SUPER – Sustainable Urbanization and Land-use Practices in European Regions
Croatia - Spin-off

ESPON

EUROPEAN UNION

Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

APPLIED RESEARCH SPIN-OFF //

SUPER – Sustainable Urbanization and Land-use Practices in European Regions

Lithuania – Spin-off

Annex IIa – Technical Report // April 2021

This Applied Research Spin-off is conducted within the framework of the ESPON 2020 Cooperation Programme, partly financed by the European Regional Development Fund.

The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.

This delivery does not necessarily reflect the opinions of members of the ESPON 2020 Monitoring Committee.

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ISBN: 978-2-919795-75-8

Layout and graphic design by BGRAPHIC, Denmark

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Abbreviations

CPRL	Comprehensive Plan of the Republic of Lithuania
EAFRD	European Agricultural Fund for Rural Development
ELC	European Landscape Convention
ESPON	European Spatial Planning Observation Network
EU	European Union
FEZ	Free Economic Zones
GVA	Gross Value Added
ITI	Integrated Territorial Investment
LAGs	Local Action Groups
LEADER	*Liaison entre actions de développement de l'économie rurale*
SUMPs	Sustainable Urban Mobility Plans (SUMPs)
SUPER	Sustainable Urbanization and land-use Practices in European Regions

Executive summary

This SUPER spin-off study was conducted at the request of the Ministry of Environment of Lithuania. Its aim is to integrate the knowledge contained in the *SUPER Guide to Sustainable Urbanization and Land Use* into domestic policymaking. More specifically, the Ministry of Environment of Lithuania seeks support for the implementation of the Comprehensive Plan of the Republic of Lithuania (CPRL). In addition to the evidence base amassed in the SUPER project, new material was gathered on Lithuania to facilitate application. This spin-off offers an opportunity to test the usefulness of ESPON SUPER for policymaking.

Between May and July 2020, the ESPON EGTC, the service providers and the stakeholder (the Lithuanian Ministry of the Environment), identified a series of policy objectives to investigate during the spin-off. The research activities officially started in September 2020 and were concluded in February 2021.

A first step in the process was to understand the territorial and institutional context. This was done by performing a literature review of academic and other sources on the Lithuanian situation, including the ESPON COMPASS country reports. In addition, quantitative research was conducted to describe and understand the main socio-economic, territorial, and morphological land-use transformations occurring over the last two decades. Using SUPER data on land use, a series of maps, tables and charts were produced that display the socio-territorial transformation of the country and identify key trends. This analysis revealed, for example, that Lithuania is, by European standards, relatively non-urban. It also faces significant demographic, economic and environmental, and land-use challenges, although with significant differences between counties. Nevertheless, urban development in the majority of counties continues to increase in the face of demographic and economic decline (the population of some counties shrunk by over 30% since 2000). Finally, over 12,500ha of agricultural land became nature in the 2000-2018 period. The institutional analysis revealed that Lithuania has a number of tools that can promote sustainable urbanization and land use, but that contradictory policies are also present, particularly with respect to housing.

A second step regarded an in-depth analysis of interventions. Together with Ministry officials, key actors from different sectors and planning levels were identified as potential interview partners. Eight interviews with national and local stakeholders were performed to deepen understanding of the operation of interventions worked within the Lithuanian context. Afterwards, a selection of relevant interventions from the SUPER database was made that provide lessons and insights from elsewhere in Europe. Conclusions and recommendations were then drawn up by linking together general recommendations of the ESPON SUPER project and the insights gained from the territorial and institutional analyses and the conducted interviews. Finally, the draft conclusions and recommendations drawn up by the project team were tested in a focus group workshop.

This spin-off generated numerous conclusions and recommendations to ensure sustainable urbanisation and land-use, particularly with respect to the CPRL. These are structured as a list of potential interventions and policies for decision makers and policy makers at the national and local levels.

For **national decision makers**, the research offered the following recommendations:

(1) Take a collaborative approach. An inclusive discussion that takes a long-term perspective on sustainable land-use should occur throughout the country, involving stakeholders active at the different territorial levels and within the public and private sector and civil society.

(2) Use open and coordinated implementation mechanisms. This can be done by drawing up the 'rules of the game' and by establishing clear protocols and a common set of concepts regarding sustainable land use.

For **national policy makers**, the research offered the following advice:

(1) Interventions may have side effects. Policy initiatives (and especially those of a more sectoral nature) sometimes cause unforeseen and undesirable effects on urbanization and land-use. To avoid this, ex-ante territorial impact assessments (TIA) can be carried out to detect potential effects.

(2) Incentives and disincentives can impact sustainable urbanization. For instance, brownfield regeneration can be supported by discouraging greenfield development (e.g. imposing development fees).

(3) Monitoring and assessment are crucial for reflexive policymaking. Establishing measurable and realistic targets makes it easier to monitor performance on sustainable urbanization and land-use.

Local decision makers are charged with realizing central political priorities while at the same time addressing local needs and priorities. Local decision makers should be aware of the considerable territorial differences within the country. Accordingly, they should:

(1) Contextualize objectives and policies. Because different territories face different problems and have different potentials, successful initiatives in one territory may fail elsewhere.

(2) Create conditions for place-based political cooperation.

(3) Be open to and supportive of public participation. European experiences have shown that public participation is a key factor for improving the sustainability of spatial development. Effective and genuine public participation can trigger synergies between different types of knowledge and actors.

Local policy makers act at the nexus between the policy arena where spatial planning objectives are formulated and the project arena where the actual transformation of land to new uses takes place. Local policy makers play a crucial role since their everyday activities shape urbanization dynamics. In this context, they should:

(1) Create a package of planning instruments. Adequate political and financial support is crucial for implementation. Planning tools at the local level should be better connected to the municipal strategic-development plan.

(2) Be aware of unwanted effects and trade-offs. This can happen when (a) instruments are too rigid and technical, (b) they are not based on a clear long-term vision (c) they are not supported by adequate public engagement.

(3) Sustainability dimensions should be integrated by incorporating local interventions into medium and long-term strategies.

(4) Institutional capacity building matters. The CPRL will benefit from the mobilization and empowerment of civil servants and experts within the institutions relevant to its implementation.

In conclusion, the Lithuanian case study clearly shows that every territorial context contains specific land-use challenges that require tailored actions. When zooming out, however, a number of land-use principles and attitudes come into view that seem valid in most cases and contexts. Applying such sustainable urbanisation principles is a responsibility that concerns all actor categories: government, the business sector as well as civil society. The most successful examples developed elsewhere in Europe demonstrate that a well-balanced representation of interests helps to achieve more sustainable urbanization, but when only selected interests are taken into account, results are often more controversial.

Introduction, aim and scope

The ESPON Sustainable Urbanization and land-use Practices in European Regions (SUPER) project provides recommendations on how sustainable land use can be promoted and unsustainable urbanization can be avoided, reduced and/or compensated in Europe, its cities and regions. More in particular, the project:

- provided a conceptual framework to understand urbanization and land-use dynamics;
- gathered and analysed evidence on urbanization and land-use developments within the ESPON space in the 2000-2018 period;
- gathered and analysed evidence on policy interventions, including EU policies, and their relative success and sustainability;
- gathered and analysed evidence on how interventions affect land-use practices through case study research within a wide diversity of territorial contexts;
- drew up a comprehensive sustainability assessment framework and applies this to three urbanization scenarios for 2050 (compact, polycentric, and diffuse).

1.1 Aim and scope of the spin-off

This SUPER spin-off study was conducted at the request of the Ministry of Environment of Lithuania. Its aim is to integrate the knowledge presented in the *SUPER Guide to Sustainable Urbanization and Land Use* in their policymaking. More specifically, the Ministry of Environment of Lithuania seeks support for the implementation of the Comprehensive Plan of the Republic of Lithuania (CPRL). In addition to the evidence base of the SUPER project, new material was gathered on Lithuania to facilitate knowledge application. This spin-off offers an opportunity to test the usefulness of ESPON SUPER for policymaking.

The overall report is divided into eight sections:

- *Chapter 1 – Introduction, aim and scope*
- *Chapter 2 - Methodology* – contains a description of the methodology and rationale underpinning the spin-off (steps, objectives, activities and outputs);
- *Chapter 3 - Definition of needs and priorities* – contains a description of the main policy questions and needs regarding sustainable land use;
- *Chapter 4 - Sustainable land-use trends and perspectives* – contains a quantitative analysis illustrating urbanization trends in Lithuania since 2000.
- *Chapter 5 - Institutional context* – contains an institutional analysis of Lithuania's spatial planning system (planning actors, responsibilities and main instruments);
- *Chapter 6 – Overview of land-use changes and policy orientations* – contains a qualitative overview of urbanization processes based on expert opinion, intervention analysis and a literature review;
- *Chapter 7 – Selecting interventions from the SUPER guide* – contains examples, lessons and warnings derived by consulting the ESPON intervention guide and database;
- *Chapter 8 - How to achieve sustainable urbanization* – consolidating lessons learned and elaborating multiple sets of policy recommendations.

2 Methodology

This chapter outlines the main activities that were conducted by the research team, their rationale, and the outcomes they delivered using the protocol drawn up for this SUPER spin-off research as a basis (see Annex I).

2.1 Steps and objectives

The methodological protocol consists of several phases and activities (see Figure 2.1).

Step 1 – Identification of main territorial needs and priorities

Objective: identification of clear and realistic policy needs and priorities needed for the application of the SUPER guide.

Step 2 – Qualitative and quantitative analysis

Objectives: exploration of the institutional context, elaboration of quantitative data analysis, analyses of the ESPON SUPER guide and intervention database

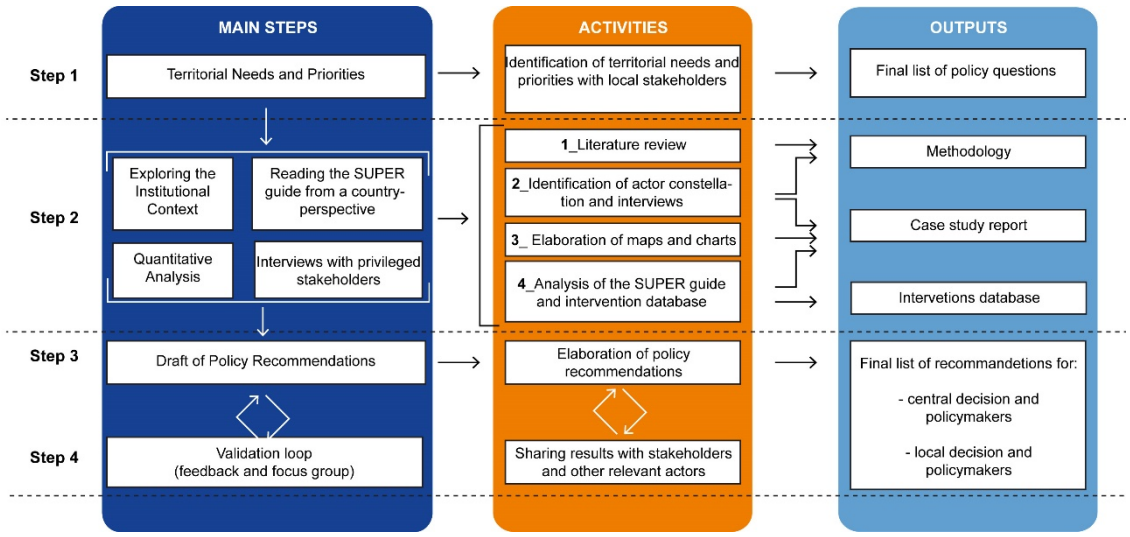
Step 3 – Elaboration of recommendations: Identify solutions

Objectives: identification of country-based recommendations (and warnings) in line with the policy needs and priorities identified in step 1. The recommendations presented are a synthesis of: (i) government policy requirements and suggestions; (ii) qualitative and quantitative data indications; (iii) lessons learned and pitfalls derived from a critical reading of the SUPER guide and intervention database; (iv) a combination of opinions and suggestions made by key actors.

Step 4 - Final set of recommendations: Exploring transferability potentials and pitfalls

Objective: together with the stakeholders, the recommendations were validated in order to guarantee coherence and consistency with expectations, national ambitions and institutional settings. This final step involved the integration of suggestions and final considerations obtained via a dedicated focus group organized on 2 March 2021. The results and suggestions were incorporated in the final draft of the recommendations.

Figure 2.1
Methodological protocol



Source: authors' elaboration

2.2 Main activities conducted

2.2.1 Step 1 - Identification of main territorial needs and priorities

Between May and July 2020, the ESPON EGTC, the service providers and the stakeholder (the Lithuanian Ministry of the Environment), identified a series of policy objectives to investigate during the spin-off research. The spin-off officially started in September 2020 and, following the identified needs and priorities, focused on supporting Lithuanian authorities at different territorial levels in addressing sustainable urbanization and land use by elaborating a series of policy recommendations aimed at the implementation of the Comprehensive Plan of the Republic of Lithuania and other policy actions.

2.2.2 Step 2 - Qualitative and quantitative analysis

Literature review

This consisted of:

- an analysis of the main literature available, such as book chapters, articles, conference papers and statistical data;
- an analysis of the ESPON COMPASS country reports on Lithuania. This comprised the starting point for understanding the institutional framework of the spatial planning and territorial governance system;
- an analysis of norms, laws and amendments concerning land use in the country.

The result is reported in Section 5 of this report – Exploration of the institutional context.

Identification of actor constellation and interviews

Together with the Ministry of Environment, a series of key actors from different sectors and planning levels were identified. An actor constellation has been carefully defined in order to:

- have a heterogeneous sample – aiming at presenting a multiplicity of voices and evidence;
- have a balanced point of view (public servants, private experts etc.)
- cover different land-use planning levels (from central to local)

After a careful evaluation of the list of experts proposed by the Ministry of Environment, the Ministry and the service provider agreed on the final list of potential interviewees. The interviews took place between October 2020 and mid-February 2021. The interviewees (eight in total) were asked to participate in a semi-structured interview using a specific list of questions prepared (see the interview protocol in Table 2.1). During the interviews, local experts were relatively free to expand the discussion in relation to their knowledge. The results of interviews are illustrated in the Section 6 of this report: current land-use changes and policy orientations.

Table 2.1
Interview protocol and list of questions

Interview Protocol
Part A – Spatial Planning Actors and Responsibility
What are the main spatial planning actors at the central and local level in Lithuania authorized to address (sustainable) urbanization?
Are there other actors directly or indirectly responsible for spatial planning at the *central level*? If so, what kind of responsibilities do they have? (e.g. sectoral policies etc.)
Are there other actors directly or indirectly responsible for spatial planning at the *subnational and local level*? If so, what kind of responsibilities do they have?
Which level of government should take more responsibility with respect to sustainable land use?
Part B – Spatial Planning Instruments
What are the main spatial planning instruments at the central and local level in Lithuania? What role do they play in the promotion and management of (sustainable) urbanization processes?
Are there additional strategies, sectoral programmes, or other documents at the *central level* with noteworthy impacts on land use? If so, please describe and explain this impact.
Are there additional strategies, sectoral programmes, or other documents at the *subnational level* with noteworthy impacts on land use? If so, please describe and explain this impact.
Does the CPRL address sustainable land use? If yes, how?
Part C –Current situation and policy orientations
Do you think urbanization and land use in Lithuania is sustainable so far? Why? What are the main drivers acting against sustainable urbanization? (e.g. too much influence of market actors, scarce attention by decisionmakers, lack of adequate technical tools).
In your experience, have all dimensions of sustainability (e.g. economic, social, environmental, temporal, and institutional) been sufficiently addressed by planning instruments in Lithuania? If not, why?
In your experience, what can/should be done differently?
Which priorities (e.g. containment, densification, regeneration) should the country prioritize in order to achieve more sustainable (economic, environmental, and social) urbanization?
How can sustainable land use should be better addressed, and which instruments should be employed (e.g. visions and strategies, regulations and laws, spatial plans, incentives, projects)?
Can you provide an example of a successful sustainable urbanization and land-use intervention in Lithuania?
Are there examples of unsuccessful interventions with respect to sustainable urbanization and land use in Lithuania or interventions which run counter to this goal?
What are the most valuable lessons learned regarding the promotion of sustainable urbanization in Lithuania?
Which institutional factors impede addressing sustainable land use?

Source: authors' elaboration

Production of maps and charts

Parallel to the institutional analysis, research was conducted to describe and understand the main socio-economic, territorial, and morphological land-use transformations occurring over the last two decades. Using SUPER data on land use, a series of maps, tables and charts were produced that display the socio-territorial transformation of the country and identify key trends. The main results of this activity is presented in Section 4 of this report – Sustainable land-use trends and perspectives.

Elaboration of Intervention database

According to the SUPER project, land use is influenced in part by the introduction of all kinds of public-sector interventions (ESPON, 2020a). The project distinguished five intervention types according to their aims and scope (densification, regeneration, containment, governance, and sectoral policies). The project also distinguished five intervention types according to the kind of instrument being deployed (e.g. visions and strategies, rules and legal devices, and regulations, programmes and projects). Following this classification, the spin-off identified 22 interventions that somehow deal with sustainable land use in Lithuania. Interventions were selected on the basis of their impact on land use and placed into an intervention dataset (see Annex 2).

Four methods of data collection were employed (1) input provided directly by the Lithuanian Ministry of Environment, (2) an analysis of the ESPON COMPASS national project reports (3) suggestions provided during the interviews (4) literature review and targeted searching. The third method provided the most results because it related to the direct experience of the contacted experts, while the fourth method was used to fill gaps. The identified Interventions were grouped according to:

- **Basic information**: (1) Name of the intervention, (2) Year (or time frame), (3) Location, (4) Country, (5) Scale (on the basis of NUTS classification), (6) Type(s) of EU territory involved (Urban, Rural, Functional area, Costal area, Mountain region, Peripheral border, Cross-border, scarcely populated, Other), (7) Urban typology (if urban: Monocentric, Polycentric, Dispersed, Linear, Coastal);
- **Characteristics**: (1) Intervention inspired by the EU (Yes/No), (2) Type of intervention (Densification; Containment; Regeneration of unused/problematic sites; Governance; Sectoral Policy – Transport; Sectoral Policy – Environment; Sectoral Policy – Rural development; Side effects) (3) Type of instrument (Legal device, Land-use regulation, Strategy, Programme, Project), (4) Status (Statutory and mandatory, Statutory and non-mandatory, Non-statutory), (5) Level of coercion (Non-binding; Self-binding; Binding for public actors; Binding for all actors);
- **Effects**: (1) Side effect versus direct impact, (2) Description (scope and goals), (3) Description (how it works), (4) Degree of success with respect to the intervention's goal, (5) Degree of success with respect to sustainable urbanization (6) Temporal sustainability: does the intervention prevent economic, social or environmental costs from being passed on to future generations? (7) Thematic sustainability: does the intervention advance values in the economic, social or environmental dimension without sacrificing those in other dimensions? (8) Institutional sustainability: is the intervention financially and politically sustainable over time? (9) Implementation quality with respect to traditional evaluation criteria (is the intervention efficient – extent to which resources are well-spent, effective - extent to which goals were achieved, and relevant - for identified needs and problems?).

Finally, the number of interventions identified were assessed according to a list of sustainability indicators identified by ESPON SUPER. The objective of this assessment is to show that interventions that address land use can be heterogeneous but none of them is either fully sustainable or unsustainable per se.

2.2.3 Step 3 - Elaboration of recommendations: Identify solutions

SUPER guide and intervention database analysis

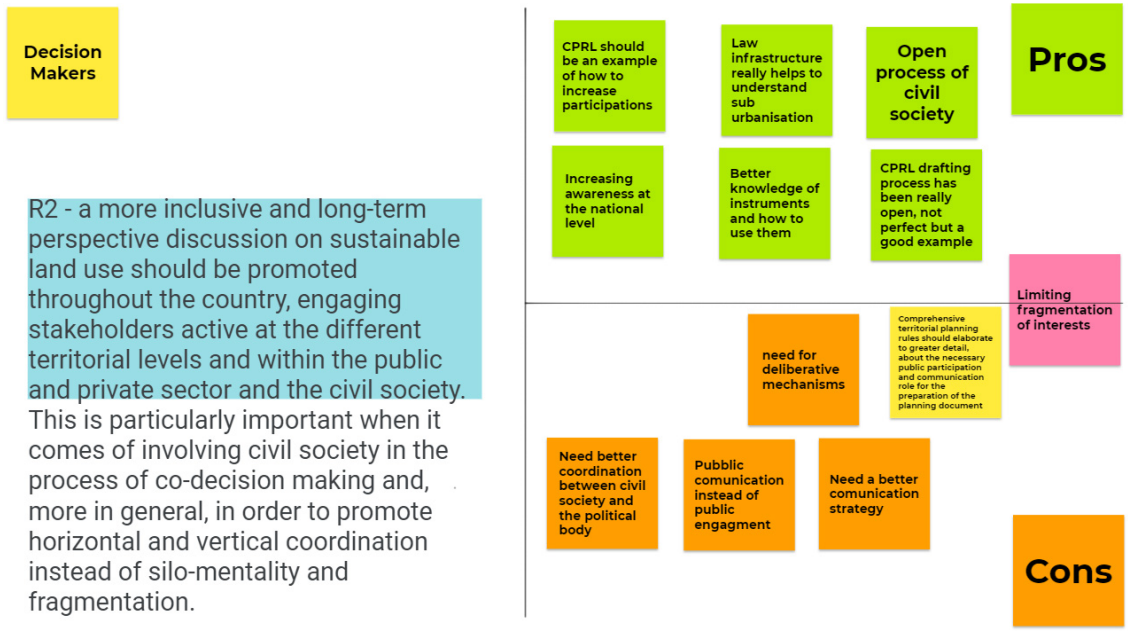
This spin-off applies the SUPER guide and database to a specific country. The objectives are: (i) to highlight if the country's development is in line with the main European trends; (ii) to select a preliminary set of examples of interventions that can be useful for the elaboration of recommendations (iii) to identify opportunities and warnings. The results are presented in Chapter 7 of this report - Analysis of the *SUPER Guide to Sustainable Urbanization and Land Use*. This exercise was helpful to craft and select recommendations and suggestions for promoting sustainable land use. This analysis resulted in the selection of 25 salient interventions from the SUPER intervention database.

2.2.4 Step 4 - Final set of recommendations: Understanding transferability potentials and pitfalls

An online focus group workshop was organized to test and discuss the policy recommendations elaborated using the above method. The participants (4 from Lithuania and 2 from the service provider) were selected to guarantee a balanced representation of interests (public vs private experts, for instance). During the workshop, participants had the opportunity to express their opinions and advance suggestions for modifications.

Due to the Covid-19 pandemic, the workshop and all interviews were performed online. The workshop used the online platform Google Jamboard which allows each participant to interact (see Figure 2.2). This feedback and other insights were incorporated into the draft recommendations, which were later discussed and validated with the Ministry of the Environment. The results are presented in Chapter 8 of this report.

Figure 2.2
Excerpt from the online focus group



Source: authors' elaboration on the basis of Google Jamboard

3 Definition of need and priorities

As mentioned, the aim of this spin-off is to provide the Lithuanian Ministry of Environment with tailor-made insights to promote sustainable land use using the ESPON *SUPER Guide to Sustainable Urbanization and Land Use*. The Ministry of Environment was particularly interested in how the knowledge and information developed in the SUPER project could be applied in drafting and implementing the upcoming Comprehensive Plan of Republic of Lithuania (CPRL). The following policy questions were identified by the Lithuanian Representatives as potentially interesting for the implementation of the CPRL.

What does the current Lithuanian land use look like?

The Ministry of Environment requested an overview of urbanization processes using quantitative data as well as a qualitative indication of the urbanization model that best characterizes the country. In addition, it requested socioeconomic indicators that could influence land use (demographic trends, employment rate, gross value added etc.). All data should be provided at the NUTS 3 level or lower.

Which externalities play a significant role in the Lithuanian context?

Excessive soil sealing generates unwanted externalities like the reduction of fertile agricultural land and deteriorated ecosystem services. The Ministry of Environment is particularly interested in the side-effects of urbanization to justify policies that to preserve agricultural and natural land. Such policies should account for the social factors that influence urbanization and land-use as well as the predominant cultural attitudes towards privatization and diffuse urbanization, free markets, etc.

How to deal with contradictory policies?

The Ministry of Environment acknowledges that lack of policy coordination may act as an agent of urbanization. In Lithuania, sectoral policies affect land use more than one may expect. The Ministry of Environment wishes to identify uncoordinated policies and evaluate their impact on urbanization.

What successful instruments to contain urban sprawl could be used in the CPRL?

The Ministry of Environment is expected to identify a set of instruments to support the implementation of the CPRL. Tools may vary according to scope, content and nature (statutory, mandatory, binding). Instruments may vary from visions and strategies to legal devices and programmes as well as projects etc.

What are the policy implications for CPRL (instruments to contain urban sprawl, success factors)?

The Ministry of Environment is particularly interested learning about any potential drawbacks of policy interventions respect to implementation of the CPRL that could hamper its intended effects.

What specific insights from the SUPER project could be used for the further development of the CPRL?

The Ministry of Environment seeks specific information, recommendations or lessons learned that can be useful to the implementation phases of the CPRL.

4 Sustainable land-use trends and perspectives

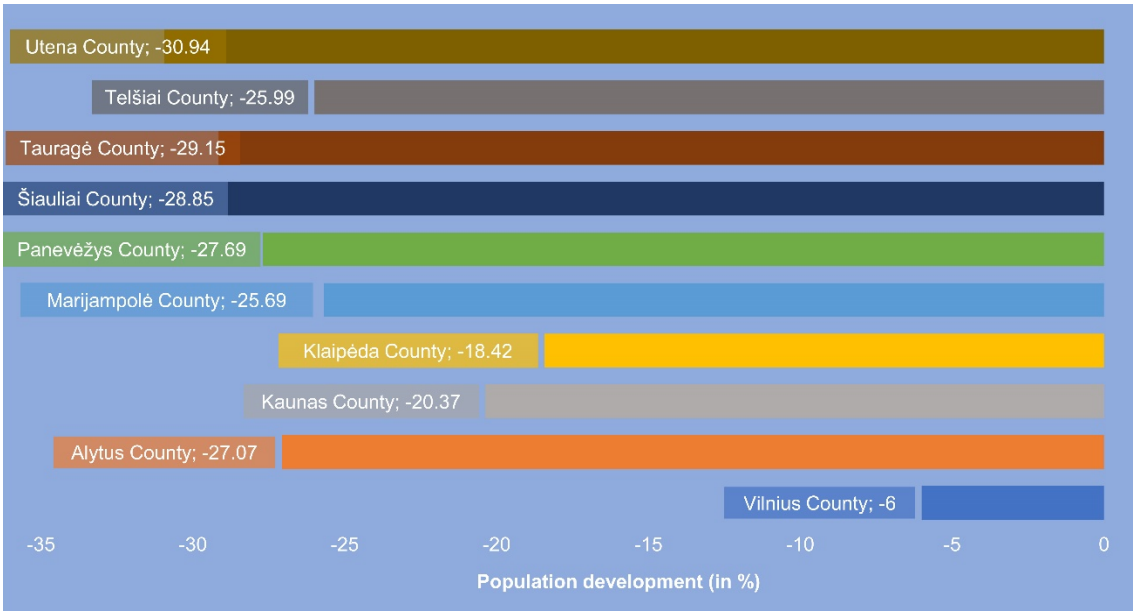
Land use is the product of contextual factors and human actions. Analysing current Lithuanian land use will allow correlations to be identified between drivers of land-use change and morphological transformation of urban structure. This section aims at exploring the main changes of Lithuanian land use from:

- a European perspective by comparing the national performance to other EU countries;
- a national perspective by comparing the national performance to the counties (NUTS 3 level).

4.1 Main drivers of land-use changes

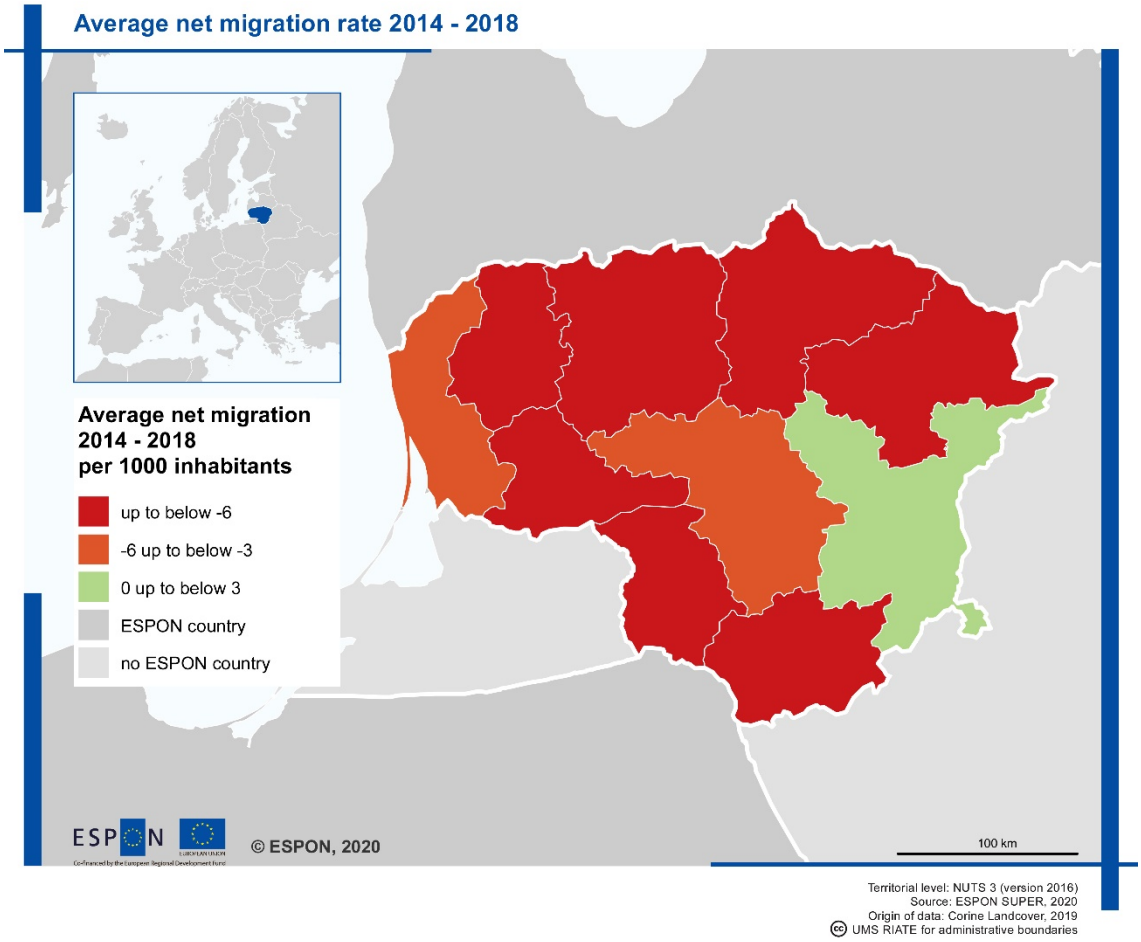
Three main drivers were identified to conduct the analysis of land-use developments: (1) population development, (2) economic growth and (3) change in employment. With respect to the first driver, demographic fluctuations are one of the main drivers for land-use change. Based on NUTS 3 level data for the 2000-2018 period, Lithuania shows a substantial decline in inhabitants, similar to Baltic states such as Estonia and Latvia. Looking more in detail, this demographic decline has affected the country as a whole – almost everywhere well over 10% – except Vilnius County where the decrease was 'only' - 6% (see Chart 4.1). Utena County, Taurage County and Siauliai County experienced almost 30% demographic decline. This trend continued even into the post-crisis period (2014-2018) (see Map 4.1). In this period, only Vilnius County gained population.

Chart 4.1
Long term population development in Lithuania 2000-2018



Source: authors' elaboration

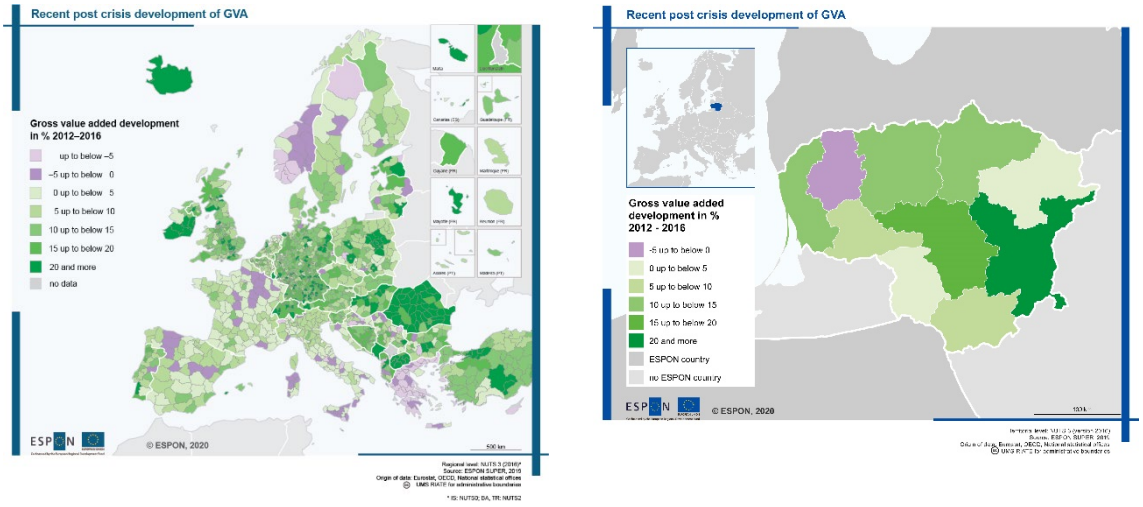
Map 4.1
Average net migration rate in Lithuania, 2014-2018



Source: authors' elaboration

One of the main drivers of urbanization is economic development. Growth creates demand for industrial areas, warehouse space, shops, and offices (ESPON, 2020b). Lithuania has performed well in Gross Value Added (GVA) growth in relation to the European average (see Map 4.2) over the post-crisis period (2012-2016). As the crisis hit different parts of the country differently, GVA varies greatly from county to county. Some counties performed very well (see the cases of Vilnius and Kaunas), others saw modest economic growth (Marijampolė and Utena County, for instance), while Telšiai County declined.

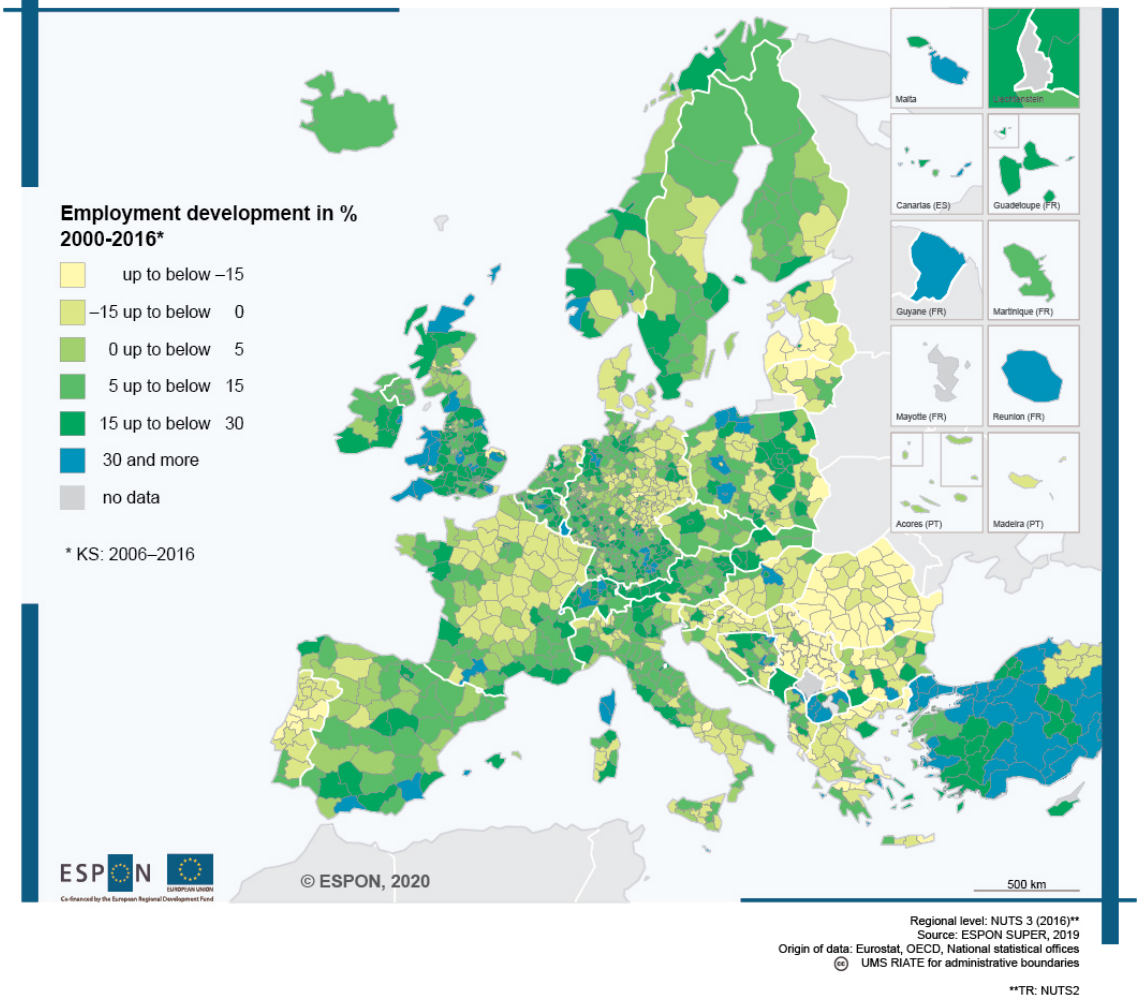
Map 4.2
Recent post crisis development of GVA in Europe and Lithuania, 2012-2016



Source: authors' elaboration

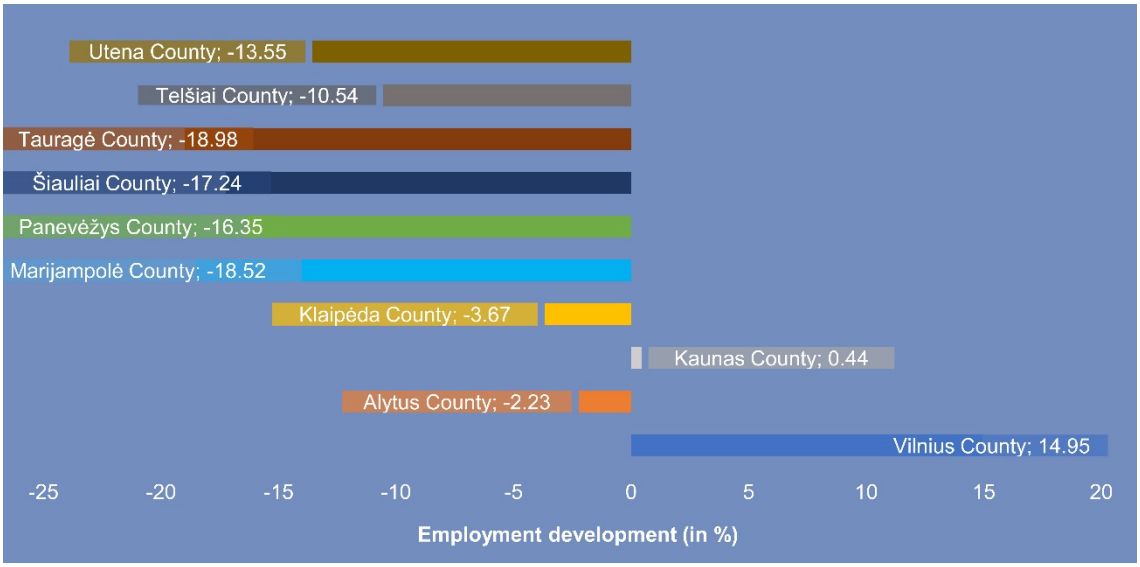
Another measure for explaining land cover is employment, which usually bears a more direct relationship to demands for space than GVA does (ESPON, 2020b). Over the past three decades, working and living conditions changed drastically in Lithuania. The huge differences in regional development have revealed that the major cities and their suburbs are spreading out whereas rural areas and inner territories are shrinking. This is also reflected in the variation in employment rate (see Map 4.3). Only Vilnius (+14.95%) and Kaunas (+0.44%) show increasing employment. All other counties show a decline of employment in the 2000-2016 period (see Chart 4.2). This has been particularly acute in Tauragé and Marijanpole which lost almost 20% of their jobs (-18.,98% and -18.52%, respectively). As a consequence, many young people in peripheral rural areas in these counties are moving out, which exacerbates ageing and school closures in these areas (Pociūtė-Sereikienė & Kriaučiūnas, 2018).

Map 4.3
Long-term development of employment in Europe, 2000-2016



Source: ESPON SUPER 2020

Chart 4.2
Long term development of employment in Lithuania, 2000-2016



Source: authors' elaboration

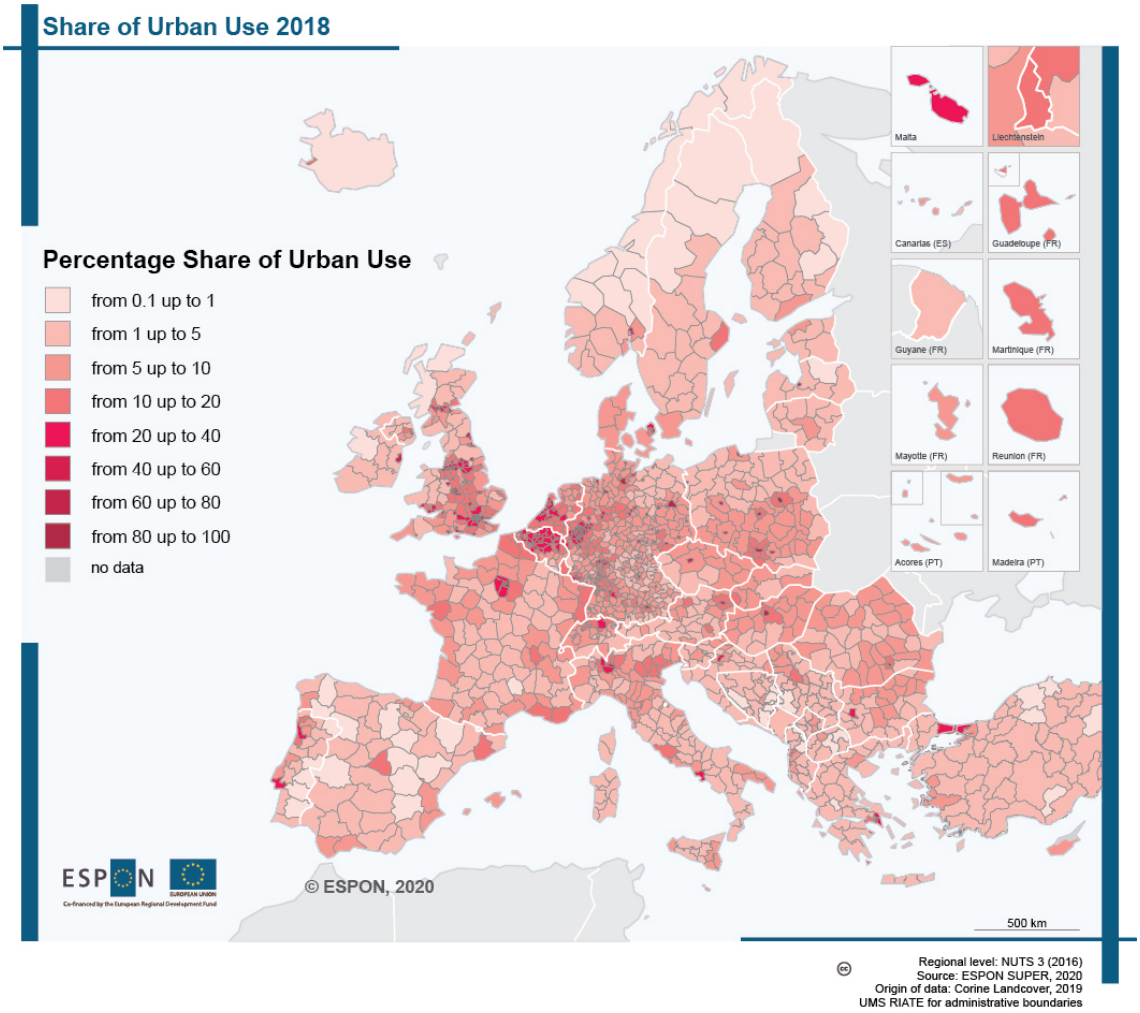
4.2 Land-use change in Lithuania

Based on Corine Land Cover data provided by the Copernicus Institute, it has been possible to explore land-use change in Lithuania using four different measurement years: 2000, 2006, 2012 and 2018, which translates into three change periods 2000-2006 (pre-crisis), 2006-2012 (crisis) and 2012-2018 (recovery).

4.2.1 Urbanization

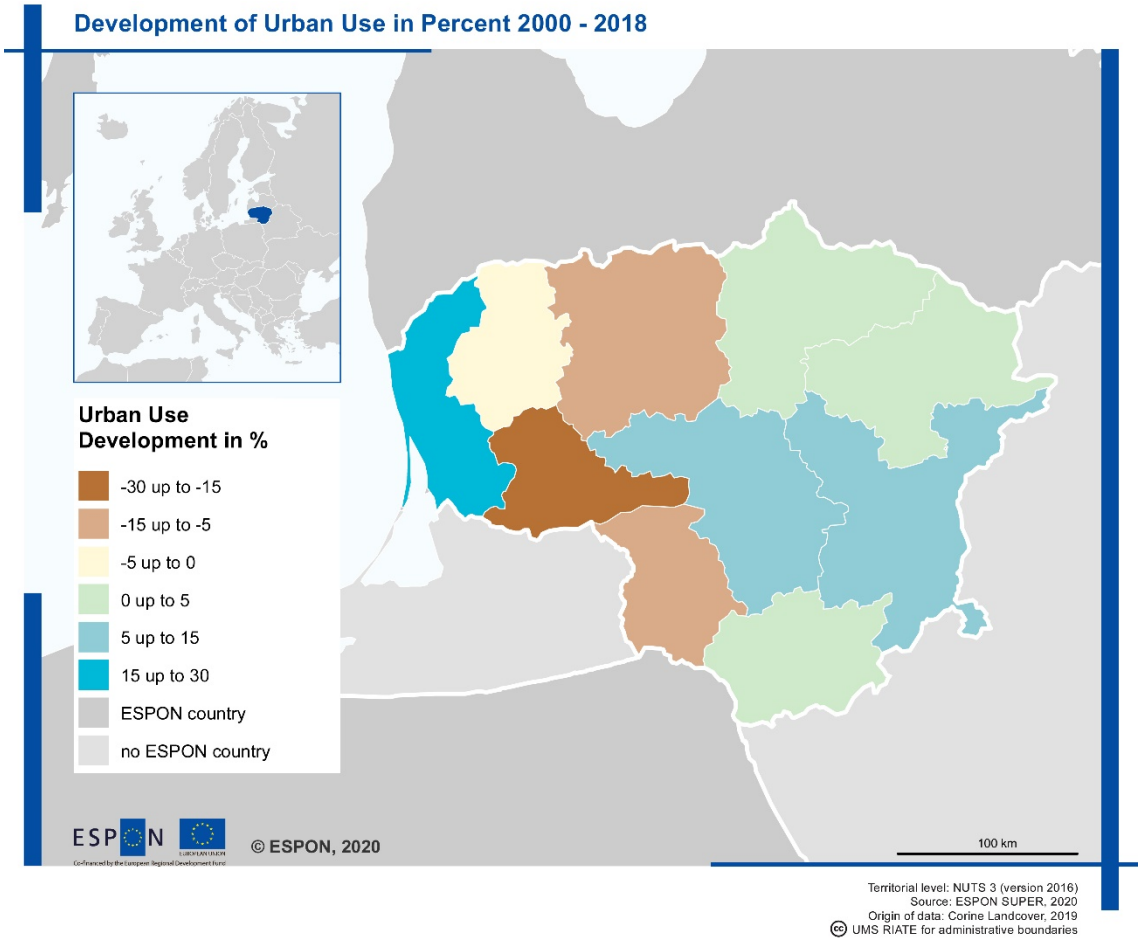
Lithuania is one of the least urbanised countries in Europe (see Map 4.4). All Lithuanian counties have less than 5% urban use except Kaunas County, which is still under 10%. When comparing urban and demographic development, a more complex picture emerges. Although Lithuania is suffering from intense depopulation, urbanization has not generally followed suit. In fact, 6 out of 10 counties show increasing urban use: Vilnius, Alytus, Kaunas, Klaipėda, Panevėžys and Utena County. The largest increase was found in Klaipeda County of almost 16% (see Map 4.5). On the other hand, deurbanization was evident in Tauragė County: with a reduction in urban land use by almost 25%. When examined longitudinally, we find differences in development over time (see Map 4.6). For example, in Klaipeda and Telšiai County the period of greatest development was between 2012 and 2018, while in Kaunas, Panevėžys, Šiauliai and Tauragė County this occurred in the period between 2006 and 2012. The remaining 4 counties (Vilnius, Alytus, Marijampolė and Utena County), urbanized primarily in the period from 2000 to 2006. This heterogenetic development is reflected in the data on land-use change per capita (see chart 4.3): 6 out of 10 counties gained more urban land than population, while this was the opposite for the remaining 4 counties.

Map 4.4
Share of urban use in Lithuania, 2018



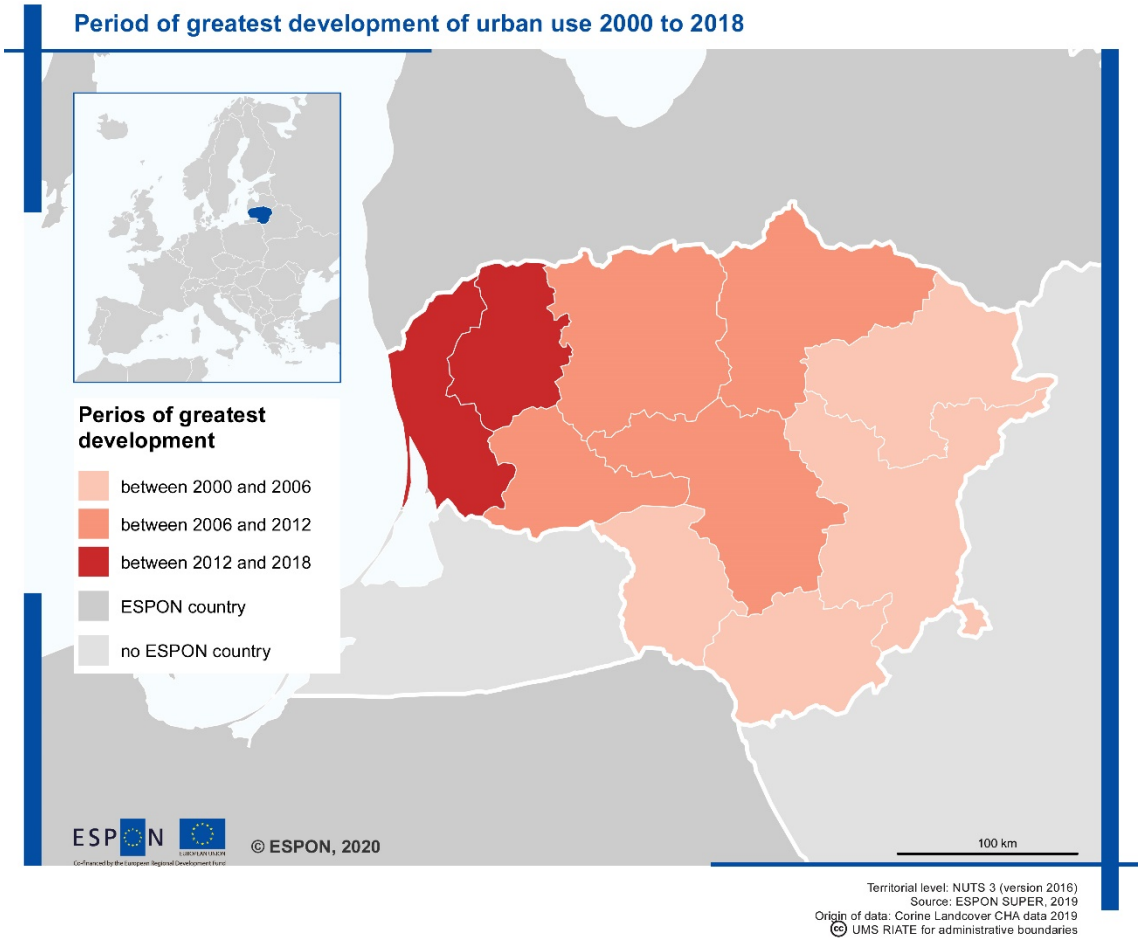
Source: ESPON SUPER 2020

Map 4.5
Long-term development of urban use in Lithuania, 2000-2018



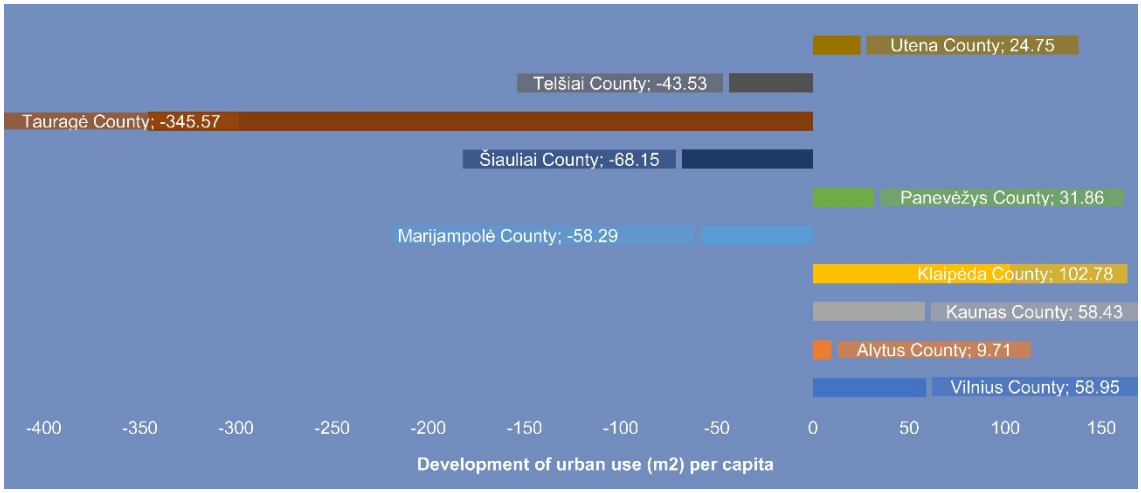
Source: authors' elaboration

Map 4.6
Period of greatest development of urban use in Lithuania, 2000 - 2018



Source: authors' elaboration

Chart 4.3
Development of Urban Use per capita in Lithuania, 2000 - 2018



Source: authors' elaboration

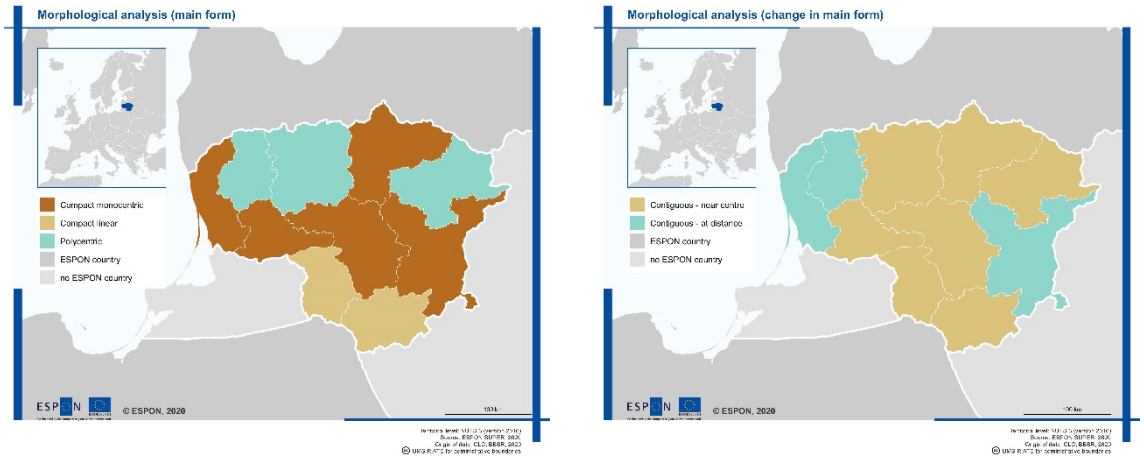
4.2.2 Change in urban form

Not only the magnitude of urbanization is important for sustainability, but also the way this physically occurs. To investigate this, the SUPER project assessed urban form according to five development models (compact, compact/polycentric, polycentric, polycentric/diffuse and diffuse). This morphological analysis was carried out manually for all NUTS 3 regions in the ESPON space using expert judgement for both the situation in 2018 as well as with respect to changes over the 2000-2018 period. The analysis was performed at two levels:

- The 'main urban structure' regards the predominant urban morphology in each territory on the basis of the shape of the largest agglomerations in the region (compact-monocentric, compact-linear, polycentric, polycentric-diffuse, diffuse).
- The 'urban substructure' regards the urban morphology residing outside of the main structure (no urbanization, compact-little urbanization, compact-more urbanization, polycentric, polycentric-diffuse, diffuse-scattered).

According to this methodology, the Lithuanian main structure is relatively heterogeneous (see Map 4.7), but mostly compact. The majority of counties are characterized by a compact-monocentric (5 out of 10) and compact-linear structure (2 out of 10); only 3 counties were classified as polycentric. Looking at the change to the main structure since 2000, it is worth noting that 7 out of 10 counties are characterized by 'contiguous near centre' development. This indicates that urbanization tends to occur quite close to the main urban structure. This is less so for the remaining 3 counties described as 'contiguous at distance', which indicates some spreading of urban form.

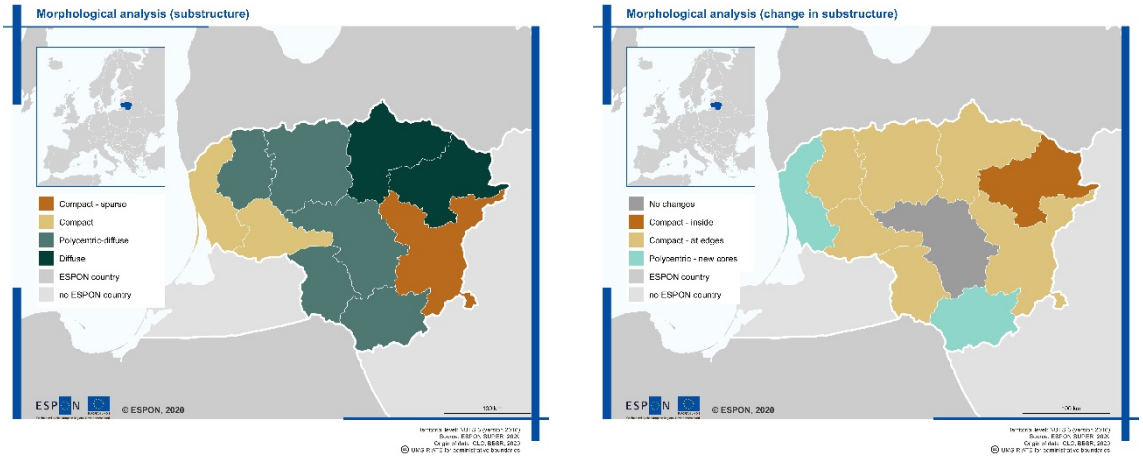
Map 4.7
Main morphological structure and changes in Lithuania, 2000-2018



Source: authors' elaboration

Outside of this relatively compact main structure lies the substructure. This is characterized as more scattered and diffuse (see Map 4.8), which is common in European regions. However, the difference in Lithuania is striking: the substructure of 5 counties is characterized as polycentric-diffuse (Telsiai, Siauliai, Kaunas, Marijampole, Alytus) and 2 counties as diffuse (Panevezys and Utena). Two counties were marked as compact (Klaipėda and Taurage) and one as 'sparse' (Vilnius) – meaning that there is virtually no urban land use outside the main structure. Development in the substructure in the 2000-2018 period also reveals a relatively compact urbanization process: with most building occurring 'at edges' of other urban land uses. However, given the already relatively diffuse urban form in the substructure, building at the edges of these scattered developments will not necessarily lead to more compactness overall. Furthermore, a couple counties were splintering further with the development of new cores (Klaipėda and Alytus).

Map 4.8
Main morphological sub-structure and changes in Lithuania, 2000-2018



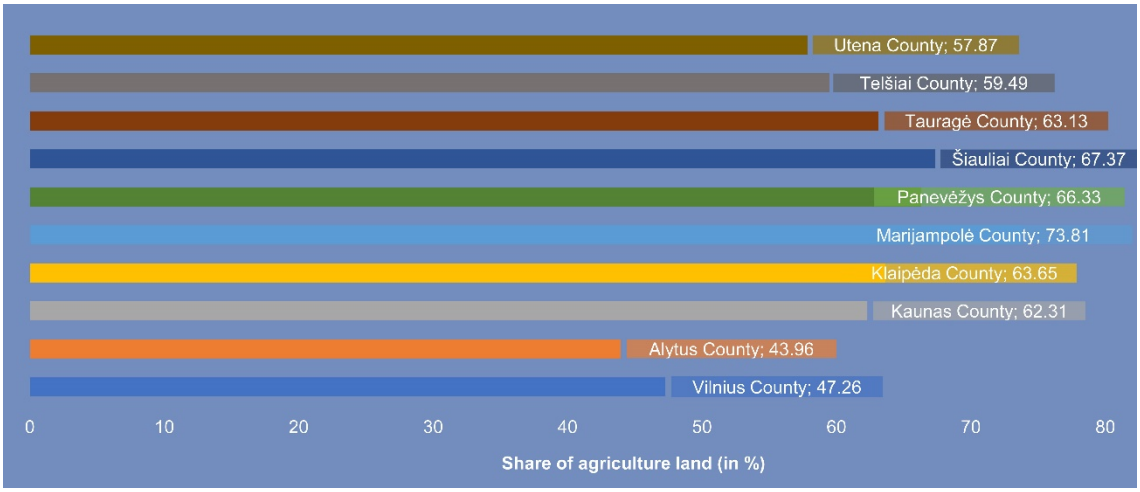
Source: authors' elaboration

4.2.1 Non-urban land-use change

Corine Land Cover includes both urban and non-urban land uses, giving the opportunity to track land-use changes other than (de)urbanization, such as between agriculture and nature. This is particularly important when it comes to shrinking territories where the abandonment of agricultural land is more likely. The data reveals that over half of the territory in the majority of Lithuanian counties is covered by agriculture; Marjampole County has a share of 73% (see Chart 4.4). Only Alytus and Vilnius County have less than 50% agricultural land (43.96% and 47.26% respectively).

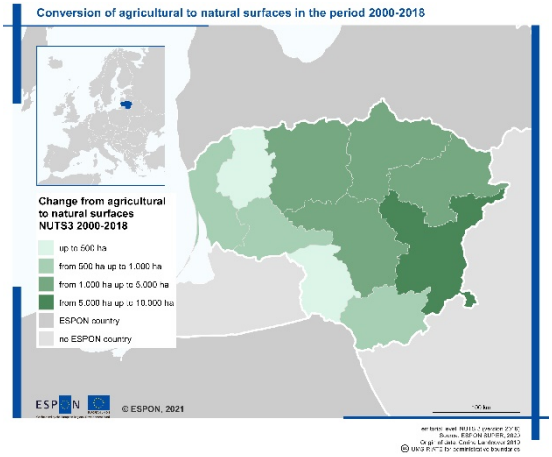
In the 2000-2018 period, all counties have registered a land-use change from agricultural to natural or vice versa (see Map 4.9). In Vilnius County almost 10,000 ha was changed from agricultural to natural and about 2,000 ha from nature to agriculture, implying a net increase of natural land by 8,000 ha in the past eighteen years (see Chart 4.5). In Lithuania as a whole, the net change from agricultural land to nature was about 12,500 ha or about 0.2% of the total surface area. As the country is facing demographic decline, these changes could be attributed to the abandonment of agricultural land rather than policy aiming to increase natural areas. However, the land-cover data cannot tell us anything about the motives behind this land-use change, so without additional research we can only speculate on the drivers behind this change.

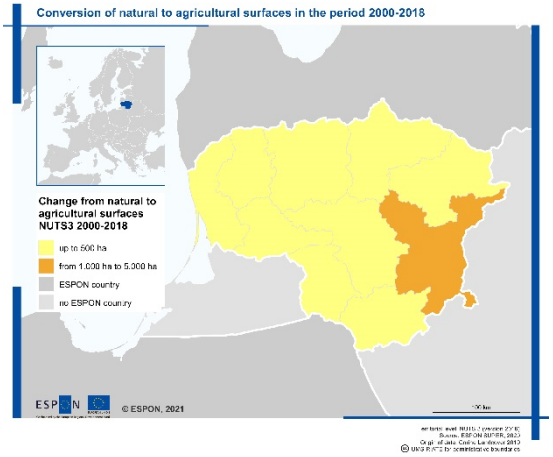
Chart 4.4
Share of agriculture areas in Lithuania, 2018



Source: authors' elaboration

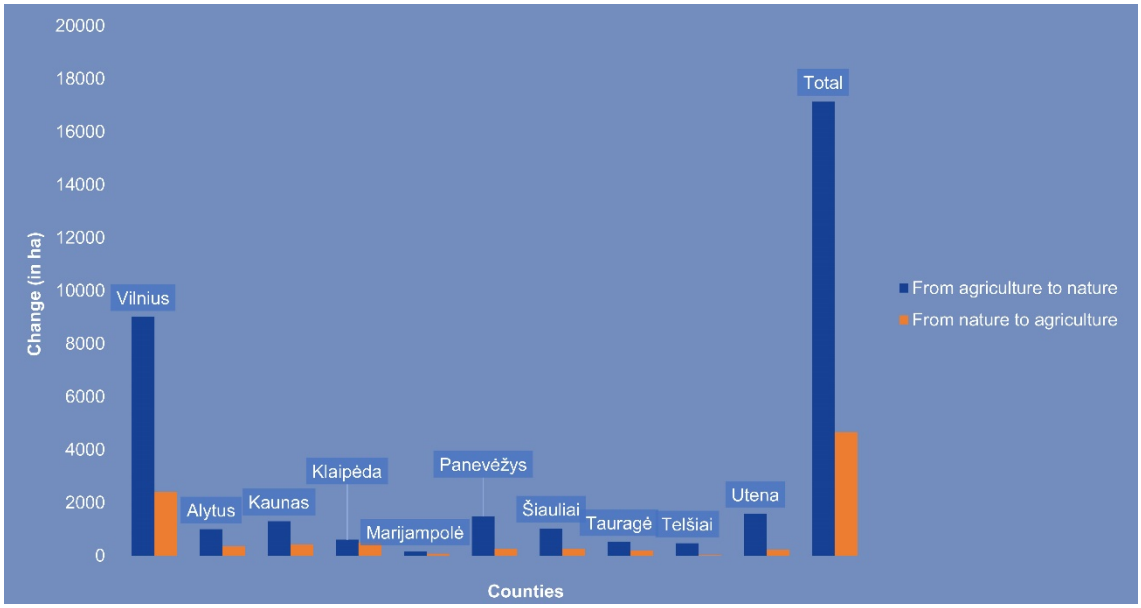
Map 4.9
Conversation of agricultural to natural surface and vice versa in Lithuania, 2000 - 2018





Source: authors' elaboration

Chart 4.5
Land change from agricultural to natural and vice versa in Lithuania, 2000 - 2018



Source: authors' elaboration

5 Institutional context

Over the past three decades, Lithuania has undergone an impressive socioeconomic and institutional transformation (Burneika, et al., 2019). As in other Baltic states, the country has made progress in regional development, territorial governance, and spatial planning (Praneviciene, et al., 2017). Since the early 1990s, a series of reforms were introduced regarding administration structure, self-government, and spatial planning.[1] For almost two decades, spatial planning responsibility was shared among three levels. At the national level, the Lithuanian parliament established the "directions of spatial development of the territory of the State and functional priorities of the use of territories."[2] The regional level (counties) was in charge of regional development. At the local level, municipalities were responsible for organising the preparation of planning documents for urban and rural areas.

After a series of administrative and spatial planning reforms (the most recent in 2017), the spatial planning system now has two main levels: central planning and municipal/local planning (cities or parts thereof, towns or parts thereof, villages and steadings). The central level establishes the general framework (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 of the territory of the country and its parts, comprehensive plans of municipalities or their parts, detailed plans as well as various special plans (e.g. land management documents, special plans of protected areas, plans concerning the protection of immovable cultural heritage, plans for the development of infrastructure) (Gražulevičiūtė-Vileniškė & Zaleskienė, 2016).

The following sections describe the main institutional characteristics of the planning system in Lithuania in more detail. This analysis was conducted to better understand the mechanisms of the planning system in order to make more effective policy recommendations.

5.1 Main administrative arrangement

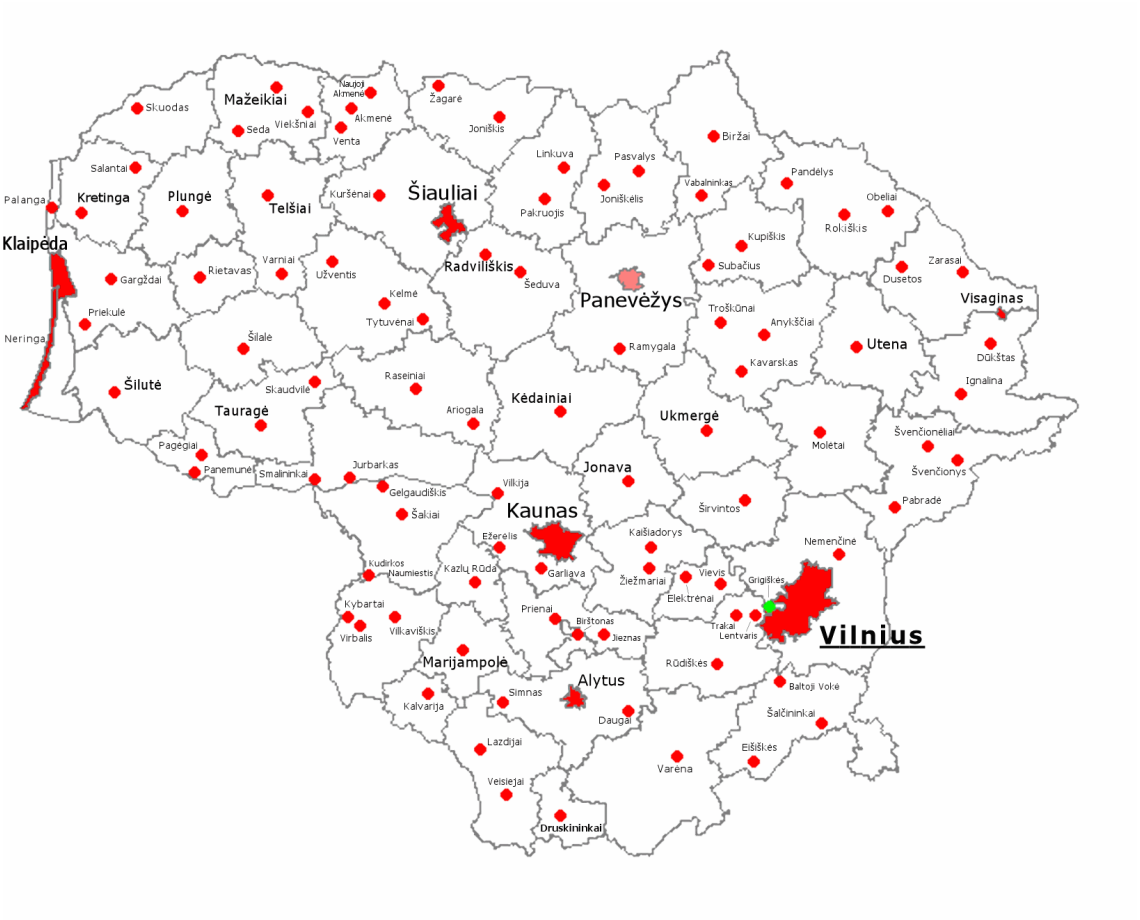
Lithuania is a unitary state with two levels of government: a central government and local governments (European Commission, 2018). Local government is constituted by 60 municipalities, which are considered the lowest administrative tier in the country. Each has the right to self-rule through their respective municipal councils and mayors. Members of municipal councils and mayors are elected directly every four years. Whereas the municipal council and mayor are representative (political) institutions, the director of a municipal administration plays an executive role. Until 2010, the country had an additional administrative tier between the central government and local authorities: county administrations. In 2010, the decree 'Regarding the Abolishment of County Governors' Administrations' (n.248/2010) was adopted, which eliminated about 44% of county responsibilities. Most of these were assumed by the central government and, more sporadically, by municipalities ((National Audit Office of Lithuania, 2011). The former counties are now statistical units without any planning power (ESPON, 2018). This redistribution of county powers has affected various policy spheres including spatial planning and territorial governance (Burneika, et al., 2019) (Gražulevičiūtė-Vileniškė & Zaleskienė, 2016).

At present, Lithuania has 10 statistical regions and 60 municipalities: 9 city municipalities, 43 district municipalities and 8 municipalities (see Map 5.1). Furthermore, Lithuania has 103 urban agglomerations (cities): 14 of which have over 20,000 inhabitants while the remaining 89 cities have less than 20,000 inhabitants. Finally, more than 30% of cities have less than 3,000 inhabitants (34 out of 103). The size, spatial distribution, and relationship among these urban agglomerations influence the way on which territorial development is occurring and land-use changes.

[1] The existing Law on Territorial Planning of the Republic of Lithuania dates back to 1995 despite a series of amendments. The last amendment occurred 2017.

[2] Republic of Lithuania Law on Spatial planning 1995 No I-1120, article 7.

Map 5.1
Territorial subdivision and location of cities in Lithuania, 2020



Source: Government of Republic of Lithuania

5.2 Main spatial planning authorities and their responsibilities

According to the current institutional arrangement established by art. 7 of the law No I-1120 of 1995 and amendments (hereinafter 'the law'), the main authorities responsible for spatial planning are Parliament, the Lithuanian Government and the Ministry of Environment. The Parliament (or Seimas) is in charge of the final approval of any state plan and responsible for promoting and adopting the law's amendments.

The law stipulates that the Lithuanian Government shall perform planning responsibilities such as (but not limited to):

- submitting the directions of spatial development of the territory of the state and functional priorities of the use of territories to the Seimas for final approval;
- approving comprehensive plans of the territory of the state and taking care of state budget funds for the preparation, implementation and monitoring of implementation;
- approving documents on territorial planning of projects of importance to the state and promoting and facilitating public engagement.

The Ministry of Environment is a technical body, which draws up state spatial planning policy and coordinates its implementation, prepares comprehensive plans for the territory or parts of it and carries out the monitoring of implementation of planning documents adopted at the central level.

At the lower level, municipalities/local authorities (cities, villages etc.) are charged with implementing state policy in the field of territorial planning when preparing municipal and local territorial planning documents. They also carry out the monitoring of implementation of municipal and local comprehensive plans. The directors of municipal administrations organize the preparation of plans at the local and municipal level. The municipalities approve the detailed plans themselves. The national level still has the right of requesting modifications or an alignment with central planning goals.

5.3 Main spatial planning instruments

Pursuant to the provision of the current law (Republic of Lithuania, 2017), spatial planning is carried out using two types of spatial planning documents. The first are complex territorial plans (Section 2, articles 10 to 20) that cover a multitude of planning sectors, and the second are special territorial plans (Section 3, articles 21 and 22) that focus on sectoral aspects. Being a hierarchical system, plans at the central level identify national priorities while those at lower levels identify local specificities and needs. The following sections describes the available instruments in more detail.

5.3.1 Instruments at the central level

At the central level, the main planning document is the *Comprehensive Plan of Republic of Lithuania* (CPRL), which establishes guidelines for the implementation of spatial development of the national territory. The plan sets guidelines and spatial provisions for the development and optimization of the territorial urban structure, defines principles for the rational use of land, and identifies matters of national importance. In cases where more specific interventions are needed, the Lithuanian planning system foresees the adoption and the preparation of the *Comprehensive plan of a part of the territory of the country*, which is essentially a zoom-in of the CPRL, offering detailed provisions regarding issues like urban structure and the rational use of land. In addition, there are *planning documents for project of national importance* (Section 4, article 23), which grant exclusive rights under exceptional circumstances. These plans are prepared by the government and do not necessarily correspond with the provisions identified by other plans. Usually these are binding for all and public participation in their development is more limited.

The law provides for special territorial plans aiming to manage territories characterized by a functional commonality. These plans have a sectoral scope such as transport, nature protection, cultural heritage. Article 21 of the law stipulates that the aim of these plans is to:

- facilitate rational use of land, forests and subsoil resources, envisage measures for the protection of the landscape, nature and biodiversity;
- envisage measures for the protection of the landscape, nature and biodiversity;
- establish heritage protection requirements for the protection of immovable cultural heritage;
- develop transport infrastructure, utility networks and energy systems.

The special territorial plans link spatial planning to sectoral standards and regulations (e.g. the Law on Land, the Law of the Republic of Lithuania on Subsoil, the Law on Forestry, the Law on Protected Areas, the Law of the Republic of Lithuania on the Protection of Immovable Cultural Heritage. etc.). Finally, although the law does not establish spatial planning responsibility at the county level, there are examples of county comprehensive plans adopted by the central level.

5.3.2 Instruments at the municipal level

The law provides for three different planning instruments at the municipal level (i) *Comprehensive plan of the municipality*; (ii) *Detailed plans* and (iii) *Documents of special territorial planning*. Accordingly, each municipality should prepare municipal/local comprehensive plans. According to the law (art.14), comprehensive plans must be prepared to prioritize the development of territories. The scope of the plan is to define the directions of functional and spatial development of a territory, optimize the urban/social/infrastructure and provide for the management and preservation of land resources. This plan is binding for state and municipal institutions as well as for other interested parties operating in a territory (including places where detailed plans have not yet been prepared). Those plans may concern the entire administrative territory or part of it, according to contingencies and territorial needs. In both cases, the drafting of the comprehensive plan should respect the minimum requires stipulated in the Rules for the Preparation of Documents of Complex Territorial Planning (art.15).

Each municipality is also charged with preparing *detailed plans*. These are prepared in urbanized and urbanizing territories as indicated in municipal-level comprehensive plans. It is also mandatory for state and municipal institutions. Municipalities are no longer obliged draw up detailed plans if the areas in question are marked as 'projects of importance' at the state level. In concrete terms, detailed plans are operative tools that designate functions (i.e. permitted development) and hence future land use, such as housing, green areas and infrastructure development. Finally, the *documents of special territorial planning* at the national level, specified in Section 5.3.1, can specify provisions for local comprehensive plans. Following a decision by the municipal council, the provisions of these national documents become incorporated as an integral part of the municipal comprehensive plan (art. 22).

5.3.3 Other instruments at the local level

The law (art. 14) stipulates that two additional instruments may be prepared for parts of municipal territories (as cities, towns or villages): the *local comprehensive plan* and its related *detailed plans.* More specifically, local-level comprehensive plans are prepared for priority development territories specified in municipal comprehensive plans (e.g. for cities and parts thereof, for towns and parts thereof and for territories of villages and steadings or following a decision of the municipal council to prepare the comprehensive plan for specific parts of the territory). It is mandatory for state and municipal institutions and entitles them to act while preparing funding and detailed plans. The content and scope of the local comprehensive plan are similar to that of the municipal level (art. 14):

- to establish the directions of functional and spatial development of a territory consistent with the level of planning;
- to optimize the urban structure of the planned territory, its social and infrastructure;
- to provide for measures for the rational preservation and use of subsoil resources, agricultural land, forests and other natural resources, ecosystem services and ecologically valuable land, the formation of territorial structure, preservation of natural and immovable cultural heritage, landscape and biodiversity;
- to implement the provisions of higher-level territorial planning.

Like the municipal level, the local level must prepare detailed plans following the provisions of the respective comprehensive plan. The detailed plans seek to:

- establish regulations for the use of built-up territories and territories envisaged to be built-up and plan the optimal infrastructural network therein;
- identify space for social infrastructure and specify special land-use conditions;
- draw up measures for the preservation and use of natural and immovable cultural heritage and identify areas for development, restoration, protection and management of new and existing green areas;
- identify an optimal urban structure.

6 Overview of land-use change and policy orientations

This chapter gives insight into the workings of planning practices and discourses by focusing on the main formal and informal planning instruments currently influencing the use of land in Lithuania. It does that by presenting some salient interventions dealing with land-use management as well as some examples of good and controversial practices affecting territorial development in Lithuania.

6.1 Examples of interventions that address sustainable land use in Lithuania

This section presents a series of planning and urban development practices that affect land use in Lithuania. It highlights the implications that some policies may have in terms of land use by reflecting on the potential direct and indirect effects of interventions. To this end, the examples have been classified according to their: (i) scale and geographical distribution; (ii) type of territories addressed; (iii) aim of intervention (iv) type of instrument (see Table 6.1). Success was assessed according to the adherence of the examples to sustainable land-use goals on the following scale: 1 - unsuccessful; 2 -scarcely successful; 3 - mixed success, 4 - almost successful; 5 – successful; n.a. – not applicable (see Figure 6.1).

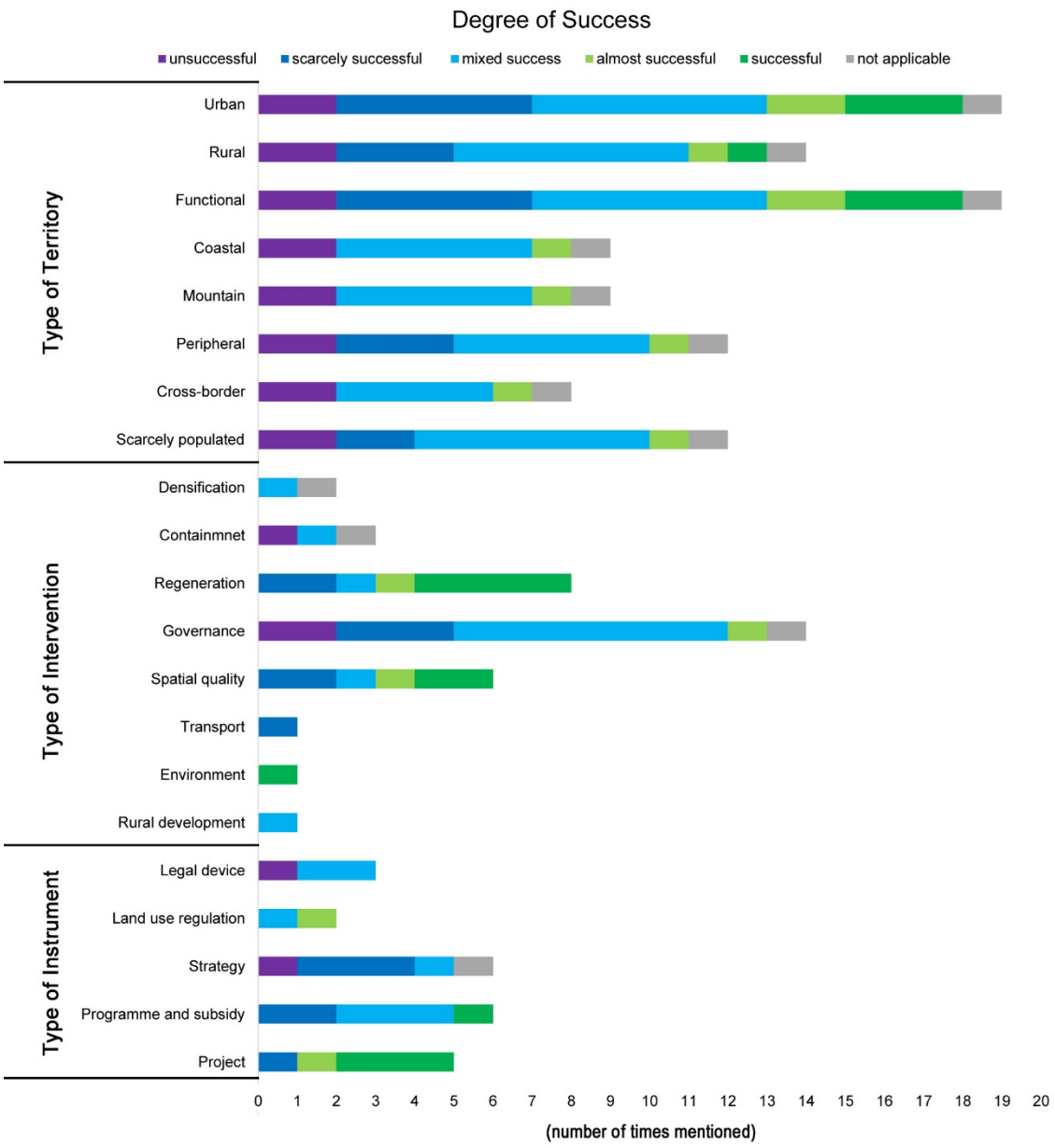
Table 6.1
Number of interventions per analytical category

Scale of interests/geographical distribution			Type of territories			Type of interventions			Type of instruments		
Type	n.		Type	n.		Type	n.		Type	n.
NUTS0	6		Urban	11		Densification	2		Legal device	3
NUTS1	0		Rural	5		Containment	3		Land-use regulation	2
NUTS2	0		Functional	11		Regeneration	8		Strategy	6
NUTS3	3		Coastal	2		Governance	14		Programme and subsidy	6
LAU 1	13		Mountain	1		Spatial quality	6		Project	5
LAU 2	0		Peripheral	3		Transport	1			
			Cross-border	0		Environment	1			
Other	0		Scarcely populated	3		Rural development	1		Other	0
			Other (nation)	9		Other	0			
Total	22		Total	45*		Total	36*		Total	22*

* the total varies because interventions may be included in multiple categories.

Source: authors' elaboration

Figure 6.1
Degree of success of the interventions for analytical category



Source: authors' elaboration

6.1.1 Visions and strategies

Based on the evidence gathered by the SUPER project, one of the characteristics of successful visions and strategies is setting ambitious, future-oriented, and, even more importantly, realistic objectives (ESPON, 2020a).

Lithuania has recently adopted but not yet approved the *Comprehensive Plan of the Territory of the Republic of Lithuania* for 2050 (hereinafter CPRL). The CPRL is the main territorial planning instrument with a long-term vision in the country. The plan aims at "finding an adequate and meaningful path and format for the establishment of sustainable spatial development principles capable to accommodate, align and guide all sectoral national strategies in one direction while being sufficiently flexible and adaptive with respect to future

(long-term) trends and events" (Ministry of Environment, 2020, p. 4). To this end, 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 Environment, 2020, p. 9). The conceptual framework which underpins the plan establishes a series of values, ambitions, and strategies to priorities. In line with the three dimensions of sustainability (economic, social, and environmental) the plan seeks to achieve: (1) Sustainability, balance and harmony; (2) High standard of living today and tomorrow; (3) Vibrant urban structure, viable ecosystem and efficient bio-production. The conceptual framework then elaborates a matrix that correlates spatial systems (e.g. urban, economic, connectivity, ecosystems, and resources) and territorial elements (intense urbanization, agrarian territories, sea and cost and natural territories).

The urban system "must create the most favourable conditions for social, economic, and environmental development of the country and a high standard of living" (Ministry of Environment, 2020, p. 14). Specifically, the conceptual framework promotes a:

- Polycentric urban system (metropolitan, regional, local centres)
- Compact urban development
- Hierarchy of urban centres and connectivity

According to the vision offered by the CPRL, investment in infrastructure and connectivity potentials are strategic priorities for the development of the country itself. One of the main interventions proposed by the CPRL's conceptual framework in relation to sustainable land use is the 'geo-ecological compensation system'. An instrument to preserve valuable land, its objective is to ensure the ecological stability of the entire territory of the Republic of Lithuania in order to create preconditions for the development of a sustainable bio-productive economy and conditions for healthy living and favourable recreation in urban, agrarian, marine, and natural landscapes (Ministry of Environment, 2020, p. 17). This is in line with the ambition of the country to increase overall forest cover of the country to 38% by designating protected areas for more than 20% of its territory.

At the national level, the Lithuanian government has also set *Lithuanian Urban development policy guidelines*. The main aims and scope of these guidelines are municipal housing policy, territorial development, public participation by and cooperation between different actors, urban and nonurbanized territory synergies. Recommendations developed and approved by the Minister of Environment are to be used in municipal strategic planning for housing and urban planning, and perhaps other strategies such as territorial development. These guidelines could be considered as unsuccessful because they are only considered as a heuristic device and because they do not define clear indicators or goals to be achieved.

At the local level, each municipality adopts strategic documents in line with the law's provisions. One example is the *Strategic Development Plan of Kaunas City - Municipality up to 2022* adopted in 2015. It aims to make Kaunas as a sustainable and civic city, a leader in advanced business and innovation, a centre of modern and engaging culture and a home for 'continuously learning and happy' people. One of the Kaunas strategic development plan's priorities is the sustainable development of land and infrastructure. Among other things, the city intends to increase citizens' awareness about issues such as energy efficiency, waste management, and recycling. Several challenges have emerged with respect to this strategic document and the city authorities. The most important are the development of effective city management, the provision of high-quality public services as well as expanding smart city e-services. In addition, modern physical infrastructure, efficient energy systems and consumption, efficient municipal waste management and high-quality and safe transport infrastructure are needed. According to expert opinion, this document has had mixed success because the plan overestimated building volumes and did not take the demographic trends into account.

Even smaller than the previous plan, the *Local Action Plan for Žirmūnai* is a good example for understanding land-use development in Lithuania. Located within Vilnius and promoted by URBACT, the local action plan of Žirmūnai focuses on the actions needed to regenerate the so-called Žirmūnai triangle in a comprehensive and inclusive way. The public space of the neighbourhood is outdated and run-down. There was little improvement over the past decades and more recent projects did not seek to upgrade the entire site in a comprehensive way. The plan and urban vision were prepared together with a local support group. The implementation process is expected to be very intense with many stakeholders involved in various phases under the direction of the Vilnius city administration. According to the URBACT methodology, the project's Local Support Group should continue their involvement in the implementation process. Their role will be to act as a liaison between local residents and the municipality. The municipality will take responsibility for the

public space, pedestrian and bicycle paths, whereas the neighbourhood areas should be maintained and regenerated by local residents. Two pilot neighbourhoods slated for full regeneration will test the methodology, participatory methods and the various financial schemes involved. A caveat is that this process heightens expectations of citizens without guaranteeing significant spatial transformation. According to the expert opinion, the list of interventions as well as the action plan were well-conceptualized, but not implemented due to its complexity and unavailability of the necessary funds.

6.1.2 Rules and legal devices

Sustainable land use can be addressed by deploying specific legal devices, such as binding laws and by-laws, to create a supportive institutional framework (ESPON, 2020a). The initiatives in this category are very diverse, as are their level of implementation and impact on land use.

In 2014, the Environment Minister Order defined new *territorial planning norms*. These new norms essentially define the planning guidelines and regulations for comprehensive plan development. They delineate areas for urbanization, deurbanization, forestry, agriculture, among others. They also state that municipalities shall highlight the territories of priority development for social and physical infrastructure. They also recommend standards such as at least 30 citizens/ha density and 200 meters distance to a street and a maximum distance of 800 meters to public transport. Despite the move towards sustainable land-use principles, the interviews revealed that success is mixed. The norms are useful tools because they are rather prescriptive. This gives them a stronger position in the assessment phase. During 2016, the Lithuanian government issued a decree related to regulate land ownership, management and use as well as to land administration in the Republic of Lithuania, its special economic area, and the continental shelf of the Baltic Sea. The decree mandated that land should be regulated to create the conditions for satisfying the needs of the population as well as natural and legal persons to use the land and engage in economic activities maintaining and improving the natural environment, natural and cultural heritage, and to protect the rights of ownership, management and use of land. As far as its scope is concerned, this decree could be viewed as a success, but relative to sustainable land-use goals it was regarded as rather unsuccessful. According to the experts, this law allowed citizens to increase soil consumption especially in agricultural areas due to the latitude given to farmers.

One of the most interesting legal devices related to sustainable land use is arguably the *real estate tax act* adopted by the Lithuanian government in the early 2000s. This signalled an attempt to devise a new system by integrating real estate (including land) tax regulations into a single law. This tax is only paid by companies and owners of real estate deemed high-end (0.3% to 3% of value annually), while the land tax is paid by every landowner (0.01%-4%). Municipalities determine the actual percentage but the 'value' here is the official appraised value, which may be lower than the market value. According to the expert opinions, this act has had controversial results with respect to both its own aims and sustainable land use. By increasing taxes on city centres (high-end real estate), it encourages sprawl to peripheral areas where taxes are lower.

6.1.3 Land-use regulations

Land-use regulations establish binding principles, usually through zoning, that define how land can or cannot be transformed (ESPON, 2020a).

As mentioned, the Lithuanian Law on Spatial Planning (last revision in 2017) introduces the comprehensive plan as a legal document at the central and municipal level to regulate landscape management, land-use and zoning, infrastructure, green spaces, cultural heritage, mobility and recycling and energy. Building densities and heights are defined in the plans as are provisions for industry, manufacturing, and other functions.

Another regulation that affects the land-use regulation is the *National Landscape Management Plan*. According to the European Landscape Convention (ELC), it sets provisions for landscape development, protection and management. In addition, it lists the actions employed to fulfil the ELC requirements. The plan defines zones of landscape management, determines their regulatory regime and development trends. Moreover, the plan contains suggestions for urban and natural framework development. It prescribes measures to strengthen the ecological stability of landscapes and protect natural and cultural landscapes recognized as being of outstanding beauty. Finally, it provides a territorial analysis of cultural heritage and describes priority actions to help preserve it. According to the experts' observations, this planning tool is particularly useful because its prescriptions are binding for both central and local plans.

Another important intervention, in this case related to mobility, is the *Sustainable Urban Mobility Plans (SUMPs)*. These seek to develop 9 thematic areas: the Promotion of public transport, Non-motor vehicle integration, Modal shift, Traffic safety and transport security, Improvement of traffic organization and mobility management, City logistics, Integration of people with special needs, Promotion of alternative fuels and clean vehicles, Assessment of Intelligent transport systems demand. SUMPs are based on already established city planning processes and closely linked to a city's master plan. Funds are available for SUMP implementation: cities can prepare a budget and apply for funds reserved for sustainable transport activities. Allocation is carefully managed and evaluated to make sure that the SUMP development will occur. It is expected that 18 cities/towns will be initially targeted. The top five most populated cities (526,000 to 97,000) have been granted 'high priority' while the next nine cities (with populations of between 57,000 to 25,000) have been designated 'priority'. Four more have been given 'special preference' due to being either coastal or spa resorts. In terms of sustainable land use, this plan is not very successful because it is primarily related to mobility. The majority of experts felt that one of the drawbacks of urban development in Lithuania is the infrastructure development model pursued until now. This has dramatically increased private transport, and with it, demand for roadways. On the other hand, public transportation is relatively unattractive. In this respect, expectations are high among the interviewed experts for the new law on infrastructure, which entered into force on 1 January 2021, because it can help readjust the existing transport and infrastructure model.

6.1.4 Programmes

Programmes are policy packages aiming at a particular objective over time. They can be used to create economic conditions (e.g. financial schemes, direct investments, allocation of developing funds) for sustainable land use (ESPON, 2020a). Lithuania has been experimenting with a series of programmes to address (directly or indirectly) sustainable development in a more comprehensive and multidimensional way.

Among the most used instruments falling into the programme category is the *Integrated Territorial Investment* (ITI). In the framework of the 2014-2020 cohesion policy, Lithuania uses ITI to implement an integrated strategy for its territory. The key elements of ITIs are: (i) a designated territory and an integrated territorial development strategy; (ii) a package of actions to be implemented and (iii) a governance arrangement to manage the ITI. Among the ITI experiences, the Vilnius case is noteworthy as it defines a strategy for the integrated sustainable development of Vilnius city for 2014-2020 and elaborates the action plan with a view of ensuring an efficient utilization of the investment of EU structural funds. Investments in urban public infrastructure are planned according to the ITI instrument tested by EU Member States. The projects in Vilnius are planned according to the programme for upgrading public infrastructure in five major cities, which has been allocated € 43.5 million from the EU. Specific actions are implemented by applying an ITI-based model: setting target territories and adopting and implementing integrated development programmes. ITI programmes are drafted by municipalities in cooperation and consultation with central and local government authorities (including ministries, universities, territorial labour exchange offices and other public bodies), social and economic partners and the local community. Despite being attractive instruments to promote development, ITI implementation sometimes does not always conform with the provisions of existing statutory plans, which can cause friction.

Like many other EU countries, Lithuania has implemented a number of *Local Action Group Initiatives* (LAGs) for rural and peri-urban areas. Building on the successful LEADER programme, the topics covered by the LAGs are many, including social integration, public participation, public engagement/community-initiated development strategies (spatial and non-spatial, hard or soft). Legally, a LAG is a non-profit organization made up of public and private organizations drawn from rural villages having a broad representation from different socioeconomic sectors. Through the European Agricultural Fund for Rural Development (EAFRD) and other funds, LAGs can apply for grants to implement the local development strategy of their respective territory. According to the experts interviewed, the role of LAGs in Lithuania are important as are their supported initiatives. The LAGs have been able to address sustainability issues. The programme has allowed local organizations to promote the rehabilitation of existing buildings and open spaces using innovative experiences based on citizen participation and new forms of social responsibilities.

Quite different from ITI and LAGs, Lithuania is designating several *Free Economic Zones* (FEZs). In particular, seven FEZs are located throughout the country and offer extremely attractive conditions for locating businesses (e.g. ready-to-build industrial sites with physical and/or legal infrastructure, support services, and tax incentives). Businesses choosing to locate in these zones enjoy 0% corporate profit tax during their first 10 years of operation and only 7.5% tax over the next 6 years. Moreover, no taxes are levied on dividends and real estate. These kinds of economic programmes are often implemented in conflict with existing plans.

In some cases, FEZs have contributed to concentrated development, while in others have it stimulated diffuse urbanization. The Marijampolė Free Economic Zone (Baltic FEZ), for example, provides an opportunity for investors to use roadways and railroads to transport their cargo to Europe and Asia. The Rail Baltica line will provide fast (120 km/h) and efficient cargo transport between Scandinavia, Eastern and Western European countries. Marijampolė also provides the wide Russian standard track, which is well-accessible by road. Therefore, the Baltic FEZ terminal seeks to allow for seamless logistics between the narrow and wide railway track standards and motor freight transport between Scandinavia, Europe and Asia. Baltic FEZ has 80 hectares of industrial plots. Part of the land is intended for medium pollution level enterprises. Using the EU Structural Funds, each parcel will be equipped with all the necessary infrastructure: electricity, water supply, wastewater and storm water drains, category C and D access roads as well as lightning and gas pipelines. In terms of the scope of the intervention, Baltic FEZ can be seen as a relative success. However, according to sustainable land use, success is very low, partly because the implementation of the FEZ of Rail Baltica Route has not always been in line with plans provision.

Lithuania is also experimenting with economic programmes like the *regional housing policy* introduced in 2018. The goal of the policy is to help young families buy their first home and thereby help to reduce emigration and the decline of non-metropolitan areas. This subsidy scheme allows a family (i.e. a couple under 36 years old, generally with small children) to apply for a loan to build a new house or purchase land for housing. Based on the number of children in the family, the government covers from 15% up to 30% of the total costs. Most of the areas highlighted by the scheme are in district municipalities (including rural and peri-urban areas). Most municipalities which have a high housing demand (e.g. Klaipeda, Kaunas, Vilnius), as well as tourist-status cities, are not eligible. With respect to the policy's own objectives, the government claims it was successful as all funds were spent. With respect to sustainable land-use principles, it can hardly be viewed as successful since the majority of families purchased housing near the bigger cities (in metropolitan areas), thus intensifying suburbanization.

A noteworthy programme at the local level is the *Renovation of Heritage Buildings Programme* of Kaunas. One of the main tools within this programme is the Kaunas Municipality Wealth Management Program, which supports public and private actors to rehabilitate buildings with specific cultural heritage characteristics. Funds from the programme are distributed in two ways. In the first, up to 100% of the programme funds can be allocated for: (i) the management and/or adaptation of buildings with the cultural value of the Municipality whose management has been transferred to other entities like non-profits and NGOs; (ii) extraordinary maintenance work on municipal cultural heritage; (iii) other properties of exceptional importance, for the management and/or adaptation of the Municipality's real estate to the needs of persons with disabilities. The second one, up to 50% of the Program funds can be allocated to the management and/or adaptation of other immovable cultural properties of the Municipality for the installation of decorative lighting. According to the expert opinions, this programme is quite successful since several projects are approaching the implementation phase others are already concluded. Last year, owners of 114 buildings used Kaunas City Municipality funds for restoration.

6.1.5 Projects

Projects are individual ad hoc initiatives within a given timeframe. They can be used for the implementation of permanent or provisional of transformations of sites with the aim to foster sustainability (ESPON, 2020a).

Projects can act as a vehicle for sustainable land use but also produce unsustainable development and land overconsumption. The panorama of recent development projects in Lithuania includes both good practices and more questionable examples with respect to sustainable land use. A particularly successful project in this regard is the *PAUPYS* project that helped regenerate a former industrial area of seven hectares in the old town of Vilnius into a destination for both residents and tourists. Its success reflects the decision of the initiators to reclaim public space by paying heed to all three dimensions of sustainability. A side effect was the partial gentrification the area. A similar example is the *Ogmios City* project which sought to transform a underutilized outlet centre into a full-fledged and fully integrated city quarter. By applying subtle changes, this former soviet army base was infused with urban qualities which changed its image and use. An excellent built and natural environment became the aim of this project. To support sustainable lifestyles, the *White Bridge project* and the intervention of *bike path and riverfront reuse in Vilnius* represent two human-scale sustainable transport solutions and accessible green spaces. The White Bridge project realized nine beach volleyball courts, three basketball courts, children's playgrounds and outdoor training and skating courts on an area of nearly 9 hectares. Sports equipment has been installed, trees have been planted and new pedestrian and cycle paths have been designed (approximately 1.4 km of bicycle paths and approximately 3.6

km of pedestrian paths were renovated in this part of the quay terrace). Thanks to the project *bike path and riverfront reuse in Vilnius,* over 12 km of cycle paths have been installed and refurbished in the capital. In addition, 1,500 new bicycle parking stands will be installed throughout the city. The municipality also addressed citizens informally occupying plots for planting fruit trees and small-scale vegetable cultivation.

Not all projects are aligned with sustainable land use, the *Akropolis shopping mall* being a case in point. The new shopping mall is perceived as an intervention mainly driven by economic motives, rather than social or environmental ones. This lack of success is partly the result of unclear urban policy and the rigidity of a plan which was not able to capture the added value of the development.

6.1.6 Assessment of interventions

As illustrated above, no intervention type is fully sustainable or unsustainable (Solly, et al., 2020). Using the sustainability assessment framework developed in the ESPON SUPER project, each identified intervention in Lithuania was assessed according to a number of indicators measuring the economic, the ecological and the social dimensions of sustainability. More specifically, the economic dimension of sustainability takes into consideration: the GDP and wealth, the public finance, jobs, accessibility, the development of business areas, the quality of housing demand, the transportation costs as well as the energy consumption. The ecological dimensions used the following indicators: reducing mobility (by car), reducing pollution (including CO_2), green urban areas, biodiversity, land consumption, natural hazards, climate change, consumption of resources, renewable energy, space for future water retention and circular economy. The indicators used for the social dimension of sustainability are: health, affordable housing, equity/inclusion, public and recreational space, variety (high-rise, suburban, etc.), mixed-use areas and satisfaction with home environment. The assessment of the interventions was made on the basis of expert judgement and placed on a Likert scale (ESPON, 2020d):

- Double minus (- -): strong negative impact (with respect to the indicator)
- One minus (-): negative impact
- +/- means conflicting impacts
- One plus (+): positive impact
- Double plus (+ +): strong positive impact
- n.a. – not applicable/available (e.g. insufficient data to evaluate impact).

Based on the results of the assessment presented in Table 6.2, one can conclude that planning strategies like the CPRL score quite high on sustainable land use. On the other hand, economic programmes like the Free Economic Zones, are more one-dimensional. It is interesting to note that many interventions seek to reduce car mobility and pollution. Moreover accessibility and the development of green areas also seem important issues. This double assessment (i.e. using expert judgment and indicators) can help to highlight possible side effects of land-use policies.

Table 6.2
Sustainability assessment of indicators

	Interventions	Dimensions of Sustainability																								
		Economic Sustainability								Ecological Sustainability											Social Sustainability						
		GDP, wealth	Public finance	Jobs	Accessibility	Business areas	Housing demand	Transportation costs	Energy consumption	Reducing mobility (by car)	Reducing pollution, including CO2	Green urban areas	Biodiversity	Land consumption	Natural hazards	Climate change	Consumption of resources	Renewable energy	Space for future water retention	Circular economy	Health	Affordable housing	Equity/inclusion	Public and recreational space	Variety (high-rise, suburban, etc.)	Mixed-use areas	Satisfaction with home environment
1	Regional Housing Policy	+/-	+/-	+/-	+	++	++	+	-/+	-	+/-	-	-	- -	-	-	- -	+/-	-	-	+	++	++	+/-	+	+	+
2	Sustainable Urban Mobility Plans (SUMPs)	+	+/-	+	++	+	+	++	+/-	++	++	+/-	+/-	-	-	-	-	-	-	+/-	+/-	+	+/-	+/-	+/-	+	+/-
3	Comprehensive plan of municipality	+/-	+/-	+/-	+/-	+	+	+/-	+/-	+/-	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+	+/-	+/-	+/-	+	+	++	++
4	National Landscape Management Plan	n.a	n.a	n.a	n.a	n.a	n.a	n.a.	n.a.	n.a.	+	++	++	++	++	++	++	++	++	++	+	n.a	n.a	n.a	n.a	+	+
5	Lithuanian Urban development policy guidelines	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+/-	+	+	+	+	+/-	+/-	+/-	+	+/-	+	+/-	+/-	+/-	+/-	+/-	+/-	+/-
6	Territorial planning norms	+	++	+	++	+	+	+/-	+/-	+	+/-	++	+	+	+/-	+/-	-	+/-	+/-	+	+	++	+	++	+/-	++	++
7	New Comprehensive Plan of the Territory of the Republic of Lithuania	++	+	+	++	++	+	+	+	+	+	+	++	+	++	++	++	++	++	+	+	+	+	+	+	+	++
8	Lithuanian land law	+	+	+	+/-	+/-	++	- -	- -	+/-	-	+/-	- -	- -	-	-	- -	-	-	+/-	+	+ +	+/-	+/-	+/-	-	+/-
9	Local Action Groups	+/-	+	+/-	+	+	+/-	+/-	n.a	n.a	n.a	+/-	+/-	+/-	n.a	n.a	n.a	+/-	n.a	++	+	+	++	++	++	++	+
10	PAUPYS	++	+	++	++	++	++	++	+	+	+	++	+/-	+/-	+/-	+/-	+/-	+	n.a	+	+	++	++	++	++	++	++	++
11	Real Estate Tax Act	++	++	+	++	++	++	+	n.a	n.a	n.a	+/-	n.a	n.a	n.a	n.a	n.a	n.a	+/-	n.a	++	+	+/-	+/-	+	+	+
12	Integrated Territorial Development Programmes in Vilnius	+	+	+	+	+	+	+/-	+/-	n.a	n.a	+	n.a.	n.a	n.a	n.a	n.a	n.a	n.a	++	+/-	+/-	+/-	+	+/-	+/-	+/-
13	Shopping mall - Akropolis	++	-	++	++	++	--	-	+	-	-	- -	- -	- -	- -	- -	- -	+ +	- -	+/-	+/-	- -	- -	+ +	+/-	+/-	+
14	Strategic Development Plan of Kaunas City - Municipality Up To 2022	+	+	+	++	++	+	+	+	+	+	++	+	+	+	+	+	+	+	++	+	++	+	++	+	++	++
15	Ogmios City	+/-	+	+/-	++	+	++	+	+	+	+	++	+	+	+	+	+	+	+	++	+	++	+	++	+	++	++
16	White Bridge Project	n.a	n.a	n.a	++	+/-	+/-	n.a	n.a	n,a	n.a	++	++	++	++	++	++	++	++	++	+	n.a	++	++	+/-	++	++
17	Bike path and riverfront reuse in Vilnius	n.a	n.a	n.a	++	n.a	+/-	n.a	n.a	++	++	++	++	++	++	++	++	++	++	++	+	+/-	+/-	++	+	++	++
18	Renovation of Heritage Buildings Programme of Kaunas	+	+	+/-	++	+/-	++	+/-	++	+/-	+/-	+/-	n.a	++	n.a	n.a	+	++	n.a	+	++	+	+	++	++	++	++
19	Integrated Territorial Development Programmes	+	+	+	+	+	+	+/-	+/-	n.a	n.a	+	n.a.	n.a	n.a	n.a	n.a	n.a	n.a	++	+/-	+/-	+/-	+	+/-	+/-	+/-
20	Free Economic Zone	++	++	++	++	++	++	++	++	-	- -	-	n.a	n.a	n.a	n.a	n.a	+/-	n.a	+	n.a	n.a	-	-	-	-	-
21	Marijampolė Free Economic Zone (Baltic FEZ)	++	++	++	++	++	-	++	- -	- -	- -	-	n.a	n.a	n.a	n.a	n.a	+	n.a	+/-	n.a	n.a	-	-	-	-	-
22	Local Action Plan for Žirmūnai triangle in Vilnius	+/-	+/-	+/-	+/-	+/-	n.a	+/-	+/-	+/-	+/-	+/-	n.a	n.a	n.a	n.a	n.a	n.a	n.a	+	+/-	+/-	+/-	+/-	+/-	+/-	+

Source: authors' elaboration

6.2 Current land-use practices in Lithuania

This section gathers together the insights of key actors interviewed on driving forces, spatial developments, and the main unsolved land-use issues in Lithuania. According to the interviews, the principles of land use in Lithuania are the object of discussion. Since 1989, the spatial planning system has become more responsive to new social, economic, and environmental needs. This adaptation process has been not always been as sustainable as it could have been. Indeed, a combination of institutional and cultural factors have hampered sustainable land use.

Institutional factors: responsibilities

Since it gained its autonomy, Lithuania has undergone a process of institutional reform that has concerned both administrative arrangements as well as the spatial planning system. Land-use mechanisms have often changed, with often unpredictable consequences for territorial development. According to the interviewees, even though sustainable development is a core principle of the Spatial Planning Law of the Republic of Lithuania since 2014 (Klimas, 2020), in practice, the reform created favourable conditions for uncoordinated development between the central and local level. Despite the subsequent amendments, diffuse urbanization continued. The difficulty in coordinating planning activities was also shown by the abolition of the regional level in 2010, and with it, regional spatial plans. Although this institutional adjustment produced some undesirable effects in the eyes of some interviewees, the current administrative and spatial organization seems able to respond to territorial needs and priorities. The respondents agreed that there was still room for improvement, particularly with respect to the coordination between policy sectors (see the case of the Agriculture Law and the regional housing policy of 2018).

Finally, administrative fragmentation was recognized as a problem in Lithuania. As a result, there is more competition than cooperation among municipalities in terms of spatial development. Authorities compete for things like funds, investments, and public services. This institutional arrangement is not conducive for promoting sustainable urbanization.

Institutional factors: instruments

For many years, experts and practitioners have recognized the importance of adopting a national vision on spatial development in Lithuania. In this respect, all interviewees warmly welcomed the introduction of the new CPRL. All agreed on the importance of having instruments with a long-term perspective (2050), and which establishes principles, values and spatial trajectories to help central and local authorities in the coming years. The experts point out that adopting this document does not necessarily mean that the problems will be solved. The CPRL leaves some room open for discussion, particularly:

- It does not mention any mechanism for implementation – which in the long run can be seen as a weakness of the instrument;
- It identifies very few environmental targets to be achieved in terms of sustainable land use. This does not help the monitoring of subsequent phases of implementation;
- It supports intermunicipal cooperation (partnership complementarity) by allowing municipalities to definite a shared vision of territorial development. However, it is not clear about how to do that.

The CPRL states that cooperation of regions and municipalities (synergy) must create preconditions for the implementation of the principles of sustainable development, ensure the smooth functioning of the country's internal systems and elements, preserve and emphasis the country's identity, develop the foundations of a competitive state (Ministry of Environment, 2020).

According to the experts, plans at the local level should be more tailored to the real territorial needs and sustainable development priorities. They argued that plans at the local level often lack the vision to move beyond greenfield development. In many cases, plans overestimated building volumes, and allotted more land for development than necessary. This is particularly regrettable as Lithuania has lost 23% of its inhabitants in the past 25 years, dropping from 3.7 million in 1992 to 2.8 million in 2017 (Pociūtė-Sereikienė & Kriaučiūnas, 2018). Except in some areas surrounding major cities, the need for more urban land cannot be supported by appeals to increasing population. Moreover, plans at the local level have been incapable of managing the territorial imbalances and shrinking processes facing most municipalities. Their rigidity and often inadequate municipal staff inhibit the efficiency of these plans. According to one expert, one drawback to this kind of plan is the fact that the municipality should take the initiative to adapt the plan. The experts

call for a more open mechanism to allow for a general revision in cases of plan discrepancy or inadequacy. The only thing that a natural/legal person can do is to take the initiative for a detailed plan which is mainly a matter of urban design rather than planning activity. In the majority of cases, the municipality has not enough technical capacity to change the plan. For this reason, it is difficult to improve existing plans and progress toward sustainable urbanization.

Cultural behaviour and attitude

Sustainable land use is also a matter of social behaviour. According to the interviewees, the 'Americanization' of Lithuanian society has played a key role in unsustainable development behaviour. For more than two decades after the fall of the Berlin Wall, the progressive privatization of land and individual ambitions to have their own home with private garden impacted society. This desired lifestyle, supported by an increasing supply of new housing stock and private transport impacted territorial development. Other factors help drive suburbanization as well. Market actors are wary about regeneration (too expensive and time consuming) and prefer greenfield development. Finally, for several years, politicians have used spatial planning as a tool to achieve political legitimacy (i.e. votes and re-election) rather than an instrument to effectively address territorial development.

According to the interviewees, only in the last decade is this mentality starting to change. Attention for quality of life, participation of citizens in decision-making processes and environmental movements are all opening up new possibilities for sustainable land use. Recently, more and more people have been participating in planning thanks to the possibility to present observations, amendments or requesting plan modification. The role of the public is twofold: as observers of planning process and as promoters of more open and inclusive and less technical and bureaucratic planning procedures. This new attitude of citizens towards public affairs and sustainable development is also accompanied by a diverse attitude of public actors towards improving environmental solutions, supporting brownfield transformation and regeneration. Despite improvements made in this direction, the NIMBY (not in my backyard) attitude persists and influences public decisions on development. Finally, all interviewees agreed that citizens are slowly becoming more conscious of the importance of the environment and its preservation. In addition, recent global environmental movements have raised awareness about enhancing the quality of life. According to the experts, the increasing role of citizens in planning process will be one of the main challenges and an engine of change towards a more sustainable land use. In this respect, any initiative that allows citizen empowerment should be welcomed.

6.3 Final remarks and main challenges for addressing sustainable land use in Lithuania

As the quantitative and qualitative analysis on land use in Lithuania illustrated, the country is facing a series of challenges that will influence territorial development in the upcoming decades (e.g. population decline, shrinking territories, diffuse urbanization). As a complex phenomenon, land use deals with a multitude of socioeconomic, institutional and cultural aspects. Sustainable land use is rather central in the CPRL's vision for 2050, which means that there is a degree of political will towards this end. However, some institutional mechanisms and cultural attitudes could hamper the capacity of the CPRL to achieve its ambitions:

- *Lacking strategical approach* - until now there has been insufficient institutional and political long-term reasoning, which has contributed to the implementation of short-term visions. The discussion triggered by the CPRL on land use and strategic territorial development, is quite novel and opens up new perspectives. In this respect, the institutional and political challenge is to fully capitalize on the ideas and principles which have emerged in order to establish a more collaborative approach between market, academia and public sector on how to implement sustainable land-use practices;
- *Lacking coordination* - another sensitive issue is the coordination of major sectoral initiatives impacting land use. Sectoral initiatives are sometimes not well coordinated with spatial planning. Except for the mobility strategy, there are no other noticeable strategies from other sectors. The main challenge is to support the sectors to adopt and implement sectoral strategies that support the CPRL objectives.
- *Lacking cooperation* - administrative fragmentation has increased economic and even fiscal competition between municipalities. This process creates undesirable effects in terms of sustainable land use (e.g. spatial competition, increasing of land transformation, shrinking areas). The main challenge in this regard is how to promote cooperation among municipalities in several fields (economic, fiscal, transport, for instance) including spatial planning;

- *Lacking shared cultural behaviour* – due to a series of socioeconomic, cultural and political contingencies, sustainable land use has not been at the top of the political agenda. The challenge is to increase citizen awareness of the importance of sustainable land use. This can be done by promoting inclusive and effective participation in planning processes, supporting the dissemination of land-use initiatives, and by creating institutional capacity building for public servants.
- *Rigidity of plans* – in many cases plans indirectly support diffuse urbanization. This is done by overestimating demographic trends and thereby issuing too many development rights. Secondly, plans offer little latitude for revision in cases of discrepancy or inadequacy or when new contingencies require adaptation. The challenge is to provide room for easy and fast revision of plans by introducing some flexibility mechanisms that can still guarantee a certain level of coherence with the main plan provision.

7 Selecting interventions from the SUPER guide

According to the CPRL, sustainable land use is a priority for Lithuania. The plan devotes a great deal of attention to prioritizing compact urban development and regenerating existing built-up areas. In light of this, this chapter presents an in-depth analysis and critical reflection on how the ESPON SUPER project can help Lithuanian public bodies address territorial development. By learning about relevant experiences elsewhere in Europe, Lithuanian policymakers should be in a better position to make the right choice at home.

Building on the main domestic needs and challenges identified in Chapters 4, 5 and 6 of this report, this chapter presents examples of interventions drawn from the SUPER project that can inform the implementation of the CPRL in Lithuania. The *SUPER Guide to sustainable urbanization and land use* and the SUPER intervention database contains a wealth of information to this end. Twenty-five examples were selected from these two sources according to their scope, lessons learned and relevance (see Table 7.1). These interventions are discussed according to their type.

Table 7.1
List of interventions selected based on type of instruments

Type Instruments	Name	Country	Type of intervention
Visions and strategies	Vision Rheintal of Vorarlberg	AT	Containment
	Tri-City metropolitan area planning	PL	Governance
	High urban density expansion in Amsterdam	NL	Densification/Regeneration
	Corona Verde	IT	Containment
	Brownfield development target in the United Kingdom	UK	Regeneration
		Total	**5**
Rules and legal devices	Referendum to limit land take	CH	Containment
	Weber Law	CH	Containment
	Vorarlberg Land Transfer Law	AT	Containment
	Resolution on construction fee in Emilia Romagna Region	IT	Regeneration and Containment
	Development and Maintenance Fee in Upper Austria	AT	Containment
	Soil compensation account introduced in Dresden	DE	Containment
	Law on protection of agricultural land Czech Republic	CZ	Containment
		Total	**7**
Land-use regulations	Municipal operative plan of the city of Reggio Emilia	IT	Containment
	Municipal Structural Plan of the Union of Municipalities of Bassa Romagna	IT	Containment
	Province of Utrecht	NL	Containment

Type Instru-ments	Name	Country	Type of intervention
	Territorial Action Plan of the Huerta de Valencia	ES	Containment
	Rural Park South	IT	Containment
	Physical Environment Special Plan Protection of Andalucia Region	ES	Containment
		Total	**6**
Programmes	Incentives to increase roof greening in Linz	AT	Regeneration
	22@Barcelona programme	ES	Regeneration
	Piano Periferia 1 and 2	IT	Regeneration
		Total	**3**
Projects	Royal Seaport eco-district project	SE	Regeneration and Densification
	Dublin Docklands	IE	Regeneration and Densification
	South Harbour in Copenhaghe	DK	Regeneration and Densification
	Eco-Viikki in Helsinki	FI	Spatial Quality
		Total	**4**

Source: authors' elaboration based on the ESPON SUPER Intervention Database

7.1 Visions and strategies

Visions and strategies are instruments that can help decisionmakers and policymakers address sustainable lend use. 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.

The SUPER database contains a spectrum of such interventions in European countries (see Table 7.2). *Vision Rheintal of Vorarlberg* (AT) is a good example of how to promote and support the creation of an interconnected polycentric region, that may prove relevant for the Lithuanian context. This was done by promoting cooperation within the region, supporting cross-border cooperation, creating an interconnected living space, and fostering and enhancing regional awareness and regional identity. A similar example is the *Tri-City metropolitan area planning* in Poland which seeks to realize a harmonious, complete, and dynamic development of the area. It urges intermunicipal cooperation while still respecting the tradition and identity of each city. Both initiatives take an integrated approach to urban containment by facilitating investment on e-mobility transportation, encouraging densification along public transport routes, and improving intercity connections within the region.

The implementation of CPRL can also benefit from the experience of local strategies such as the *high urban density expansion in Amsterdam* that aims to retain open areas while promoting compact, attractive urban areas. Amsterdam's approach is twofold: i) adding building volume (i.e. strategies 'create', 'fill' and 'top-up'); ii) transforming the existing urban structure (i.e. strategies 're-uses' and 're-structures'). This policy of densification is necessitated by the fact that Amsterdam is surrounded by areas where building is not permitted or feasible (e.g. water bodies, Natura 2000 habitats, UNESCO sites).

As shown by the land-cover data, urbanization in Lithuania mainly takes place at the urban fringe. The Italian experience of *Corona Verde* in the Metropolitan Region of Turin (Italy) can provide inspiration for managing the development of urban edges. In this initiative, 81 municipalities banded together via inclusive participation processes to promote an alternative vision of the territory based on environmental quality and quality of life. The success of this strategy is demonstrated by its capacity to mobilise substantial funds for implementing short-term projects, which fit within the wider long-term strategy.

Another advantage of visions and strategies is their ability to set realistic and measurable targets. A particular successful case is the *brownfield development target* in the United Kingdom. The UK Government set a target that at least 60% of all new housing should be built on brownfield land by 2008. This target was not just met, but greatly exceeded – 80% for the country as a whole, and considerable local variation (ESPON, 2020c).

The SUPER Guide notes that, as any other tool, visions and strategies can have side effects or fail to produce results. The following recommendations can help improve effectiveness:

- support the creation of unified territorial perspectives for territories that share similar needs and challenges. Because territorial development is not homogenous in Lithuania (e.g. population development) this requires place-sensitivity when drafting visions and establishing targets;
- complement visions and strategies with economic feasibility programmes to guarantee a certain level of effectiveness. Visions and economic programmes in Lithuania are not as integrated or effective as they could be;
- ensure political commitment: strong, stable, and sustained political will makes a big difference.

Table 7.2
Selection of visions and strategies

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
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	Its objective is to have a harmonious, complete, and dynamic development of the of Tri-City metropolis.	It 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	It aims to reduce soil consumption and enhance high density urban development.	Interventions can promote compact and yet attractive urban areas.	Lithuania suffers from a diffuse urbanization structure.
Corona Verde	IT	Containment	Promotes an alternative vision of the territory based on environmental quality and quality of life. Promotes containment interventions.	The success of this strategy is demonstrated by its capacity to mobilise substantial funds for implementing short-term projects that all fit within the wider long-term strategy.	Since urbanization in Lithuania generally occurs at the urban fringe, this example shows how containment principles can be implemented when involving over 80 municipalities.

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
Brownfield development target in the United Kingdom	UK	Regeneration	The UK Government set a target that by 2008 at least 60% of all new housing should be built on brownfield land. By 2008, brownfield housing development was closer to 80%.	Defining measurable targets pays off. Regeneration of brownfields offers a concrete alternative of consuming land.	Lithuania has considerable building areas that can be reconverted.

Source: authors' elaboration based on the ESPON SUPER Intervention Database

7.2 Rules and legal devices

As highlighted in the SUPER project, sustainable land use can be addressed via laws, regulations, and norms. This can occur within the spatial planning field as well as other sectors. One approach is by adopting *ad hoc* laws and norms (e.g. on land use or environmental protection) as well as disincentives (e.g. fees, ad hoc taxes) (ESPON, 2020a). This section offers examples of such interventions relevant to the Lithuanian context (see Table 7.3).

Starting with spatial planning, a widely successful initiative in Europe is the *referendum to limit land take* in Switzerland (CH). The aim of the referendum was to curb urban sprawl and promote infill development. The referendum stipulated that additional urban land can be zoned only if a real need can be demonstrated (ESPON, 2020a). Such direct democracy instruments are typically used to enhance citizen awareness on the subject and obtain political legitimacy to regulate land consumption. Even if it is not easily replicable – due to institutional mechanisms and cultural attitudes – citizens can take ownership of land-use issues at both central and the local level by increasing participatory mechanisms. Another Swiss example is the *Weber Law*. This initiative is interesting for two reasons. First, it aims to reduce land consumption and preserve Switzerland's natural beauty by limiting the construction of second homes. Secondly, it sets measurable targets – no more than 20% of a municipality's housing can be second homes. This rule is useful to prevent tourist destinations from being overexploited and reduce the diffusion of empty or temporary occupied structures.

A sensitive issue in Lithuania is the use of rural land. The fragmentation of agricultural land and the possibility to build almost everywhere (pursuant to the agriculture law), drives diffuse urbanization. An interesting intervention to consider in this regard is Austria's *Vorarlberg Land Transfer Law* (AT), which seeks to curb agricultural land development by mandating 'functional continuity', meaning that the changing of ownership will not affect land use; its continuity is guaranteed by law. Even though this rule was not fully implemented, its aim is relevant for the Lithuanian situation. Soil quality standards can also offer a means to promote sustainable urbanization: the Czech law on *protection of agricultural land* (CZ) establishes that high-quality soil (ranked first and second on a 5-point scale) can be used for building only if other public interests override the public interest of protecting fertile soil. This helps decisionmakers and policymakers direct urbanization away from valuable agricultural areas.

Sustainable land use can also be achieved via financial (dis)incentives or compensation mechanisms. A major problem in Lithuania is how to make the reconversion of existing building areas more attractive and greenfield development less attractive. Many interventions studied in the SUPER project seek to do just that. Among these, three cases stand out. The *Development and Maintenance Fee* applied in the region of Upper Austria (AT) charges a fee for landowners to help finance new infrastructure. The *double urbanization fees* in Emilia Romagna (IT) decided (by resolution No. 186/2018) to double urbanization fees for projects that convert agricultural land into built-up area and, while decreasing these fees by at least 35% (local administrations can reduce it to 100% if necessary) for projects that aiming at rehabilitating abandoned areas. Finally, the *soil compensation account* introduced in Dresden (DE) aims to limit built-up land for settlements

and infrastructure to 40% of the total urban land. It also forces developers to carry out compensation measures or pay a compensation fee when they consume land.

The implementation of rules and legal devices does not guarantee success. Based on experiences in Europe, the following recommendations are in order:

- be clear about objectives (e.g. limiting land consumption, protecting valuable natural areas, controlling housing markets). This does not always occur in Lithuania (e.g. agricultural land).
- be strict (as appropriate to the institutional context). This is particularly important when setting norms with operative land-use targets.
- be technically feasible. Institutional feasibility (often an issue in Lithuania) should also be taken into account.

Table 7.3
Selection of rules and legal devices

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
Referendum to limit land take	CH	Containment	The referendum was on curbing urban sprawl and promoting infill development. Additional land can only be zoned if a real need exists.	Citizen awareness counts. Political legitimacy can be gained by implementing deliberative mechanisms.	Public participation matters.
Weber Law	CH	Containment	This combats land consumption by limiting the construction of second homes and by capping second homes per municipality at 20% of the housing stock.	It is important to define clear and measurable targets.	Since the law on agriculture is too generous with giving landowners building rights, such restrictions could help reduce urbanization rates, especially in tourist areas.
Vorarlberg Land Transfer Law	AT	Containment	Maintains the functional continuity of agricultural land. It does so by regulating the transferability of agricultural land.	Functional continuity is an efficient way to reduce agricultural land fragmentation.	By imposing restrictions on use, this can reduce land speculation and unnecessary development.
Resolution on construction fee in Emilia Romagna Region	IT	Regeneration and Containment	The initiative doubling urbanization fees for projects that convert agricultural land into built-up areas and decreases these fees by 35% to 100% for projects aiming to rehabilitate abandoned areas.	Construction fees can be used as either incentives (carrot) or disincentive (stick).	Usually investors are reluctant about regeneration and high-density building and prefer greenfields.

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
Development and Maintenance Fee in Upper Austria	AT	Containment	The initiative levies an infrastructure fee on the owner.	Introducing ad hoc fees can reduce urbanization and level the balance between market needs and greenfield preservation.	Infrastructure is a driving force behind urbanization. By passing these costs on to developers, this can slow out-of-town urbanization.
Soil compensation account introduced in Dresden	DE	Containment	This confines built-up land for settlements and traffic to 40% of the total urban land. It also forces investors to compensate for the loss of soil.	Containment can be achieved by urbanization caps and charging fees.	These types of measures can limit the unnecessary use of land, supporting local municipalities in the identification of alternative solutions/locations.
Law on protection of agricultural land Czech Republic	CZ	Containment	It mandates that high-quality soil can only be used for building only if other public interest prevails above the public interest to protect this soil.	Soil quality can be a route to promote sustainable urbanization.	It is possible to direct urbanization away from areas with high-quality soil.

Source: authors' elaboration based on the ESPON SUPER Intervention Database

7.3 Land-use regulation

Plans can be deployed both to promote urban development or protect land from development (ESPON, 2020a). In general, planning documents are well regarded and understood by experts in Lithuania. Their hierarchical organization and rationale are clear. However, the daily practice of planning requires some improvements. The rigidity of plans, overestimation of buildable areas and excessive competition between municipalities indirectly favour unsustainable land use. The SUPER database presents a number of noteworthy examples of plans (see Table 7.4).

The city of Reggio Emilia (IT) drew up its *municipal operative plan* dealt with the problem of overestimating demand for urban development. This plan sought to reduce the number of areas that had been zoned for urban uses, but still remained unbuilt. Since landowners pay taxes based on the value of the zoned land, stripping development rights also yielded a financial benefit. Via cooperation between municipalities and landowners, over 135ha urban land zones were rezoned to rural functions since 2015; a second phase has removed an additional 70ha. In this way, the municipality reclaimed its power of (re)organizing its territory. Similarly, the Province of Utrecht (NL) has used its power to draw up an imposed land-use plan to reduce development rights for unbuilt office space by rezoning sites (ESPON, 2020a).

Land-use regulations can help reduce competition among municipalities. As confirmed by experts and recognized in the CPRL, spatial competition is one of the main drivers of diffuse urbanization. The *Municipal Structural Plan of the Union of Municipalities* of Bassa Romagna (IT) offers a good example of what can be done to limit intermunicipal competition. In this case, 9 municipalities came together to draw up planning tools to better address sustainable land use. The adoption of the plan and the further consolidation of the 'Union' into a level of administration helped to reconcile the divergent interests, as did the introduction of a system of compensation across municipalities.

Other useful examples that can support Lithuania in its quest for sustainable land use include: *The territorial Action Plan of the Huerta de Valencia* (ES) and *Rural Park South* in Milan (IT) and the *Physical Environment Special Plan Protection of Andalucia Region* (ES). The first two cases aim to reduce pressure on the metropolitan area of Valencia and Milan – two cities characterised by unprecedented urban development. In Andalusia, the region introduced quantitative urbanization caps for medium and large municipalities (40% of previously existing urban land or 30% of the previously existing population within eight years) as well as coordinating the management of protected natural areas (ESPON, 2020a).

According to the SUPER project, land-use regulations have a greater chance to succeed if:

- they find an optimal balance between the need for development and the need for sustainable land use. Often the former is privileged at the expense of the latter, especially where speculative market mechanisms are dominant, such as in in Lithuania where market forces and intermunicipal competition produces diffuse urbanization;
- they promote sustainable land use by reducing development rights. Thinking qualitatively instead of quantitatively can help put the need for urban development into perspective. In Lithuania this is quite urgent since plans often overestimate need even in the face of demographic decline;
- they are conceptualized as instruments to not only develop land, but also protect it from development. Plans can contain measures of urban containment and the protection of agriculture/natural land. In Lithuania, this could help to reduce urban diffusion.

Table 7.4
Selection of land-use regulations

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
Municipal operative plan of the city of Reggio Emilia	IT	Containment	It seeks to reduce the number of areas which had been zoned for urban uses but remained unbuilt.	The municipality was able to reclaim power to (re)organize its territory.	Spatial plans in Lithuania often overgenerous in granting development rights. In many cases, sites remain untouched for years impeding alternative uses.
Municipal Structural Plan of the Union of Municipalities of Bassa Romagna	IT	Containment	It seeks to limit competition between municipalities for development by building a common strategy. Using a cooperative approach, 9 municipalities worked together to draft planning tools to better address sustainable land use.	Cooperation between municipalities is viable and often pays off in terms of sustainable land use.	One of the drivers of diffuse urbanization is intermunicipal competition for funds and investment. Cooperation can increase the capacity for implementing sustainability measures.
Province of Utrecht	NL	Containment	It removes development rights for zoned urban land (primarily unbuilt office space) via an imposed land-use plan.	If legally binding, plans can be used to convert unbuilt urban zones to another use.	Since Lithuanian plans often overestimate development need, this intervention provides an example to deal with unbuilt zoned land.

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
Territorial Action Plan of the Huerta de Valencia	ES	Containment	Reducing or limiting pressure on the metropolitan area by preserving agricultural land.	An environmental approach can protect agricultural land from urban growth.	Agricultural land is under pressure in Lithuania, particularly near the main cities.
Rural Park South	IT	Containment	Reducing or limiting the pressure on the metropolitan area by preserving agricultural land.	Plans can help prevent soil sealing by establishing strong and binding norms.	Containment measures like those applied in Milan, can help control land consumption by guaranteeing the preservation of valuable rural land near urban areas.
Physical Environment Special Plan Protection of Andalucia Region	ES	Containment	The plan imposes binding targets (quantitative urbanization caps for medium and large municipalities) at the regional level.	Measurable targets can support sustainable land use.	Until now, Lithuania does not have land conservation targets.

Source: authors' elaboration based on the ESPON SUPER Intervention Database

7.4 Programmes

Throughout Europe, a number of interesting programmes have directly or indirectly promoted fair, equal, and balanced land-use practices (ESPON, 2020a). As seen in Section 6.1.4, Lithuania is already implementing programmes that affect land use, but their impacts are often questionable since the spatial dimension is not always considered. The SUPER database contains examples of programmes that promote sustainable land use (see Table 7.5).

Programmes can create favourable economic conditions for the rehabilitation of industrial areas. A case in point is the *22@Barcelona programme* (ES). The Special Infrastructural Plan that financed this programme enabled the transformation of 200 ha of industrial land in Poblenou into an innovative district offering modern spaces for commercial and knowledge-based activities. Similarly, since 2015, the *Piano Periferie 1 and 2* programmes (IT) aim to recover abandoned and deprived areas by investing in environmental, social and economic sustainability by allocating € 4 billion to improve urban peripheries by prioritising urban transformation and regeneration of abandoned areas. Finally, *incentives to increase roof greening* in Linz (AT) enhanced spatial quality and reduced land consumption in existing building areas. Since 2008, Linz has been recognised as the leading green roof city of Austria (ESPON, 2020c).

These examples clearly show that programmes can effectively promote regeneration if they are:

- properly designed to avoid or limit side-effects and trade-offs. This is particularly important when sectoral initiatives do not take spatial dimension into account (e.g. the Lithuanian Ministry of Interior's housing subsidy scheme);
- focused 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;
- 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.

Table 7.5
Selection of programmes

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
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.	Enhancing spatial quality can occur via the rehabilitation of existing urban stock.
22@Barcelona programme	ES	Regeneration	Rehabilitation 200 ha of industrial land into an urban district offering modern spaces for commercial and knowledge-based activities.	Regeneration programmes can support sustainable urbanization if political will exists.	Lithuania has many abandoned areas that can be rehabilitated.
Piano Periferia 1 and 2	IT	Regeneration	Aims to recover abandoned and deprived areas by investing in environmental, social, and economic sustainability.	Investing in the regeneration and reconversion of existing building plots can promote sustainability.	Lithuania has many abandoned areas that can be rehabilitated with special focus on social initiatives.

Source: authors' elaboration based on the ESPON SUPER Intervention Database

7.5 Projects

The quality of projects as well as their means of implementation can complement sustainable land-use objectives. Lithuania has examples of high-quality projects that promote sustainable development (see Section 6.1.5), but more can be learned by looking over the border. All over Europe, successful projects abound that foster sustainable urbanization by supporting densification, regeneration, and containment. Some are more market oriented or public-led, while others focus on citizen participation (see Table 7.6).

A starting point is the *Royal Seaport eco-district* project (SE). This promoted sustainability in Stockholm by combining regeneration of spaces with densification. Given that the city has limited space for greenfield development, densification measures are needed to accommodate population growth. This kind of project requires a high degree of cooperation between public and private actors as well as political will. An analogous example is the reconversion of *Dublin Docklands* (IRE) that, despite initial criticism for being isolated, included sustainable urban development solutions with much attention for public space. Some regeneration projects rely on strong public participation. One interesting case is the *South Harbour* in Copenhagen which reconverted hectares of industrial areas into liveable public spaces. It is held in high regard because it emphasizes both spatial-physical issues as well as socially-oriented ones. Taking a more environmental approach, *Eco-Viikki in Helsinki* (FL) demonstrates how new living standards can be successfully adopted to create minimal environmental impact: the average 'sealed surface per capita' is in this project much lower than single-family houses, and average energy consumption per household is extremely low. Indeed, Eco-Viikki (1999-2020) has been hailed as a reference project in Europe.

On the basis of the SUPER project evidence base, successful projects are those that:

- are part of a long-term territorial vision but focus on short-term objectives. This is very important when it comes to the implementation of projects within spatial plans. Plans can inhibit innovation even when market parties are willing to implement sustainable solutions;
- combine economic priorities (cost-efficiency), environmental priorities (environmental quality) and social priorities (citizen involvement, social housing, quality of space, etc.). These kinds of projects can also benefit from development programmes.

Table 7.6
Selection of projects

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
Royal Seaport eco-district project	SE	Regeneration and Densification	The project combined the need for regeneration and densification.	Cooperation between actors is important. Uncoordinated initiatives may produce overall failure.	Not all projects are balanced. In certain cases regeneration (and densification) happened at the expense of social and economic needs.
Dublin Docklands	IE	Regeneration and Densification	Aimed at reusing urban resources left vacant from the shifting dynamics of port facilities, deindustrialization, and the emergence of a services-based economy.	Including sustainable urban solutions with strong attention of social and urban spaces, is important.	Coastal areas can benefit from projects where regeneration meets the need for more public space and citizen involvement.

Name	Country	Type of intervention	Main scope	Lessons Learned	Reasons of why is important for Lithuania
South Harbour in Copenhaghe	DK	Regeneration and Densification	It has contributed to the conversion of hectares of industrial area into liveable public space.	Regeneration is a complex process that includes both a physical and a social dimension.	Coastal areas can benefit from projects where regeneration meets the need for more public space and citizen involvement.
Eco-Viikki in Helsinki	FI	Spatial Quality	Sought to reduce the human footprint and promote an environmentally oriented approach	New living standards can be successfully combined with standards for minimal environmental impact.	New interventions in Lithuania do not always include all dimensions of sustainability.

Source: authors' elaboration based on the ESPON SUPER Intervention Database

8 How to achieve sustainable urbanization

Decisionmakers and policymakers play a key role in addressing territorial development. As democratically elected representatives, decisionmakers have a political mandate to define policy objectives on what spatial development direction(s) should be pursued. As public servants, policymakers are responsible for selecting or drawing up instruments to achieve the objectives by decisionmakers in an effective and efficient way (ESPON, 2020a).

This chapter offers guidance to Lithuanian decisionmakers and policymakers active at central and local levels. The recommendations and warnings presented in this chapter are based on the interventions collected in the ESPON SUPER project. These were analysed in light of the Lithuanian context in the previous chapter and fine-tuned in a focus group organised with the stakeholder commissioning the study.

Before presenting the recommendations and warnings, it is important to recall the following:

- Lithuania is faced with a dramatic demographic decline (some counties have lost over 30% of their inhabitants since 2000). This fact should be taken into account when identifying the future development trajectories;
- Not all parts of the country are characterised by similar urban development patterns and trends. National priorities and instruments should take local specificities into account;
- No linear relationship exists between demographic trends and urbanization. Various counties continue to urbanize as their population falls;
- Urbanization and land-use patterns are not in synchronicity. Urbanization is accelerating in some territories (e.g. Klaipeda), while in others (e.g. Vilnius) this is decelerating. This calls for customized solutions for urbanization and land use;
- There has been a net change from agricultural to natural land of about 12,500 ha over the 2000-2018 period, which corresponds approximately to 0.2% of Lithuania's total surface area. This is more likely a product of rural abandonment than nature policies;
- The morphological analysis of the main structure and substructure shows a gradual shift from a rather compact model towards more diffuse urbanization.

8.1 Recommendations for the national level

8.1.1 Decisionmakers

The following suggestions are directed at Lithuanian decisionmakers at the national level which can identify the course of action to take. These recommendations concern the content of potential interventions, the approach taken and implementation mechanisms:

- *Set clear and future-oriented objectives*. Goal-oriented and measurable objectives should be set to address sustainable land use. The CPRL, and especially its implementation programmes, should identify both long-term and short-term land-use objectives aligned to the achievement of the 'zero land take for 2050' target set by the European Union. This should be accompanied by the adoption of a long-term vision to provide a framework for short-term operational goals. Clear future-oriented national objectives – valid for the country as a whole – should be identified, but specific targets and indicators should be set locally to consider local specificities and needs. This will help decisionmakers to align their ambitions to the attributes and opportunities of local territories, which should expedite their achievement.
- *Take a collaborative approach*. An inclusive discussion that takes a long-term perspective on sustainable land-use should occur throughout the country, involving stakeholders active at the different territorial levels and within the public and private sector and civil society. The participatory process activated during the drafting of the CPRL should not be discarded after the document's approval. On the contrary, the discussion should be continued and strengthened during implementation in order to enable continuous reflexive monitoring. This is particularly important when it comes to

involving civil society in the process of co-decision making and, more generally, to promote horizontal and vertical coordination to overcome silo-mentalities and fragmentation. Participatory mechanisms should be supported by a comprehensive communication strategy, that organizes information an accessible way. This also enhances public participation and deliberative mechanisms. The distance between public actors, private operators and citizens can be reduced by organizing seminars, workshops, and public talks where participants can share their ideas, values and principles regarding land-use. At the same time, this provides the opportunity for learning that sustainable urbanization is not a mere technical issue but a collective responsibility.

- *Use open and coordinated implementation mechanisms*. The vertical and horizontal transfer of concepts, ideas and targets on sustainable urbanization and land-use should be pursued. Due to the complexity of the issue, one should strive towards cross-fertilization and the cultivation of synergies between the actions of the sectors influencing urbanization and land use. In order to avoid generic solutions and uncoordinated initiatives, cooperation should be increased between relevant actors from the central to the local level. 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. Guides, handbooks, and manuals should be drafted to enhance horizontal coordination of the CPRL's content.

8.1.2 Policymakers

The following suggestions are directed at Lithuanian policymakers at the national level, which are responsible for designing the implementation of decisionmakers' choices. This can be done by introducing new instruments or (re)applying those already in place. In both cases, policymakers should be aware that:

- *Interventions may have side effects*. As demonstrated in this report, policy initiatives (and especially those of a more sectoral nature) sometimes cause unforeseen and undesirable effects on urbanization and land-use. To avoid this, ex-ante territorial impact assessments (TIA) can be carried out to predict potential effects on land-use. Operatively, the TIA can be performed either as a part of the Strategic Environmental Assessment (SEA), or integrated into general land-use planning procedures. TIAs should be conducted for all interventions that may have a direct or indirect impact on urbanization (i.e. plans, economic programmes, sectoral strategies). Ideally, sectoral policies should be developed in harmony with an overall long-term development vision of the country's territory.
- *Incentives and disincentives can impact sustainable urbanization*. Incentives and disincentives can alter the payoffs of actors active in the development processes (e.g. municipal governments, private developers). They can also help to level the playing field so to reward cooperation rather than competition. Although there are no guarantees for success, well-calibrated (dis)incentives that are context-sensitive can help achieve desired outcomes. For instance, brownfield regeneration can be supported by discouraging greenfield development (e.g. imposing development fees). Success can be geographically determined: some work better near growing main cities than remote areas suffering demographic decline. In the latter case, regeneration can be promoted by encouraging densification and providing incentives to reduce soil sealing;
- *Monitoring and assessment are crucial for reflexive policymaking*. Establishing measurable and realistic targets makes it easier to monitor performance on sustainable urbanization and land-use indicators. This should be accompanied by an observatory that sets the principles for monitoring and evaluation (qualitative and quantitative indicators), supports and organizes the platforms for gathering and processing data and assists local municipalities in monitoring the achievement of the identified targets. This activity can also support revisions and updates of spatial development strategies and instruments. This will require s thorough process of data collection and systematization aimed at increasing digitalization and filling gaps. It is also necessary to improve links between spatial data and indicators and policy objectives and instruments, for instance, by developing ad hoc indicator systems that are representative of local spatial characteristics that can be employed to measure achievements.

8.2 Recommendations for the local level

8.2.1 Decisionmakers

Decisionmakers at the local level are charged with realizing central political priorities, addressing local needs and priorities, while at the same time ensuring that the two cohere. Decisionmakers should be aware of the considerable territorial differences within the country. Accordingly, local decisionmakers should:

- *Contextualize objectives and policies*. It is important to bear in mind that different territories have different problems and opportunities and that initiatives that may prove successful in one territory can produce unwanted results in another. This is particularly true in the case of Lithuania which, if one excludes the three main urban nodes (Vilnius, Kaunas, and Klaipeda) is predominantly composed of small municipalities. Local decisionmakers should be particularly careful when applying centrally defined objectives and policies to their territories. Tailored solutions will increase the chance that planning instruments will be successfully implemented and socially accepted;
- *Create conditions for a place-based political cooperation*. Smaller cities can benefit from coordination and cooperation mechanisms such as shared development strategies and joint development programmes. The concept of functional areas can be useful in this regard, particularly when delineating cooperation areas. In the long run, 'cooperative territories' will gain a competitive advantage vis-à-vis areas acting in isolation. Regions that move from internal division to cooperation increase their capacity to attract public and private investments and can make better decisions about where these investments can be put to use. Cooperation can be facilitated by establishing compensation mechanisms to share development gains among municipalities according to objective indicators. To gain acceptance for such schemes, it is important to underline their net economic advantages (e.g. better economic performance, institutional capacity, and services) as well as the disadvantages that acting in isolation brings (e.g. higher operational costs, low efficiency, worse services). Intermunicipal cooperation should be rewarded by central government. Finally, new leadership models are required for cooperation mechanisms.
- *Be open to and supportive of public participation*. European experiences have shown that public participation is a key factor for improving the sustainability of spatial development. Place-based initiatives should be promoted so that plans, projects, or programmes are accepted by civil society. Effective and true public participation can also trigger synergies between different types of knowledge and actors (e.g. technical knowledge of experts, entrepreneurial knowhow, tacit knowledge of residents), and therefore can aid the development of objectives and actions that are coherent with the public interest and the territorial specificities.

8.2.2 Policymakers

Policymakers at the local level act at the nexus between spatial planning activities at the different levels and the actual development and transformation of land. They play a crucial role since their everyday activities shape urbanization dynamics. In this context, local policymakers should be aware that:

- *No single spatial planning instrument is sufficient*. Plans are incapable of reducing land consumption on their own: they must be supported by additional measures for implementation. All spatial planning instruments should be accompanied by adequate political support for implementation. Similarly, financial support is needed for proactive development instruments. Planning tools at the local level should be better connected to the municipal strategic development plan. Similarly, local development strategies and plans should be framed within national comprehensive strategies and plans and pay attention to the objectives and priorities of EU cohesion policy. This can help spatial plans to work in tandem with economic programmes, which should improve their chances of success;
- *Be aware of unwanted effects and trade-offs*. Some instruments can trigger uncontrolled or unwanted effects in terms of land conversion or unexpected trade-offs. This can happen when (a) instruments are too rigid and technical, (b) they are not based on a clear long-term vision (c) they are not supported by adequate public engagement mechanisms. In such cases, instruments can become ineffective or even detrimental to sustainable urbanization. It is therefore important that plans (a) incorporate mechanisms enhancing flexibility (e.g. include exemptions or waivers for full

planning procedures) (b) adopt a holistic approach that considers the different dimensions and implications of urbanization and (c) facilitate public engagement via deliberative mechanisms;

- *Sustainability dimensions should be integrated*. This can be done by taking into consideration economic, social, and environmental dimensions simultaneously without privileging any of them. Moreover, the institutional dimension of sustainability (i.e. the institutional conditions needed for successful implementation) must also be taken into account. Finally, the temporal dimension of sustainability should be considered to ensure that the proposed intervention will continue in the future. These can be supported by incorporating local interventions into medium and long-term strategies.
- *Institutional capacity building matters*. The CPRL will benefit from the mobilization and empowerment of civil servants and experts within the institutions relevant to its implementation. The focus of capacity building activities should vary. Capacity building initiatives should focus on: (i) strategic thinking and visioning on sustainability; (ii) informing civil servants and experts on the importance of implementing and monitoring SGDs; (iii) exploring ways for municipalities to benefit from land-value capture; (iv) supporting the development of initiatives that allow experts and civil servants to understand climate-change impacts and plan mitigation measures accordingly.

In conclusion, building on the ESPON SUPER experience and on what we learned from the application of its main messages to the context of Lithuania, there seems to be a large array of socio-economic and cultural factors that affects how land is used. The Lithuanian case study clearly shows that each territorial context contains specific land-use challenges and thus requires tailored actions. Land-use challenges differ within each country as well: Lithuania is emblematic as its territorial diversity is relatively high.

When zooming out, however, a number of land-use principles and attitudes come into view that seem valid in most cases and contexts. Applying such sustainable urbanisation principles is a responsibility that concerns all actor categories: government, the business sector and civic society. The most successful examples developed elsewhere in Europe demonstrate that a well-balanced representation of interests helps to achieve more sustainable urbanization, but when only selected interests are taken into account, results are often more controversial.

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Co-financed by the European Regional Development Fund

Inspire Policy Making with Territorial Evidence

ESPON 2020

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The ESPON EGTC is the Single Beneficiary of the ESPON 2020 Cooperation Programme. The Single Operation within the programme is implemented by the ESPON EGTC and co-financed by the European Regional Development Fund, the EU Member States and the Partner States, Iceland, Liechtenstein, Norway and Switzerland.