

Sustainable Urbanisation in Europe. Finding opportunities to promote sustainable urbanisation in my region

Original

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POLICY BRIEF

Sustainable Urbanisation in Europe

Finding opportunities to promote
sustainable urbanisation in my region

Since 2000, approximately 250 football fields of land (180 ha) have been converted to urban use in Europe every day. This development far outstrips population growth; urbanisation occurs even in shrinking regions. In Europe, the conversion of land to urban use is the outcome of conscious decisions.

The purpose of this policy brief is to provide cities, regions and countries with a methodological approach to make the current urbanisation practices more efficient and sustainable, and thereby to support the implementation of the European Green Deal, the Territorial Agenda 2030 and the New Leipzig Charter. The application of this approach is demonstrated by two cases, one in Croatia and one in Lithuania. Following the March 2020 earthquake near Zagreb, the Ministry of Physical Planning, Construction and State Assets of the Republic of Croatia requested recommendations on how to link the reconstruction processes in the three affected regions to sustainable land use. The Ministry of Environment of Lithuania requested support for the implementation of the Comprehensive Plan of the Territory of the Republic of Lithuania.

The problems encountered by Croatia and Lithuania are similar to those in other European Member States. Many Mediterranean areas are earthquake prone, and urban development in shrinking areas is far from unique in Europe. Moreover, the approach to analysing the situation and finding potential solutions that this policy brief describes is therefore applicable to many other European regions as well.

KEY POLICY MESSAGES

- The **distribution of urbanisation and land-use developments is highly heterogeneous**. For example, we see strong urban growth in some parts of Europe, slower development in others and even deurbanisation in some instances. We also see some monocentric cities expanding by means of contiguous or clustered development while others display profound urban diffusion. In general, urbanisation can largely be explained by drivers such as population and socioeconomic development.
- Even though generic drivers create pressure for land conversion, **local practices** still determine the direction, density and shape of land-use developments. It is possible for policymakers to successfully design interventions that adjust the pay-offs or orientation of stakeholders – and thus their behaviour in the development process – to more sustainable ends using a combination of carrots, sticks and sermons.
- In **Lithuania**, the European perspective proved an important key for reinterpreting local problems. The Lithuanian stakeholders learned that their regions were not alone: interventions were being implemented elsewhere to address similar issues in similar contexts. Moreover, they were made aware that sustainable land use is an important topic in Europe.
- In **Croatia**, the immediate and pressing issue of earthquake reconstruction was reframed in terms of sustainable development. This invited the stakeholders to rethink their policy in more strategic terms: long-term perspective, integration across policy sectors and funding sources. This broader perspective also allowed local initiatives to be linked to policy goals at other scales, such as the European Territorial Agenda.

1

Urbanisation in European regions and cities

From 2000 to 2018 about 1.26 million ha of land across the ESPON – European Territorial Observation Network territory was converted to urban use, mostly for homes, businesses and infrastructure. Most of this urbanisation came at the expense of agricultural land (78 %); but a few regions in Austria and the United Kingdom (Scotland) saw most new urban land coming from natural areas. Only in Romania (–0.8 %) and Bulgaria (–0.1 %) did the share of urban land decrease as a whole, mostly in non-built uses such as construction sites or dump sites. In total, 8.6 times more land was converted to urban/artificial use than vice versa.

Evidence shows that urbanisation did not happen equally in all periods and countries. Far less land was converted to a new use in the years following the financial and economic crisis, especially in Ireland and Spain (where the impact on urban development was acute). On the other hand, urbanisation in Poland almost tripled in the years following its EU accession.

This policy brief uses the term ‘urbanisation’ rather than ‘land take’ or ‘sprawl’ because it is a more neutral way to describe the phenomenon of conversion of land to more urban uses. Urbanisation does not merely denote the movement of population to cities or the expansion of the built-up area; it covers all physical urban developments. Many variations of urbanisation can be distinguished in Europe, even deurbanisation (conversion of urban land to natural or rural uses). Obviously, some forms of urbanisation will be more sustainable than others. Given the diversity of Europe and the increased importance of taking a place-based approach, urbanisation as a concept is also more consistent with and amenable to territorial governance and spatial planning traditions.

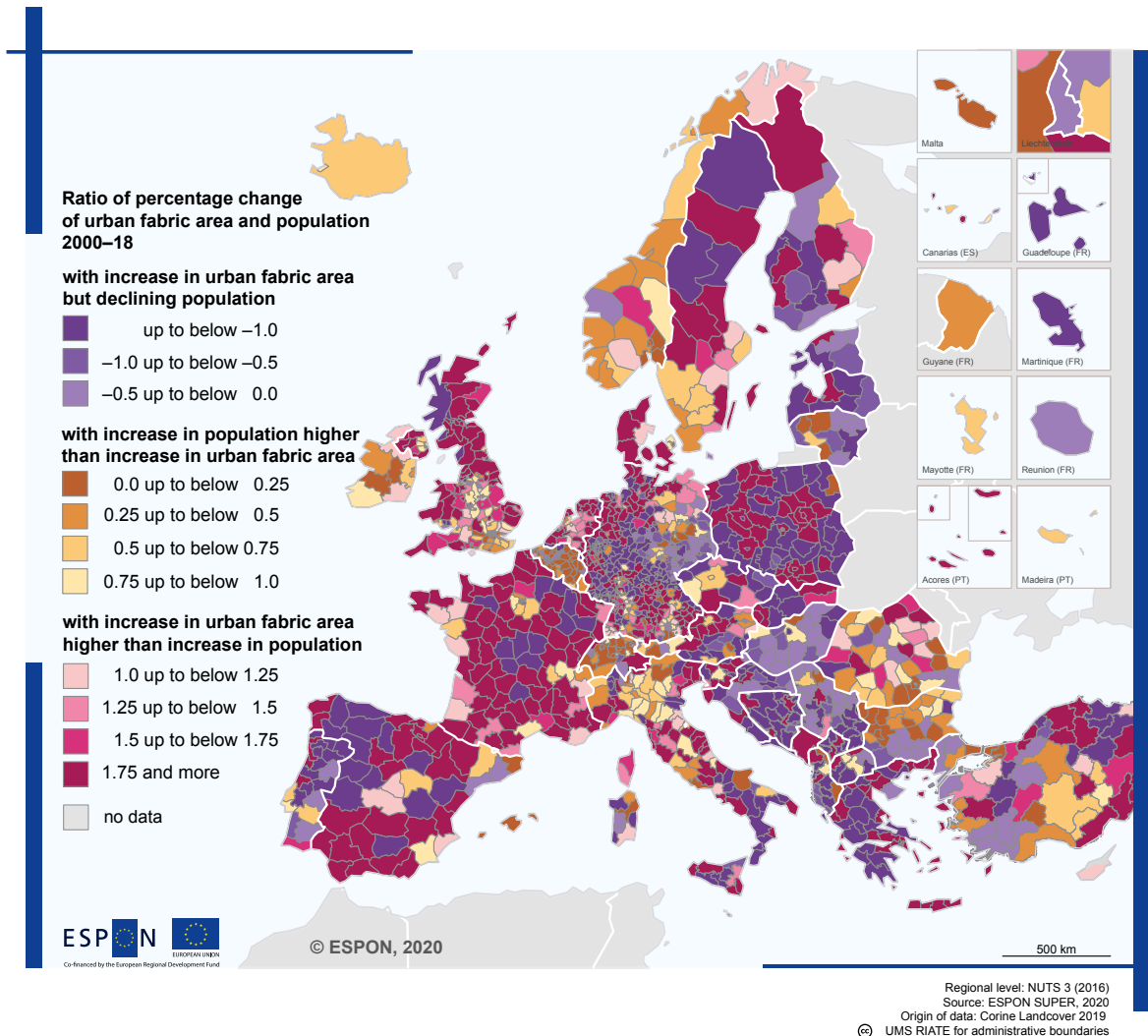
Among the most important drivers of regional urbanisation processes are population development and migration. Comparing demographic change with urban development reveals an asymmetric geographical distribution in Europe, as can be seen in Map 1. Here a value of 1 indicates a

balanced development in which the ‘urban fabric’ (generally residential developments) follows population developments. A value of 0.5 indicates that the percentage change of population is twice that of urban development (increasing density, shades of orange) and vice versa for a value of 2.0 (decreasing density, shades of red). In addition, some regions have a declining population but growing urban fabric (decreasing density, shades of purple). The analysis suggests that the production of urban use areas (land take) exceeded the assumed need (population growth) in Europe in 2000–18. Areas experiencing depopulation still usually show increases in urban use areas. Depending on one’s inclination, this can be taken as an indication of ‘urban sprawl’ or unwarranted ‘land take’. According to this analysis, the main areas where population exceeded urbanisation were Belgium, Bulgaria, Romania and Switzerland. (However, this interpretation of Belgium’s data is very likely to be because the scattered development is too small to be accurately recorded in the land-cover database.)

Land remains a finite resource, and the way it is used is one of the principal drivers of environmental degradation. Urbanisation usually involves soil sealing (the permanent covering of soil by impermeable artificial material such as asphalt and concrete), which causes an irreversible loss of ecological functions and increased water run-off, sometimes leading to catastrophic floods. Urban development can also exacerbate the urban heat island effect. Furthermore, landscapes can become fragmented and habitats too small or isolated to support certain species. In addition, the food production potential of this land is lost forever. The effects of urbanisation differ according to the value, quality and function of the land. At the same time, the same phenomenon produces economic value and increases people’s quality of life by accommodating their needs for housing, shopping, travel and recreation. As spatial planners are fully aware, the use of land usually involves a trade-off between various social, economic and environmental needs.

Map 1

Development of urban fabric areas in relation to population development, 2000–18



Given that the conversion of land to urban use in Europe is the outcome of conscious decisions made by human beings, it can also be affected by conscious human interventions: in other words, policies and practices matter. The question is: how can we make our current practices more efficient and sustainable so that we can meet the European Union's goal of achieving no net land take by 2050 and support the European Green Deal, the Territorial Agenda 2030 and the New Leipzig Charter?

The challenge of designing policies to promote sustainable urbanisation and land use is present at all spatial levels and scales from the local level all the way up to the EU. Given this, (sub)national spatial planning and territorial governance can play an important role in achieving more sustainable use of land by assessing the qualities and characteristics of different locations with respect to competing objectives and interests. This already occurs throughout Europe through a variety of interventions that, with varying degrees of success, steer, or attempt to steer, urbanisation and land use. Given that these interventions

take on various guises in different national contexts, serve different substantive goals and are implemented at various scales, the policy context remains highly heterogeneous and fragmented (see Box 2).

After this short introduction to urbanisation in European regions and cities, this policy brief will continue to describe how the guide and intervention database developed by the ESPON Sustainable Urbanisation and Land-Use Practices in European Regions (SUPER) project (ESPON, 2020a) have been used to investigate the situations in Croatia and Lithuania regarding urbanisation and how they can promote sustainable urbanisation. First a methodological protocol is explained, after which each of the four steps is described in more detail using the cases of Croatia and Lithuania as illustrations. The policy brief concludes by explaining, on the one hand, how the conclusions and recommendations for these two countries can also be valid for other European regions and, on the other hand, how EU policies play a role in promoting sustainable urbanisation and land use at the national and regional levels.

2 Finding opportunities for sustainable urbanisation

Stakeholders in two countries, Croatia and Lithuania, wished to enlist the support of ESPON to use the evidence of the SUPER project, in particular the SUPER Guide (Box 1), to support their policy processes for promoting sustainable land use and avoid unsustainable urbanisation. In particular, Lithuania's Ministry of the Environment was interested in receiving support for the implementation of the Comprehensive Plan of the Territory of the Republic of Lithuania (CPRL). Following the March 2020 earthquake

near Zagreb, the Ministry of Physical Planning, Construction and State Assets of the Republic of Croatia was interested in how to link the reconstruction processes in the three affected regions to sustainable land use, with a focus on the City of Zagreb, Zagreb County and Krapina-Zagorje County. These requests were considered an excellent opportunity to test the usefulness of the SUPER project for policymaking.

BOX 1

SUPER Guide

The SUPER Guide to sustainable urbanisation and land use (ESPON, 2020b) can be used to support individuals and institutions engaged with land-use management at various levels across Europe to promote sustainable urbanisation in their territories. Within the guide one can find experiences and analyses of sustainable urbanisation and land-use practices in European regions, offering information, ideas and perspectives to proactively contribute to more equal, balanced and sustainable territorial development.

The SUPER Guide provides specific guidance to:

- **local and subnational decision-makers** on the main types of **interventions** available (i.e. containment, densification, regeneration, governance, and sectoral policies in the fields of transport, the environment and rural development);
- **local and subnational policymakers** on the types of **instruments** available (i.e. visions and strategies, legal devices, land-use regulations, incentives programmes and projects);
- **national-level actors** on different **policy options**, the trade-offs they present in relation to the different dimensions of sustainability, and the instruments through which they can be achieved;
- **EU-level actors** on the types of **instruments** available for promoting sustainable urbanisation and land use (i.e. legislation, funding instruments and strategic documents, with particular attention devoted to the EU Urban Agenda sustainable land use and nature-based solution partnership).

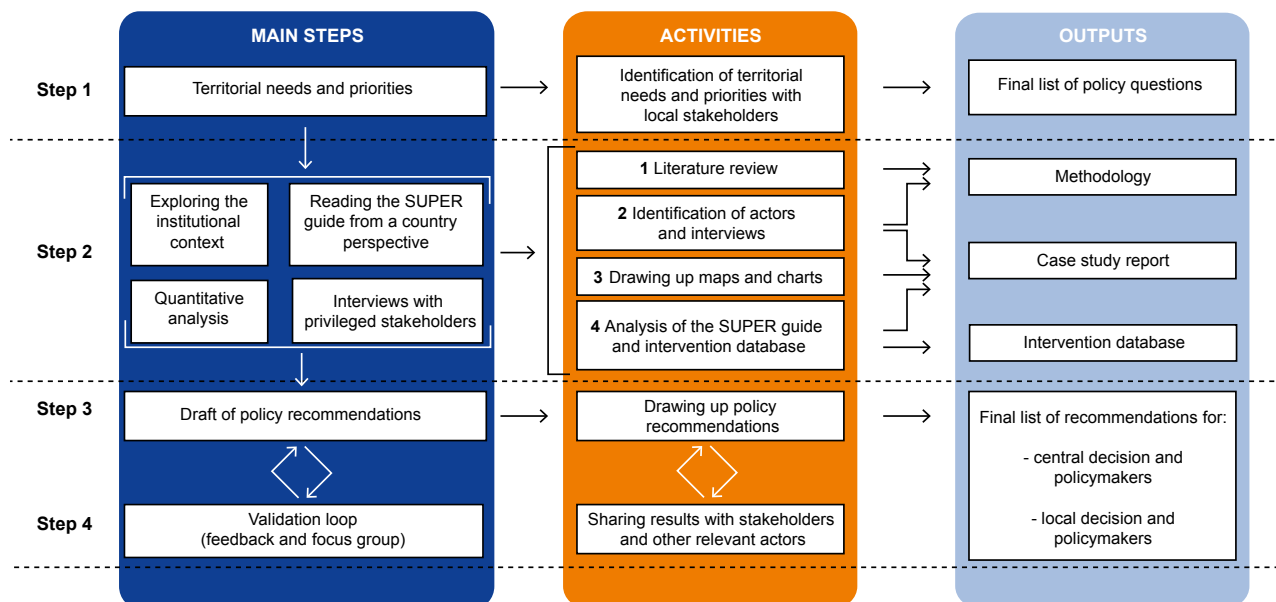
The guide includes examples of effective policy interventions, place-based approaches, enhanced territorial cooperation and tailor-made solutions. It also provides warnings regarding pitfalls and barriers to achieving sustainable urbanisation and land use, usually related to side effects or transferability problems. In addition, 11 textboxes, each focusing on a case study, show how interventions affect development practices in context.

A methodological protocol was drawn up to conduct both cases in the same manner as much as possible (Figure 1). This consists of four distinct but interrelated steps, each presenting a specific objective and each requiring a number of activities and producing one or more outputs. The four steps are conducted sequentially, but also include some feedback processes. The objectives of the four steps are:

- **step 1 – identification of needs and priorities:** identifying clear and realistic policy needs and priorities that are the basis for finding opportunities for sustainable urbanisation;
- **step 2 – survey activities:** exploring the institutional context, performing quantitative data analysis and analysing the SUPER Guide and intervention database;

- **step 3 – drawing up solutions and recommendations:** identifying country-based recommendations (and warnings) in line with the policy needs and priorities identified in step 1;
 - **step 4 – exploration of transferability potentials and pitfalls:** testing, validating and resetting recommendations with key domestic stakeholders.
- The use of this protocol will be elaborated further in this policy brief using examples from both cases.

Figure 1
Methodological protocol



Source: ESPON SUPER project (ESPON, 2020a).

As a first step, ESPON and the service provider met with the stakeholders to identify their policy needs and priorities. The stakeholders explained their policy role and the challenges they are facing in promoting sustainable urbanisation and land use. On this basis, they proposed a preliminary list of

policy needs and priorities, which was further discussed, refined and framed so that using the SUPER Guide may provide added value. This step resulted in the policy questions presented in Table 1.

Table 1
Policy questions for Croatia and Lithuania

QUESTIONS OF CROATIA	QUESTIONS OF LITHUANIA
What does Croatia's current land use look like?	What does Lithuania's current land use look like?
Which externalities play significant roles in the Croatian context?	Which externalities play a significant role in the Lithuanian context?
Do the interventions regarding earthquake reconstruction adequately address sustainable urbanisation and land-use aspects?	How are contradictory policies to be dealt with?
Which interventions hold potential for promoting sustainable land use at the regional and local levels?	What successful instruments to contain urban sprawl could be used in the CPRL?
How could the national programmes 'green infrastructures in urban areas' and 'circular economy of spaces and buildings' provide added value towards sustainable urbanisation and land use?	What are the policy implications for CPRL (instruments to contain urban sprawl, success factors)?
What lessons can be drawn from interventions put in place elsewhere at various territorial levels?	What specific insights from the SUPER project could be used for the further development of the CPRL?

3

Survey activities for analysing the territory

The purpose of the second step is to gain familiarity with the local context and build a common basis for the in-depth analysis and recommendations. It is performed with the help of survey activities, investigating the territory, the institutional setting and interventions, and with the help of local experts. This chapter discusses the territory. The next two chapters address the institutional setting and possible interventions.

The **goal of analysing the territory** is to illustrate the main changes and trends concerning a wide range of variables (population, economic growth, employment, land-use change, territorial morphology etc.) in order to further detail the urbanisation and land-use trends in the context under scrutiny, and thus to identify the challenges that need to be faced in order to promote more sustainability. To analyse the territory, quantitative research is needed to describe and understand the main socioeconomic, territorial and morphological land-use transformations that occurred between 2000 and 2020. Ideally, this analysis can draw on the data collected and elaborated by the SUPER project and available in the ESPON database. In specific situations, shedding light on specific contextual elements may require additional data collection and elaboration.

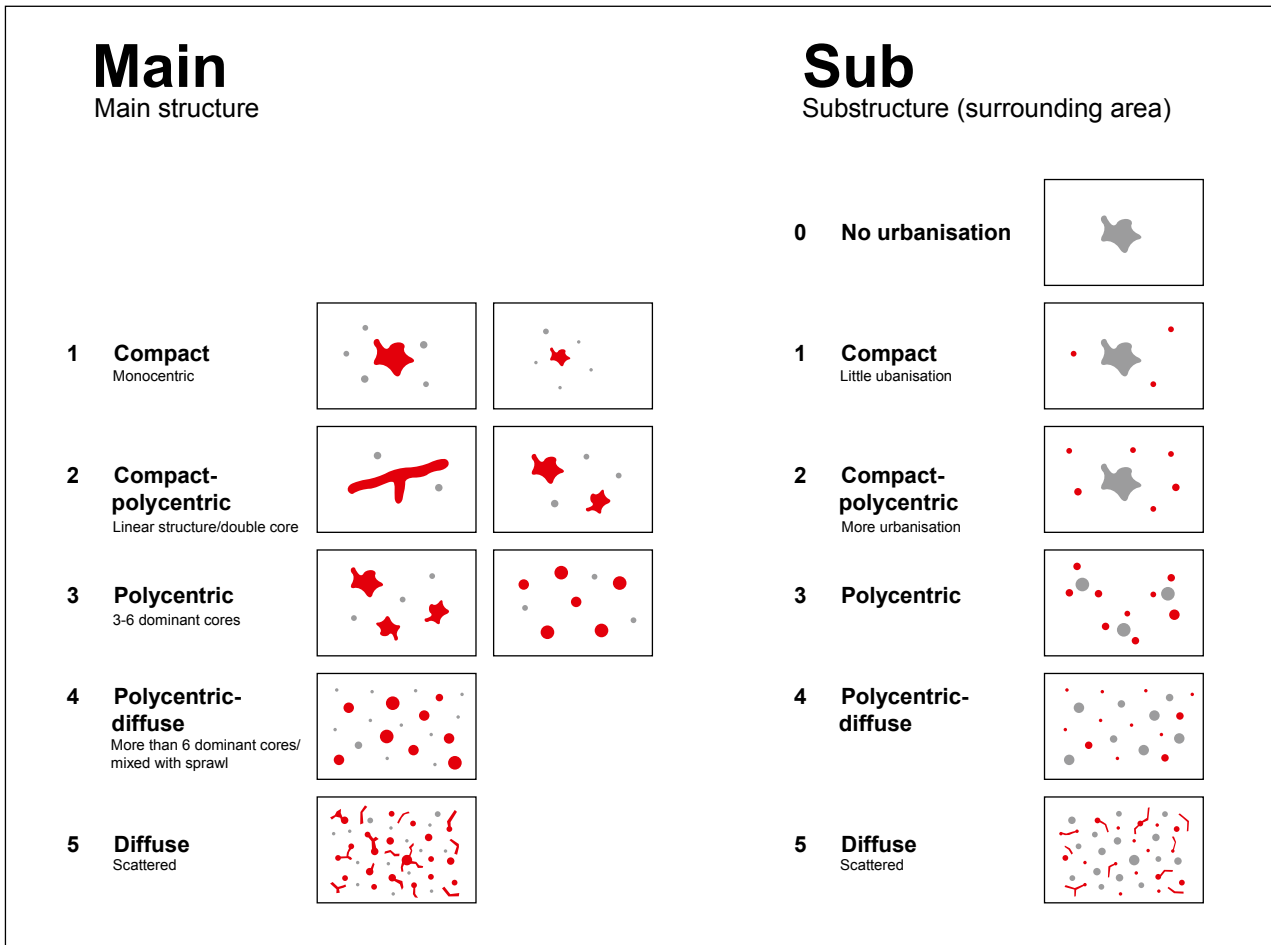
Drivers of urbanisation: Urbanisation patterns can be explained on the basis of demand-side drivers, such as demographic drivers (population growth, household size and migration dynamics), economic drivers (growth in gross domestic product (GDP)/gross value added (GVA), macroeconomic trends, access to credit and level of household savings, welfare-state regimes, vitality, consolidation and accessibility of the agricultural sector) and societal and technological drivers (preferences regarding housing, tenure and transport as well as social norms regarding cohabitation and second homes). However, urbanisation is not determined by demand alone. Supply-side factors, such as the profitability of land-use conversion, strategic land ownership and legal rights to develop, fiscal aspects and the level of consolidation or fragmentation of government, although less studied, can nevertheless be quite significant. Finally, other factors can also determine the shape, intensity and direction of land-use change, such as

physical barriers (e.g. mountains, water bodies) and policy (e.g. designation of a site as a floodplain, natural habitat or industrial zone). Given that every legal development requires some form of planning approval from a public authority, a further understanding of how this occurs is of utmost importance.

Territorial aspects/urbanisation and land use: As seen in Chapter 1, urbanisation does not happen equally in all periods and countries. Therefore, to understand the situation in the country or region under scrutiny, it is important to investigate how urbanisation and land-use developments and trends in the country or region are positioned within the main European trends. This can be done with the help of a series of maps, tables and charts, gathered and developed by the SUPER project, displaying the socioterritorial transformation of all regions in Europe and identifying key trends regarding land-use change using four measurement years: 2000, 2006, 2012 and 2018. These four years translate into three land-use change periods: 2000–06 (pre-crisis), 2006–12 (crisis) and 2012–18 (recovery).

Morphological aspects and urban forms: Not only the magnitude of urbanisation is important for sustainability; so is its physical manifestation, the urban form. To facilitate the analysis of the urban form, the SUPER project has identified three main urban forms: compact (usually walkable large dense cities that are dominant in their regions), polycentric (clustered development, usually well served by public transport) and diffuse (low-density car-oriented scattered development). Using this, it created a new typology of urban regions by defining five development models to assess the urban form: compact, compact-polycentric, polycentric, polycentric-diffuse and diffuse. The project developed this in an evaluation guide (Figure 2) and used this to manually assess the urban form of both the larger urban areas (main structure) and the remaining space (substructure), from images of all NUTS 3 regions using expert judgement.

Figure 2
Urban form evaluation guide

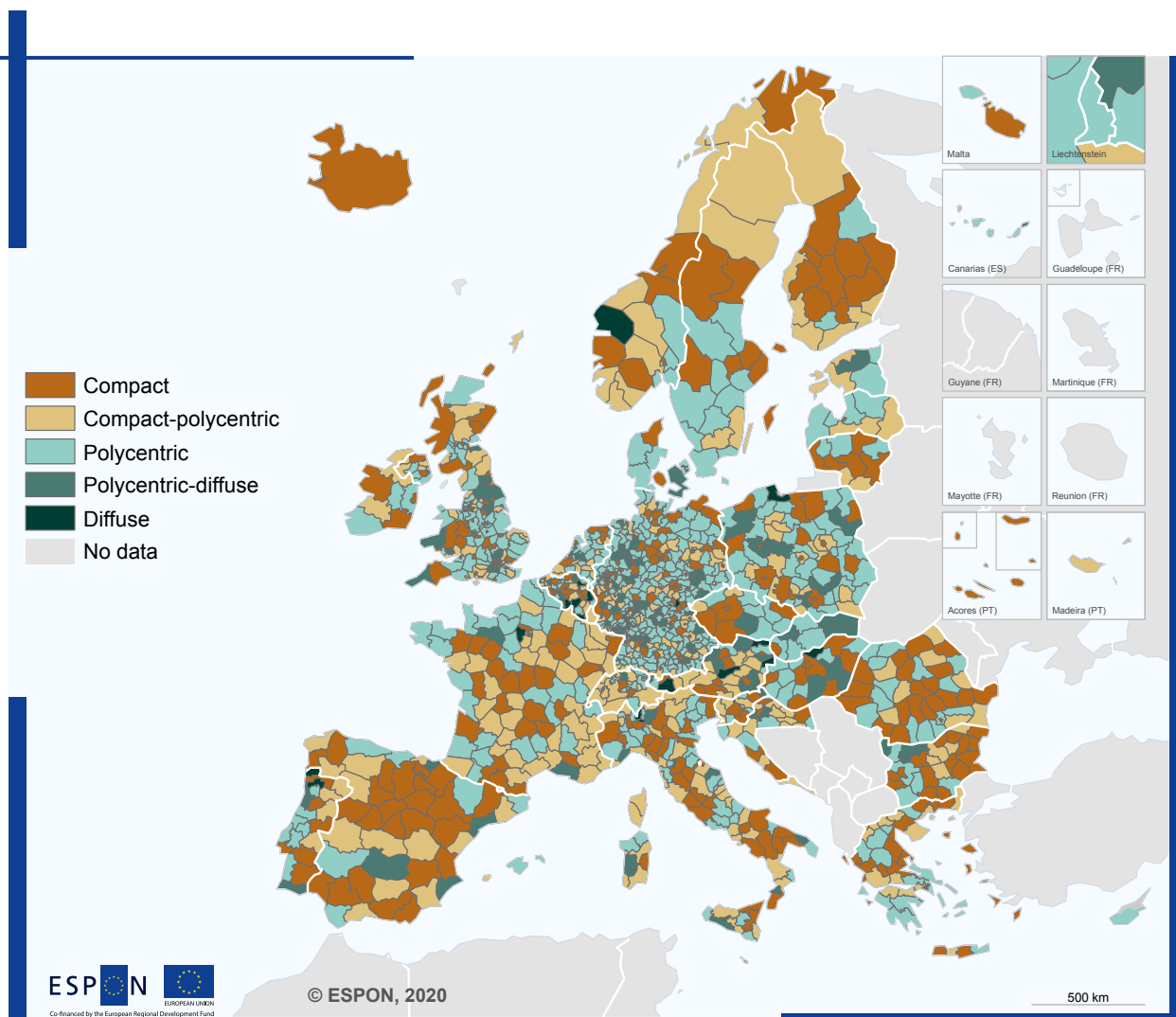


Source: ESPON SUPER project (ESPON, 2020a).

The result for the main structure is presented in Map 2. Here one can clearly see national differences in the main structure, with Finland, Iceland, Norway and Spain generally having compact main structures and Denmark, Germany, the Netherlands and Slovakia being more polycentric. Differences within countries can also be seen, with Belgium, Bulgaria, France, Italy, Poland and Romania all being quite heterogeneous. Sweden is divided between a compact

north and polycentric south, while Czechia and Portugal have east/west divides. These results challenge the conventional wisdom of a traditional compact Mediterranean urban form versus dispersed development in the more northern regions, or stereotypes of idyllic compact Italian cities versus urban sprawl in Belgium. According to this analysis, the distribution of main urban forms is quite diverse across the ESPON space.

Map 2
European map of urban form of the core city



Regional level: NUTS3 2016
 Source: ESPON SUPER 2020
 Origin of data: CLC, BBSR; 2020
 © UMS RIATE for administrative boundaries

The observations resulting from analysing the territories of Croatia, with a focus on Zagreb, and Lithuania are summarised below.

3.1 Croatia

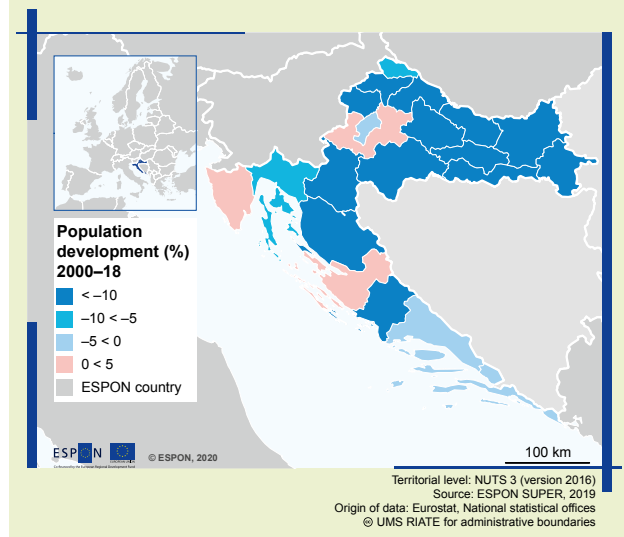
Population development, 2000–18

A major driver of urbanisation is **population development**. For Croatia, the analysis revealed that the population is declining and ageing rapidly. The study area has slightly better demographic indicators than other parts of the country. Still, in 2000–18, the City of Zagreb experienced a slight population decline of 0.34 % (assuaged by the influx of migrants), while Zagreb County, the immediate suburban area surrounding the capital, grew by a modest 0.43 %.

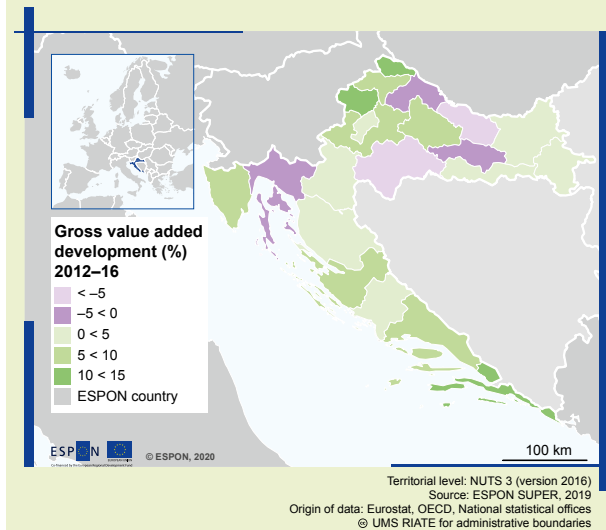
Economic development, 2012–16

Another driver is **economic development**, creating demand for industrial areas, warehouse space, shops and offices. The City of Zagreb is the strongest economic centre of Croatia, where nearly one third of national GDP is concentrated. Zagreb County, the area immediately surrounding the city, saw an increase in GVA of 7.4 %, while that of the City of Zagreb increased by 4.1 %. This analysis indicates positive economic indicators that helped attract population, and with it demand for urban uses. Employment, however, shows a different trend: Zagreb saw the highest growth in employment, with 17.0 % more employed in 2016 than in 2000. But in the same period the number of jobs in Zagreb County shrank by 3.5 %.

Map 3
Population development in Croatia, 2000–18



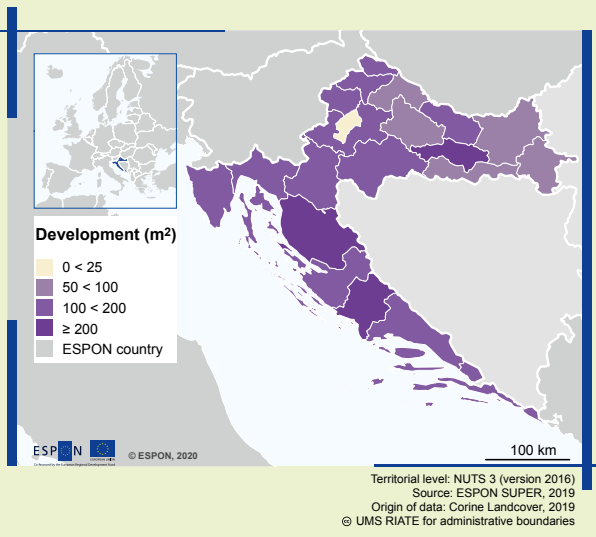
Map 4
GVA development in Croatia, 2012–16



Urban use development per capita, 2000–18

Population and economic development partly explain urbanisation trends. **Urban use** increased throughout Croatia in 2000–18. Coastal and northern Croatia grew more than central or eastern Croatia. Urban land use in Zagreb County increased by one third (34.0 %), while that in the City of Zagreb grew by 8.5 %. Corrected for population, the City of Zagreb grew by 17.9 m² per capita and Zagreb County by 126.8 m² per capita.

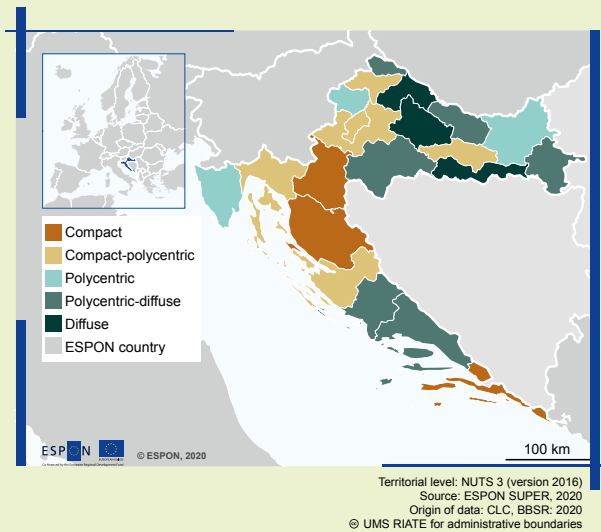
Map 5
Urban use development per capita in Croatia, 2000–18



Urban form of the core city, 2020

The analysis of the **urban form** within Croatia revealed a clear distinction between the urban form of the core city (Map 2) and its environs. The main structure of the City of Zagreb has ‘compact-mono-centric’ characteristics. The main structure of Zagreb County (polycentric-diffuse) is a result of the development of satellite cities around the nation’s capital running outwards along the main transport routes. The substructure of Zagreb County is relatively compact. Since 2000 Zagreb County has experienced suburbanisation pressure, so the changes in the main and substructure are more polycentric, either contiguous or forming new centres.

Map 6
Urban form of substructure in Croatia, 2020



3.2

Lithuania

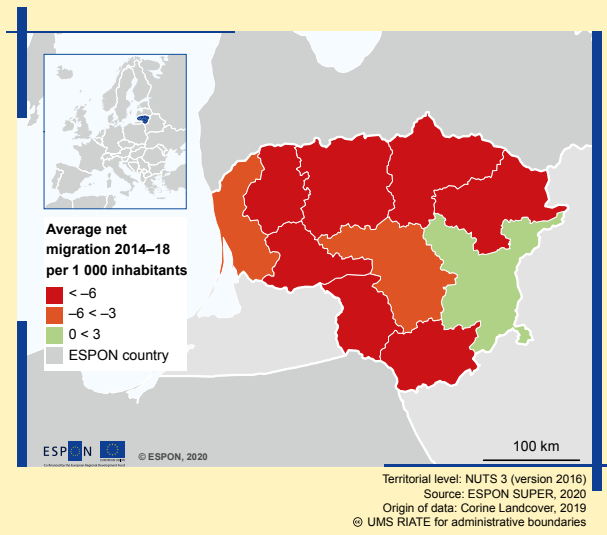
Population development, 2000–18

Unlike Croatia, all Lithuanian regions are in significant **demographic** decline – well over 10 % – except for Vilnius County, which lost ‘only’ 6 % of its population in 2000–18. Utena County, Tauragė County and Siauliai County experienced almost 30 % demographic decline. This trend continued even post-crisis (2014–18), when only Vilnius County gained population.

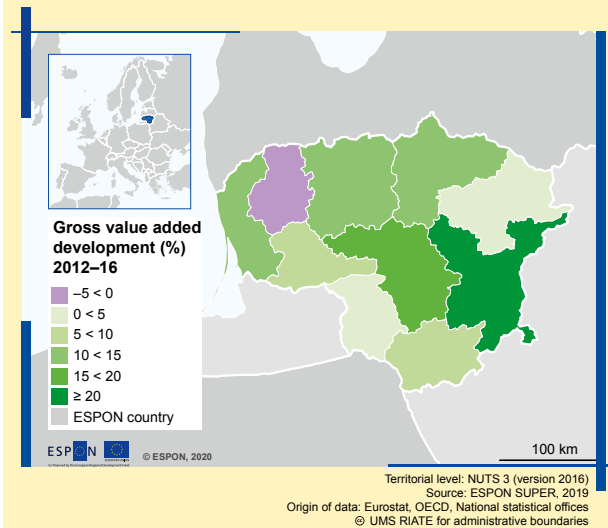
Economic development, 2012–16

Interestingly, Lithuania performed well in **GVA growth** in relation to the European average post-crisis (2012–16). However, as the crisis hit different parts of the country differently, GVA varies greatly from county to county. Vilnius and Kaunas, for example, performed very well, while others saw modest economic growth or even declined. With respect to employment, only Vilnius (+15 %) and Kaunas (+0.5 %) show positive growth over 2000–16.

Map 7
Average net migration rate in Lithuania, 2014–18



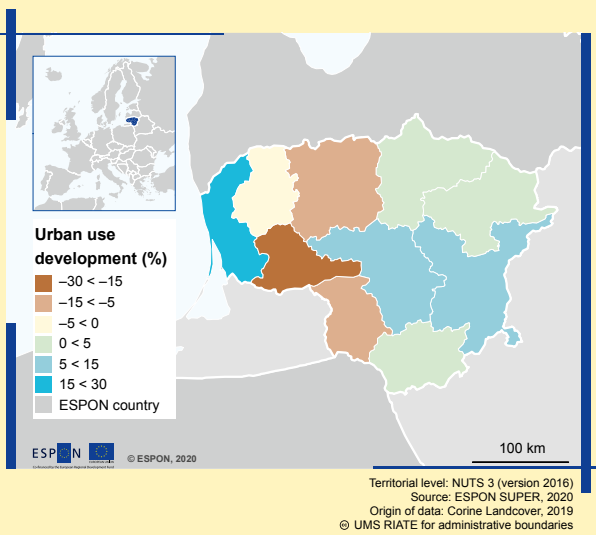
Map 8
GVA development in Lithuania, 2012–16



Urban use development, 2000–18

Lithuania is one of the least urbanised countries in Europe. All Lithuanian counties have less than 5 % urban use except Kaunas County, which is still under 10 %. Although Lithuania is suffering from intense depopulation, most counties show increasing urban use. Six out of ten counties gained more urban land than population, while it was the opposite for the remaining four counties.

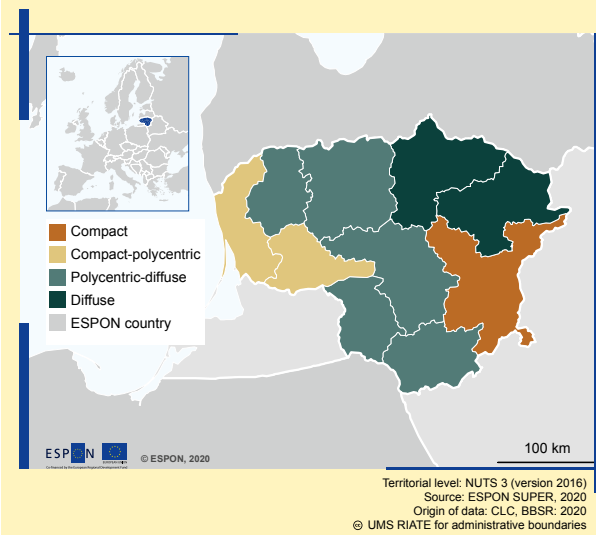
Map 9
Urban use development in Lithuania, 2000–18



Urban form of the core city, 2020

With respect to urban morphology, Lithuania is also heterogeneous. The main structure of most counties is relatively compact, with only three counties classified as polycentric (see Map 2). Since 2000, the urbanisation of 7 out of the 10 counties was characterised by ‘contiguous near centre’ development, while the remaining 3 counties grew ‘contiguously at a distance’, which indicates slightly more spreading out. The heterogeneity of the substructure in Lithuania is striking, with almost no urban land outside the main structure. Development in the substructure in 2000–18 reveals a relatively compact urbanisation process: most building occurred at the edges of urban land used for other purposes and a couple of counties were splintering further with the development of new cores.

Map 10
Urban form of substructure in Lithuania, 2020



4 Survey activities for analysing the institutional setting

Building on the policy needs and priorities identified in step 1, the stakeholder's institutional context is to be explored, together with its multilevel governance relations. The objective of this exercise is to sketch an institutional framework depicting the overall administrative organisation of the country and the position of the stakeholder within the administrative organisation, the main spatial governance and planning authorities, their powers and jurisdictions, the various types of instruments they are responsible for and how the instruments exert a positive or negative influence on urbanisation and land use.

To obtain relevant information on this, one can conduct **desk research**, examining selected academic book chapters, articles, conference papers and statistical data. But as a start, one can look into the ESPON Comparative Analysis of Territorial Governance and Spatial Planning Systems in Europe (COMPASS) project (ESPON, 2018) and analyse the relevant country report (Box 2). After a preliminary sketch of the institutional framework has been produced, interviews should take place with key actors to identify challenges and opportunities.

BOX 2

COMPASS country reports

The COMPASS project (ESPON, 2018) compared the territorial governance and spatial planning systems in all 32 countries involved in the ESPON programme and investigated the changes from 2000 to 2016. This involved collecting data from the 32 countries through questionnaires.

For each of the 32 countries the project drafted **two country reports**. The first country report reflects upon the formal territorial governance and spatial planning systems in the country, namely the institutions and instruments that are established in law. The second country report reflects upon the actual practice, including the extent to which the instruments described are put into practice and the outcomes of planning.

One of the **main conclusions** was that territorial governance and spatial planning systems in Europe are diverse and that their characteristics reflect the differences in planning traditions in Europe arising from their administrative, legal and cultural roots. This means that there is no one-size-fits-all solution to territorial governance and spatial planning in Europe.

Together with the respective stakeholders, one has to identify **key actors** from different sectors and planning levels as potential interview partners. Care should be taken to (1) have a heterogeneous sample, aiming to present a multiplicity of voices and evidence, (2) have a balanced point of view (public servants, private-sector experts etc.) and (3) cover different land-use planning levels (from central to local).

Engaging with the identified actors through in-depth, **semi-structured interviews** offers the opportunity to deeply understand how territorial governance and spatial planning works in the context in question: what are the

main forces driving urbanisation and land use, what are the instruments used to steer and regulate it, and what are the challenges that different categories of actors perceive to addressing land use in a more sustainable way? The interviewees should be asked to answer a semi-structured list of questions prepared in advance, while at the same time they should be left relatively free to expand the discussion in relation to their own knowledge and perspectives.

The complete interview protocol used to interview the Croatian and Lithuanian stakeholders is included in the technical reports of the SUPER spin-off cases (ESPON, 2021a,b).

4.1

Croatia – desk research

The Croatian spatial planning system is determined in the Physical Planning Act and its bylaws. In addition to the three main levels of government, there is cooperation between the City of Zagreb, Krapina-Zagorje County and Zagreb County. This tri-county region drew up the Zagreb urban agglomeration development strategy. The spatial scope of the agglomeration is coincidentally also the area affected by the 2020 Zagreb earthquake.

The post-earthquake reconstruction is a long-term process that includes the first responses to save lives, prepare emergency housing, assess damage etc. Immediately after the earthquake, rapid damage and needs assessment started on the usability of affected objects/property. About 25 000 buildings were inspected and over 5 000 of these were deemed either temporarily or permanently unusable. Soon afterwards, a legislative and financial framework was drawn up in the Act on the Reconstruction of Earthquake-damaged Buildings in the Territory of the City of Zagreb, Krapina-Zagorje County and Zagreb County (Official Gazette, 2020a) and the First Programme of Measures for the Reconstruction of Buildings Damaged by the Earthquake in the City of Zagreb, Krapina-Zagorje County and Zagreb County (Official Gazette, 2020b). In September 2020, the Expert Council for Reconstruction was established. It performs advisory and, if necessary, other tasks related to professional issues in the implementation of the Act on the Reconstruction. In October 2020, the Fund for the Reconstruction of the City of Zagreb, Krapina-Zagorje and Zagreb County was established to finance professional and other tasks in preparing, organising and implementing the reconstruction of damaged buildings and monitoring the implementation of the programme.

4.2

Croatia – interviews

In Croatia, many areas, especially brownfield sites, that once had flourishing economic and social functions are today experiencing severe challenges. The City of Zagreb has neglected urban spaces, while Krapina-Zagorje County faces fragmented urbanisation. The interviewees indicated there is room for improvement in the spatial planning of these areas, especially in the area of transport development, green infrastructure and brownfield redevelopment. The lack of coordination is evident in the administration of the integrated territorial investment policy. A large part of its funding is focused on individual objects without an overarching strategy that considers the wider conditions that generate urban stagnation.

Another perceived problem was the lack of territorial awareness, stemming in part from insufficient knowledge, data and technical capability. The interviewees stated the

importance of involving stakeholders at the regional and local levels, especially those responsible for spatial and sustainable development issues. In addition, it was deemed advisable to link financial mechanisms to involving citizens and the community. At the national level, the Environmental Protection and Energy Efficiency Fund is important, as it provides the possibility of (co)financing green and sustainable construction.

The stakeholders noted an increase in citizens' awareness of sustainable development in recent years and a growing need for citizens to participate in decision-making on the future development of their communities. They felt that the post-earthquake reconstruction process did not adequately accept the opinions of experts and the community; for example, replacement houses in the planned new settlements were built at higher densities. There is a potential to regenerate neglected blocks and their courtyards, which would also help tackle the problem of old, substandard housing stock. Moreover, inadequately organised and outdated transport systems, waste management, water supply and other urban infrastructure, large derelict brownfield sites and neglected historical heritage pose a real challenge to sustainable land use.

4.3

Lithuania – desk research

For almost two decades, spatial planning responsibility in Lithuania was shared among three levels. At the national level, the Lithuanian parliament established the directions and functional priorities of spatial development of the national territory. Counties were in charge of regional development. At the local level, municipalities were responsible for organising the preparation of planning documents for urban and rural areas. In 2010, a decree was issued that eliminated about 44 % of counties' responsibilities. Most of these were assumed by the central government and, more sporadically, the 60 municipalities. The former counties are now statistical units without planning power.

As a result of reforms (the most recent of which was in 2017), the planning system now has two main levels: central planning and municipal/local planning. At present, the central level establishes spatial concepts, principles and priorities while the municipal/local level is responsible for implementing plans in line with local needs and conditions. Each level has its own planning documents to control land use, such as comprehensive plans for the territory of the country, comprehensive plans for municipalities, detailed plans and various special plans (e.g. land management documents, special plans for protected areas, plans concerning the protection of immovable cultural heritage, plans for the development of infrastructure).

The most important strategic planning document in Lithuania is the CPRL, which establishes guidelines for

the development of the national territory, defines principles for the rational use of land and identifies matters of national importance. This document was approved by the government on 29 September 2021.

4.4

Lithuania – interviews

The interviewed stakeholders felt that the abolition of the regional level in 2010, and, with it, regional spatial plans, produced some undesirable effects. There is, for example, more competition than cooperation among municipalities for development, investments and public services. This fragmentation is not conducive to promoting sustainable urbanisation. All interviewees warmly welcomed the introduction of the CPRL. All agreed on the value of a long-term perspective (2050) and a document that establishes principles, values and spatial trajectories to help central and local authorities in the coming years. Still, there are some unresolved issues with respect to implementation and articulating objectives.

According to the experts, plans at the local level often overestimate building volumes, and allot more land for development than necessary. Moreover, local plans have been incapable of managing territorial imbalances and the shrinkage faced by most municipalities. Their rigidity and often inadequate municipal staffing inhibit the efficiency of these plans. One expert noted that only municipalities can take the initiative to adapt the plan, but in most cases they have insufficient technical capacity to do so.

Finally, according to the interviewees, the 'Americanisation' of Lithuanian society has played a key role in generating unsustainable development practices. A suburban ideal was pursued, with new low-density housing and private cars. Market players are also wary about regeneration (too expensive and time-consuming) and prefer greenfield development. According to the interviewees, only during the last decade this mentality started to change. Attention to quality of life, participation of citizens in decision-making processes and environmental movements are all opening up new possibilities for sustainable land use.

5 Survey activities for analysing interventions

Converting land to a different use influences our quality of life and that of future generations. Decision-makers and policymakers can proactively contribute to a more equal, balanced and sustainable territorial development by introducing a public-sector intervention. Finding a suitable intervention is, however, not an easy task. The SUPER project has built an intervention database (see Box 3) that can be used as inspiration to develop a tailor-made intervention that can lead to more sustainable urbanisation and land use.

The project distinguished five **main types of interventions** according to their aims and scope of the initiative: densification, regeneration, containment, governance and sectoral policies. Sustainable urbanisation and land use could be achieved through the implementation of a variety of instruments. The project identified five **main types of instruments**: visions and strategies, rules and

legal devices, land-use regulations, programmes and projects. These are not mutually exclusive and can be easily combined to produce synergy and improve effectiveness.

Choosing among the various interventions and instruments is a tough decision, and implementation may require strong political commitment and bold leadership. A guaranteed recipe for success with respect to types of interventions or the instruments used to implement them has not been found. Green belts were highly effective in some contexts, but failed in others; binding regulations were faithfully complied with in some contexts, but ignored in others. To obtain more insight into this, the project gathered information on 235 interventions and examined the explanations given of why they were successful or not, in order to draw general conclusions with respect to their success (Box 3). As a result 41 factors were found that influence a successful implementation of the instruments (Figure 3).

BOX 3

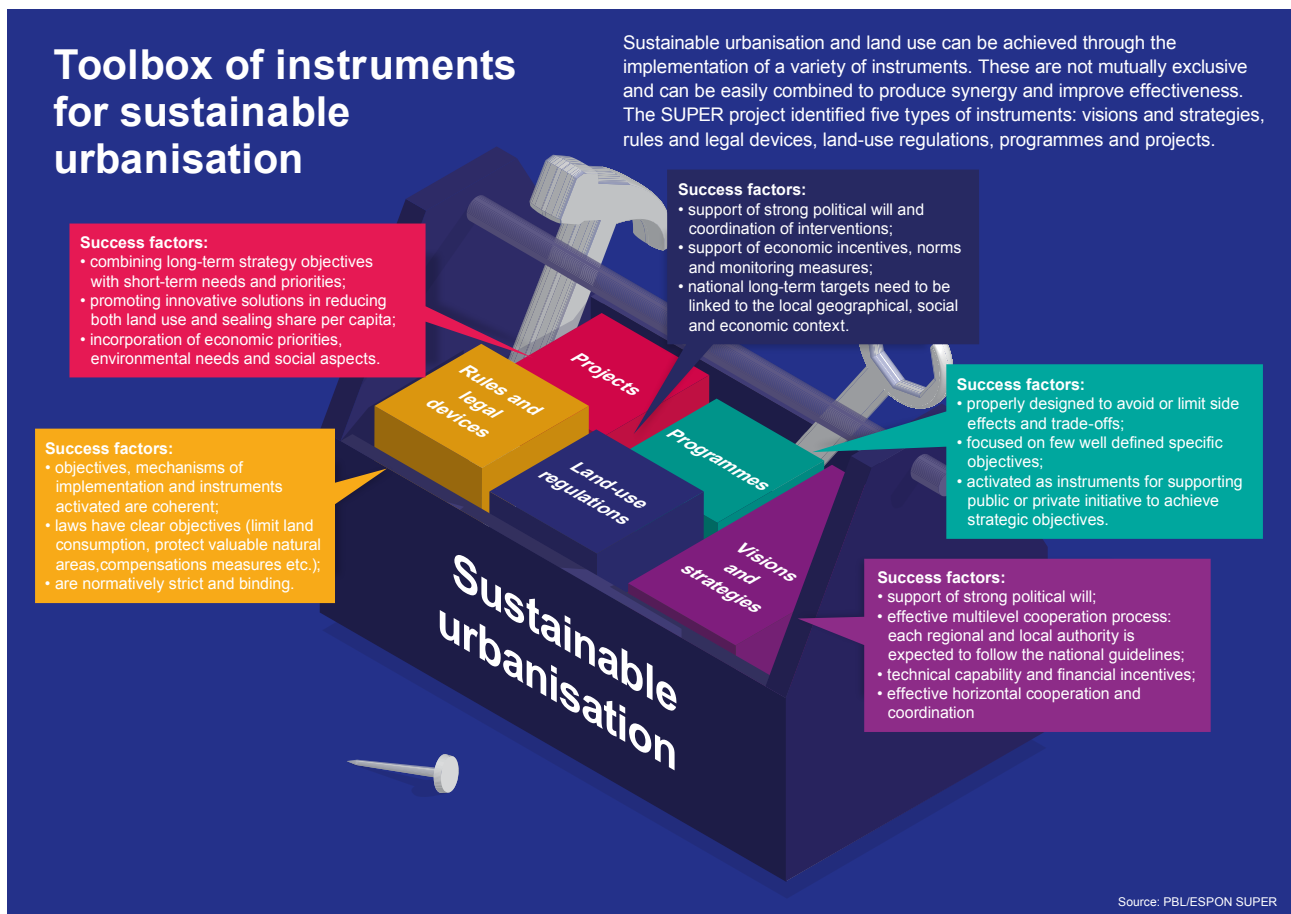
SUPER intervention database

Territorial governance and spatial planning in Europe affect urbanisation and land use in a great variety of ways. To account for that, the SUPER project carried out a survey of interventions in 39 European countries. As many as 235 interventions were collected, described, analysed and then assessed in relation to their level of success. The complete list of interventions is publicly available (ESPON, 2020).

Analysing the interventions showed that they are very heterogeneous in terms of goals, scales, soft or binding instruments, and degree of success in terms of their goals and sustainability. Successful interventions in some regions are seen to fail in others. In order to still draw general conclusions with respect to success, the project examined the explanations given of why each of the 235 interventions was successful or not. This resulted in the identification of 41 salient factors that condition and influence the level of success of interventions. These include socioeconomic conditions, spatial planning regulations, and the urbanisation structures and processes, but also less obvious elements such as cultural factors or the level of trust in public authorities.

One has to keep in mind that, even if legal or cultural contexts or types of territories recur, the same factor might have a different impact or work in a different way in a different context, or even in a similar one. The factors should therefore be treated not as straightforward recommendations or recipes for successful interventions, but rather as an inspiration.

Figure 3
Toolbox of instruments for sustainable urbanisation



Source: ESPON SUPER project (ESPON, 2020a).

For Croatia and Lithuania, examples of interventions have been selected from the intervention database, interventions that could be useful to draft recommendations for promoting sustainable land use and to identify opportunities and warnings. For Croatia 13 foreign interventions have been selected and for Lithuania 25. In addition, for each of the two countries all relevant domestic interventions have been

gathered, analysed and contrasted with the selected foreign interventions. For Croatia 13 **domestic interventions** were selected and for Lithuania 22. The information obtained has been summarised in tables grouped by intervention type. Given that 'programmes' was the most important intervention type in Croatia and 'visions/strategies' in Lithuania, the analyses of these are presented here.

5.1

Croatia – programmes

Even though it is the main legal device for post-earthquake reconstruction, the Act on the Reconstruction (Official Gazette, 2020a and 2021) should more rightly be viewed as a programme, since it sets the framework for financial support in the reconstruction process. The act organises assistance for property owners and institutions that have recorded damage; it is not intended to manage the processes of urbanisation and land use.

Throughout Europe, a number of interesting programmes have been used directly or indirectly to promote fair, equal and balanced land-use practices (ESPON, 2020). Two interesting interventions seem particularly relevant to the Croatian case; see Table 2.

Table 2
Selected programmes for Croatia

NAME (COUNTRY)	INTERVENTION TYPE	MAIN SCOPE	LESSONS LEARNED	RELEVANCE
22@Barcelona programme (ES)	Regeneration	Rehabilitation of 200 ha of industrial land into an innovative district offering modern facilities for intensive commercial and knowledge-based activities	If supported by a strong political will, regeneration programmes can support sustainable urbanisation	The whole post-earthquake reconstruction process in Croatia needs an efficient programme and strong political will supporting it
Incentives to increase roof greening in Linz (AT)	Regeneration	Incentives to increase greening in built-up areas to reduce air pollution	Targeted incentives can enhance spatial quality and reduce land consumption in existing urban areas	The City of Zagreb lacks public green spaces and there is a nationwide need to implement green infrastructure and nature-based solutions to combat climate change effects

Source: ESPON (2021a).

Croatia is advised to take note of the remarks in the SUPER Guide that programmes can effectively promote regeneration if they meet the following criteria.

- They are properly designed to avoid or limit side effects and trade-offs. This is particularly important when sectoral initiatives do not take the spatial dimension into account.
- They focus on a few well-defined objectives. In some cases, the aims of development programmes are too

vague and their implementation actions too ill-defined. In any case, it is important to avoid conflicts between economic developments programmes and statutory land-use planning;

- They are activated as instruments to support public or private initiatives to achieve strategic objectives. In most cases, private–public partnerships can support the implementation of a development programme.

5.2

Lithuania – visions and strategies

Lithuania has recently adopted and approved the new Comprehensive Plan of the Territory of the Republic of Lithuania for 2050 (hereinafter CPRL). The CPRL is the country's main territorial planning instrument with a long-term vision. The plan 'establishes general objectives and directions for development of the country's territory as well as the functional priorities for the use of remote habitats' (Ministry of the Environment, 2020, p. 9). According to the CPRL, sustainable urbanisation and land use is a priority for Lithuania. More specifically, the CPRL promotes

(1) a polycentric urban system (metropolitan, regional, local centres), (2) compact urban development and (3) a hierarchy of urban centres and connectivity.

Over the past few decades, there has been a proliferation of visionary and strategic documents in the field of land use. Visions can define concrete targets as well as new land-use principles in an attempt to alter land development practices. An overview of relevant examples selected for Lithuania is presented in Table 3.

Table 3
Selected visions and strategies for Lithuania

NAME (COUNTRY)	INTERVENTION TYPE	MAIN SCOPE	LESSONS LEARNED	RELEVANCE
Vision Rheintal of Vorarlberg (AT)	Containment	Promotes and supports the creation of an interconnected polycentric region	Visions can promote intermunicipal cooperation	In Lithuania, there is a lack of cooperative attitudes, including in the field of planning
Tri-City metropolitan area planning (PL)	Governance	Promotes harmonious, complete and dynamic development of the Tri-City metropolis	Discourages harmful competition and improves cooperation while respecting the tradition and identity of each city	In Lithuania, cities often compete instead of cooperating
High urban density expansion in Amsterdam (NL)	Densification/regeneration	Aims to reduce soil consumption and enhance high-density urban development	Interventions can promote compact and yet attractive urban areas	In Lithuania, urbanisation still occurs in a diffuse way
Corona Verde (IT)	Containment	Promotes an alternative vision of the territory based on environmental quality and quality of life. Includes containment interventions	The strategy mobilised substantial funds for short-term projects that fit within the wider long-term strategy	This example shows how containment principles can be implemented when involving over 80 municipalities
Brownfield development targets (UK)	Regeneration	The UK government set a target that by 2008 at least 60 % of all new housing should be built on brown-field land	Defining measurable targets pays off. Regeneration of brownfields offers a concrete alternative to consuming land	Lithuania has considerable industrial building sites that can be regenerated

Source: ESPON (2021b).

Lithuania is advised to take note of the remark in the SUPER Guide that, like any other tool, visions and strategies can have side effects or fail to produce results. The following recommendations can help improve effectiveness.

- Because territorial development is not homogeneous in Lithuania, place-sensitivity when drafting visions and establishing targets is advisable. Common perspectives can be created for territories sharing similar needs and challenges;
- Visions and economic programmes in Lithuania are not as integrated or effective as they could be. Visions and strategies should therefore be complemented with economic feasibility programmes to improve effectiveness;
- Political commitment is important, and needs to be sustained over time.

6 Identifying solutions and elaborating recommendations

The purpose of the fourth step is to test and discuss the policy recommendations identified in step 3. At the end of this step, the recommendations should be validated so that the coherence and consistency with expectations, national ambitions and the numerous nuances that characterise local institutional settings are affirmed. This final step involves the integration of suggestions and final considerations obtained through bilateral meetings and by organising one or more focus groups with key domestic stakeholders.

Of course, methods of **stakeholder involvement** are diverse (not only focus groups), and experimenting with different solutions is welcomed (developing meetings using the Delphi method, questionnaires etc.). In all cases, it is important that participants have the opportunity to:

- understand the set of recommendations: each participant should be aware of what the recommendations are and why they have been developed;
- discuss on the bases of their experiences, expectations and ambitions;
- contribute to improving the final set of recommendations.

The process of stakeholder participation can benefit from:

- an inclusive approach: all potential stakeholders should be invited or included in the process;
- peer-to-peer learning: there are no hierarchical mechanisms, and all invitees have the same right to discuss and elaborate ideas;
- transparency: the final set of recommendations should somehow reflect the discussion with stakeholders.

For each country an online focus group workshop was conducted involving the stakeholders identified earlier for the interviews, to test and discuss the policy recommendations. They had the opportunity to express their opinions and advance proposals for modification and adjustments. Their feedback was then integrated into the final version.

At the end of applying the methodological protocol, numerous conclusions and recommendations were drawn up by linking together general recommendations of the ESPON SUPER project (ESPON, 2020a), the territorial and institutional analysis, and the insights gained from the interviews and focus groups. The recommendations are structured as a list of potential interventions and policies for decision-makers and for policymakers.

6.1 Croatia

Given that the focus of this study was at the sub-national level, only findings at this level are presented. For **decision-makers at the local and county levels**, the study produced the following recommendations:

- promote long-term post-earthquake reconstruction planning through integrated urban revitalisation;
- think multidimensionally;
- adopt an integrated approach in decision-making; and
- strengthen the participative approach in urban development projects.

For **policymakers at the local and county levels**, the study gave the following suggestions:

- adapt spatial plans;
- conduct continuous and efficient land management;
- rehabilitate neglected and illegally developed areas to create resilience;
- improve the hazard resistance of public and private buildings and spaces;
- ensure safety as a priority;
- focus on implementing plans for post-earthquake reconstruction and integrated urban revitalisation;
- implement interventions that ensure the sustainability of urbanisation and land use;
- apply good practices regarding green infrastructure and circular economy principles in the management of buildings and spaces;
- strive for densification and regeneration;
- preserve cultural heritage; and
- ensure the public participation of citizens and private stakeholders during the post-earthquake reconstruction process and integrated urban revitalisation.

6.2

Lithuania

Given that the main focus was at the national level, only national findings will be presented here. For **national decision-makers**, the research offered the following recommendations.

- Take a collaborative approach. An inclusive discussion that takes a long-term perspective on sustainable land use should be conducted throughout the country, involving stakeholders active at the different territorial levels and within the public and private sectors and civil society.
- Use open and coordinated implementation mechanisms. This can be done by drawing up the 'rules of the game' together and by establishing clear protocols and a common set of concepts regarding sustainable land use.

For **national policymakers**, the research developed the following reflections to consider.

- Interventions may have side effects. Policy initiatives (and especially those of a more sectoral nature) sometimes cause unforeseen and undesirable effects on urbanisation and land use. To avoid this, ex ante territorial impact assessments can be carried out to predict potential effects.
- Incentives and disincentives can affect sustainable urbanisation. For instance, brownfield regeneration can be supported by discouraging greenfield development (e.g. imposing development fees).
- Monitoring and assessment are crucial for reflexive policymaking. Establishing measurable and realistic targets makes it easier to monitor performance on sustainable urbanisation and land-use indicators.

7 Conclusions

7.1 Relevance of EU policy

Although the two SUPER spin-off cases were oriented towards providing recommendations for national and sub-national stakeholders, the research also considered the relevance of the EU level. On the one hand, the problems encountered in Croatia and Lithuania, and their potential solutions, are similar to those in other Member States. For example, many Mediterranean areas are earthquake prone and could therefore learn from the Croatian case. Earthquakes are infrequent and unpredictable, so they are often not seriously considered during urban development planning. But when they do happen, they cause great physical damage and undermine urban functions and services. It is therefore important to emphasise at the EU level the need to strengthen resilience to earthquakes and other natural hazards in order to preserve sustainable urbanisation and sustainable land use. Something similar can be said about Lithuania: the shrinking population particularly in rural areas is far from unique in Europe, as is the continued urbanisation. The conclusions and recommendations of the Lithuanian case are therefore valid for other European regions as well and, therefore, should receive the policy attention at the EU level that is due.

On the other hand, EU policies could play a greater role in promoting sustainable urbanisation and land use in Croatia and Lithuania. Specifically, both **countries are eligible for the Cohesion Fund**, as their GDP per capita was under 90 % of the EU average. In this period, 8 % of the European Regional Development Fund is dedicated to sustainable urban development and a new networking and capacity-building programme for urban authorities, the European Urban Initiative (ESPON, 2021c). The **European Green Deal** (EGD) is also relevant to both cases. For Croatia, it contains the aim to ‘protect the health and well-being of citizens from environment-related risks and impacts’ such as earthquakes. The EGD also supports both climate proofing and resilience building (although not specifically directed at seismic resilience) as well as providing an open platform to discuss renovation. Closer to the Lithuanian case, the EGD supports collaboration to bring together citizens in all their diversity, with national, regional and local authorities, civil society and industry working closely with the EU’s institutions and consultative bodies.

The **Territorial Agenda 2030** (Informal meeting of ministers responsible for spatial planning and territorial development, 2021) is also relevant to the two cases, as it advocates spatial planning principles such as the

place-based approach, policy coordination and effective multilevel policy frameworks. With respect to the Croatian context, this document mentions that the ‘increased risk of ... natural and mixed natural and technical hazards call for place-based responses, cooperation and coordinated policies’ (p. 12) and calls for support for ‘the development of new crisis management tools to increase places’ safety and resilience’ (p. 19). Finally, the ministers signing the agenda proclaim: ‘We will concentrate on strengthening awareness and empowering local and regional communities to protect, rehabilitate, utilise and reutilise their (built) environments, ... cultural assets ... through instruments of EU Cohesion Policy, Rural Development Policy, spatial planning or any other tools enhancing integrated territorial or local development’ (p. 20). For Lithuania, the agenda advocates promoting ‘balanced and harmonious territorial development between and within countries, cities and municipalities’ (p. 3) and ‘the need for tailored solutions in different types of territories’ (p. 6). More specifically, the agenda notes that ‘demographic and societal imbalances ... including depopulation, pose challenges to Europe’s welfare systems and to local and regional development’ (p. 9). Like Lithuania, the agenda promotes polycentric development and urges policymakers to cooperate to ‘unleash the unique potential of territories with specific geographies’ (p. 16).

Finally, the **New Leipzig Charter** (Informal ministerial meeting on urban matters, 2020) is also relevant to the two cases, as the Charter highlights that ‘Cities need to establish integrated and sustainable urban development strategies and ensure their implementation for the city as a whole, from its functional areas to its neighbourhoods’ (p. 6). With respect to Croatia, it argues that ‘Good urban planning ... also encompasses the management and conversion of existing buildings as well as the design and construction of contemporary buildings, infrastructure and public spaces’ and goes on further to say that ‘predictive and preventive policies, plans and projects should include diverse scenarios to anticipate environmental and climatic challenges and economic risks as well as social transformation and health concerns’ (p. 2). For Lithuania, the charter reaffirms ‘support for transformation through integrated urban development, with a place-based, multi-level and participatory approach’ (p. 1) and urges cities and towns to ‘cooperate and coordinate their policies and instruments with their surrounding suburban and rural areas on policies for housing, commercial areas, mobility, services, green and blue infrastructure, material flows, local and regional food systems and energy supply, among others’ (p. 3). The Charter moreover urges involving the general public and

states that ‘new forms of participation should be encouraged and improved, including co-creation and co-design in cooperation with inhabitants, civil society networks, community organisations and private enterprises’ (p. 6). In addition, ‘vertical and horizontal multi-level and multi-stakeholder cooperation, both bottom-up and top-down, is key to good urban governance’ (p. 7).

7.2 Reflections

The SUPER project provided material to support policy-makers in Croatia and Lithuania in their planning decisions. For each country, the territorial analyses provided insights, primarily by positioning/benchmarking the country within Europe, and by presenting novel information on urbanisation and land use, such as the morphological analysis. In addition, the SUPER Guide and intervention database provided sufficient information to find interesting cases that could throw light on the domestic situation. Moreover, they were very useful for framing the range of possible solutions.

Reflecting on the experience of carrying out the spin-off cases, the role of the researchers was considered important for the insights produced. The SUPER Guide and particularly the intervention database, although in theory relatively straightforward and useable by stakeholders, can be put to better use in practice with the support of a research team applying the protocol described here. In addition, the interactive research methodology produced the following added value.

- In Croatia, the immediate and pressing issue of earthquake reconstruction was reframed in terms of sustainable development. This invited the stakeholders to rethink this policy in more strategic terms: a long-term

perspective, integration across policy sectors and funding sources. This broader perspective also allows the linking of local initiatives to policy goals at other scales, such as the European territorial agenda.

- In Lithuania, the European perspective proved an important key for reinterpreting local problems. The evidence showed that Lithuanian regions were not alone: interventions were being implemented elsewhere to address similar issues in similar contexts. Moreover, decision-makers were made aware that sustainable land use is an important topic in Europe.

Regarding the European dimension, in the course of carrying out the case studies of Croatia and Lithuania it became evident that (1) European policies are also relevant factors and potential solutions to consider and (2) the two cases have relevance to other regions in Europe. With respect to the first point, the SUPER project also produced 59 factsheets on EU policies that affect urbanisation and land use. In future studies of this kind, it would be advisable to consult these when drawing up conclusions and recommendations for the country or region under scrutiny.

In conclusion, the two spin-off studies for Croatia and Lithuania show that the SUPER Guide and intervention database comprise a solid basis for informing and inspiring stakeholders. Both documents could be considered as a starting point to initiate a discussion about policy options and implementation strategies. However, they cannot be considered handbooks or manuals. The Croatian and Lithuanian cases also generated new insights that could enrich the SUPER Guide and produced new entries for the intervention database. Therefore, ideally, both documents should be made available on an open-source platform to allow users to update the information.

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