer temperatures and the risk from floods. It also provides a source of recreation. Significantly, people who live in neighbourhoods with a high density of trees on their streets or with large amounts of green space report themselves as being healthier than others. While the importance of urban green infrastructure in this regard is increasingly recognised, the potential role of protected areas to support biodiversity in cities is often overlooked. But it can be expected that in the near future cities will play an increasingly important role in the management of vulnerable ecosystems and biodiversity.

This is evidenced by linking spatial data on urban areas with sites which are part of the Natura 2000 network, which is a key means of protecting biodiversity in the EU. While some Natura 2000 sites are located in remote areas, most of them are part of the surrounding landscape, including in urban areas. Overlaying spatial data for FUAs[45] in the EU on top of the Natura 2000 network[46] shows that 11 041 Natura 2000 sites lie at least partly in FUAs, 15.2% of the surface area, in practice. As would be expected more urbanised countries, like Malta or Belgium, have a larger share of Natura 2000 sites inside FUAs than countries like Finland or Sweden But the configuration of the network also matters - for example, Germany has created a dense network of relatively small protected sites which often overlap with urban areas.

Figure 3-13 Share of the Natura 2000 network which intersects with Functional Urban Areas



Source: JRC.

[45] http://ec.europa.eu/eurostat/web/gisco/geodata/reference-data/administrative-units-statistical-units/urban-audit#ua11-14 .

[46] Natura 2000 sites (2016) (https://www.eea.europa.eu/data-and-maps/data/natura-8#tab-metadata).

3.5. CROSS-BORDER COOPERATION AND TERRITORIAL DIMENSION OF COHESION POLICY

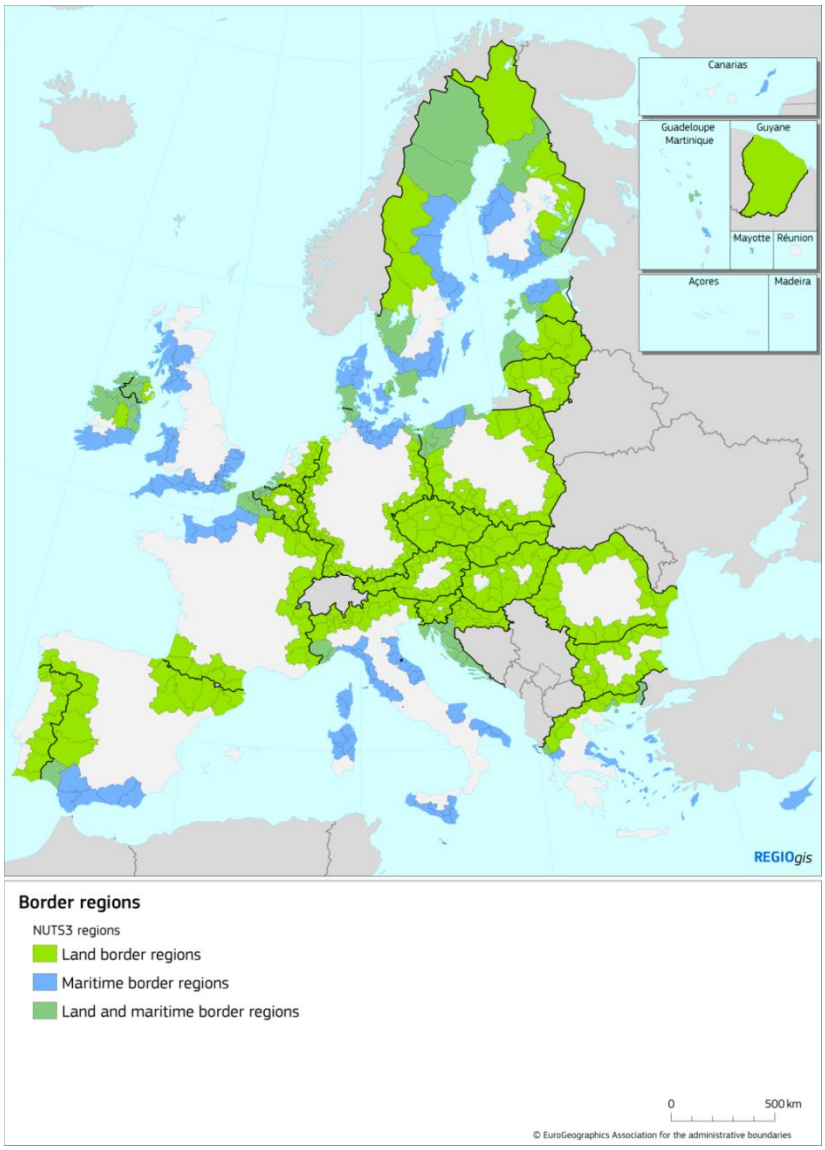
The EU is facing an increasing number of new global challenges which have a significant impact on the economic, social and territorial cohesion in Europe. To respond to many of these challenges, European territorial cooperation enables countries and regions to identify solutions to common problems in border regions and other functional areas of co-operation.

3.5.1. Border regions

For analytical purposes, border regions are defined as NUTS 3 regions located along or very close to land and maritime borders between EU Member States and other countries. There are two types of border region: internal ones, i.e. regions located on borders between EU Member States and/or European Free Trade Area (EFTA) countries, and external ones, i.e. those located on borders between an EU country and a non-EU or EFTA one (Map 3-13).

As the severity of border effects is likely to diminish with the distance from the border, the definition of border regions is complemented by that of border areas, which are those covering a 25 km zone on both sides of the border. Indicators can be defined for border regions or border areas or for a combination of both. NUTS 3 regions not being formally along land borders but which lie at least partly inside the 25 km wide area along borders are also considered to be border regions.

Map 3-13 Border regions, NUTS 3



In the last few decades, integration among EU Member States as well as with neighbouring countries has been progressively extended. However, despite the elimination of many institutional and regulatory barriers, borders still continue to obstruct the movement of goods, services, people, capital and ideas, which prevents the benefits of integration from being fully realised.

In this context, European Territorial Cooperation has played an important role in mitigating the adverse effects of internal borders and has realised many concrete achievements with regard to cross-border security, transport, education, energy, health care, training and job creation. For the 2014-2020 period, EUR 6.6 billion was allocated to 60 cross-border cooperation programmes[47].

[47] In the case of external border regions, the Instrument for Pre-Accession Assistance (IPA) supports cross-border co-operation between candidate countries, potential candidate countries and EU Member States while

In 2014, around a third of the EU population lived in land border regions, the GDP of which was some 28% of the EU total, implying a GDP per head of 88% of the EU average. This average hides wide variations, reflecting the differences between different parts of the EU, with border regions with a high GDP per head being located in the North and West and those with a low level being located in Central and Eastern Europe.

Recent research has identified some of the main obstacles to the development of border regions. There are often socioeconomic disparities between regions on the two sides of the border which reduce the opportunities to cooperate and hinder integration. For some regions, physical obstacles and poor transport infrastructure limit access to markets and services on the other side of the border, while cultural and language differences can restrict interaction between people or businesses. Legal and/or administrative difficulties can also limit the scope for regional integration and labour mobility even in places which are potentially functional regions.

A recent study[48] suggested that if only 20% of the existing legal and administrative obstacles were removed, border regions could gain up to 2% in GDP. Regions located along borders in central EU and EFTA countries may have a lower GDP due to these obstacles (Map 3-13).

the European Neighbourhood Instrument (ENI) provides support to EU regions bordering Neighbourhood countries to the East and the South.

[48] Camagni et al. (2017), *Quantification of the effects of legal and administrative border obstacles in land border regions*, Final Report to the European Commission, Politecnico de Milano.